Annotated Bibliography
Journal Articles Published in 2016
On
HIV and Aging
For
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prepared by site Editors
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These are articles that pertain to the domain of HIV and Aging.
Most studies done outside the USA are not included unless pertinent.
Some articles which do not focus on older adults are included
when the findings are relevant to the older adult living with HIV.

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A. Mental Health - Depression, Substance Use


Smoking is a potential risk factor for age-related cognitive decline. To date, no study has examined the association between smoking and cognitive decline in men living with human immunodeficiency virus (HIV). The aim of this present study is to examine whether smoking status and severity in midlife is associated with a rate of decline in cognitive processing speed among older HIV-seropositive and HIV-seronegative men who have sex with men. Data from 591 older HIV-seropositive and HIV-seronegative men who have sex with men from the Multicenter AIDS Cohort Study were examined. All participants had information on smoking history collected before age 50 years and at least 5 years of follow-up after age 50. Smoking history was categorized as never smoker, former smoker, and current smoker and cumulative pack years was calculated. The raw scores of three neuropsychological tests (Trail Making A, Trail Making B, and Symbol Digit Modalities tests) were log transformed (Trail Making A and B) and used in linear mixed models to determine associations between smoking history and at least subsequent 5-year decline in cognitive processing speed. There were no significant differences in the rates of neurological decline among never smokers, former smokers, and current smokers. Findings were similar among HIV-seropositive participants. However, an increase of 5 pack-years was statistically significantly associated with a greater rate of decline in the Trail Making Test B score and Composite Score (beta -0.0250 [95% CI, -0.0095 to -0.0006] and -0.0077 [95% CI, -0.0153 to -0.0002], respectively). We found no significant association between smoking treated as a categorical variable (never smoked, former smoker, or current smoker) and a small change in every increase of 5 pack-years on measures of psychomotor speed and cognitive flexibility. To optimize healthy aging, interventions for smoking cessation should be tailored to men who have sex with men.


We measured the trend of cigarette smoking among HIV-seropositive and seronegative men over time from 1984 to 2012. Additionally, we examined the demographic correlates of smoking and smoking consumption. Six thousand and five hundred and seventy seven men who have sex with men (MSM) from the Multicenter AIDS Cohort Study (MACS) were asked detailed information about their smoking history since their visit. Prevalence of smoking and quantity smoked was calculated yearly from 1984 to 2012. Poisson regression with robust error variance was used to estimate prevalence ratios of smoking in univariate and multivariate models. In 2012, 11.8 and 36.9 % of men who were enrolled in the MACS before 2001 or during or after 2001 smoked cigarettes, respectively. In the multivariate analysis, black, non-Hispanic, lower education, enrollment wave, alcohol use, and marijuana use were positively associated with current smoking in MSM. HIV serostatus was not significant in the multivariate analysis. However, HIV variables, such as detectable viral load, were positively associated. Though cigarette smoking has declined over time, the prevalence still remains high among subgroups. There is still a need for tailored smoking cessation programs to decrease the risk of smoking in HIV-seropositive MSM.


AIM: To determine if efforts to improve antiretroviral therapy (ART) adherence minimizes the negative impact of depression on human immunodeficiency virus (HIV) outcomes. METHODS: A cross-sectional study of a clinic-based cohort of 158 HIV seropositive (HIV+) African Americans screened for major depressive disorder (MDD) in 2012. CD4 T lymphocyte (CD4+) counts were obtained from these individuals. Self-report on adherence to ART was determined from questionnaire administered during clinic visits. The primary outcome measure was conditional odds of having a poorer CD4+ count (< 350 cells/mm(3)). Association between CD4+ count and antidepressant-treated or untreated MDD subjects was examined controlling for self-reported adherence and other potential confounders. RESULTS: Out of 147 individuals with available CD4+ T lymphocyte data, 31% hadCD4+ count < 350 cells/mm(3) and 28% reported poor ART adherence. As expected the group with > 350 cells/mm(3)
CD4+ T lymphocyte endorsed significantly greater ART adherence compared to the group with < 350 cells/mm(3) CD4+ T lymphocyte count (P < 0.004). Prevalence of MDD was 39.5% and 66% of individuals with MDD took antidepressants. Poor CD4+ T lymphocyte count was associated with poor ART adherence and MDD. Adjusting for ART adherence, age, sex and education, which were potential confounders, the association between MDD and poor CD4+ T lymphocyte remained significant only in the untreated MDD group. CONCLUSION: Therefore, CD4+ count could be a clinical marker of untreated depression in HIV+. Also, mental health care may be relevant to primary care of HIV+ patients.


Depression is a common but frequently undiagnosed feature in individuals with HIV infection. To find a strategy to detect depression in a non-specialized clinical setting, the overall performance of the Hospital Anxiety and Depression Scale (HADS) and the depression identification questions proposed by the European AIDS Clinical Society (EACS) guidelines were assessed in a descriptive cross-sectional study of 113 patients with HIV infection. The clinician asked the two screening questions that were proposed under the EACS guidelines and requested patients to complete the HADS. A psychiatrist or psychologist administered semi-structured clinical interviews to yield psychiatric diagnoses of depression (gold standard). A receiver operating characteristic (ROC) analysis for the HADS-Depression (HADS-D) subscale indicated that the best sensitivity and specificity were obtained between the cut-off points of 5 and 8, and the ROC curve for the HADS-Total (HADS-T) indicated that the best cut-off points were between 12 and 14. There were no statistically significant differences in the correlations of the EACS (considering positive responses to one [A] or both questions [B]), the HADS-D >/= 8 or the HADS-T >/= 12 with the gold standard. The study concludes that both approaches (the two EACS questions and the HADS-D subscale) are appropriate depression-screening methods in HIV population. We believe that using the EACS-B and the HADS-D subscale in a two-step approach allows for rapid, assumable and accurate clinical diagnosis in non-psychiatric hospital settings.


Harms of opioid analgesics, especially high-dose therapy among individuals with comorbidities and older age, are increasingly recognized. However, trends in opioid receipt among HIV-infected patients are not well characterized. We examined trends, from 1999 to 2010, in any and high-dose (>/=120 mg/day) opioid receipt among patients with and without HIV, by age strata, controlling for demographic and clinical correlates. Of 127,216 patients, 64 % received at least one opioid prescription. Opioid receipt increased substantially among HIV-infected and uninfected patients over the study; high-dose therapy was more prevalent among HIV-infected patients. Trends in high-dose receipt stratified by three age groups revealed an increasing trend in each age strata, higher among HIV-infected patients. Correlates of any opioid receipt included HIV, PTSD and major depression. Correlates of high-dose receipt included HIV, PTSD, major depression and drug use disorders. These findings suggest a need for appropriate balance of risks and benefits, especially as these populations age.


Progression of major depression, a multifactorial disorder with a neuroinflammatory signature, seems to be associated with the disruption of body allostasis. High rates of comorbidity between depression and specific medical disorders, such as, stroke, chronic pain conditions, diabetes mellitus, and human immunodeficiency virus (HIV) infection, have been extensively reported. In this review, we discuss how these medical disorders may predispose an individual to develop depression by examining the impact of these disorders on some hallmarks of neuroinflammation known to be impaired in depressed patients: altered permeability of the blood brain barrier, immune cells infiltration, activated microglia, increased cytokines production, and the role of inflammasomes. In all four pathologies, blood brain barrier integrity was altered, allowing the infiltration of peripheral factors, known to activate resident microglia. Evidence indicated morphological changes in the glial population, increased levels of circulating pro-inflammatory cytokines or increased production of these mediators within the brain, all fundamental in neuroinflammation, for the four medical disorders considered. Moreover, activity of the kynurenine pathway appeared to be enhanced. With respect to the inflammasome NLRP3, a new target whose role in neuroinflammation is emerging as being important, accumulating data suggest its involvement in the pathogenesis of brain injury following stroke, chronic pain conditions, diabetes mellitus or in HIV associated immune impairment. Finally, data gathered over the last 10 years, indicate and
confirm that depression, stroke, chronic pain, diabetes, and HIV infection share a combination of underlying molecular, cellular and network mechanisms leading to a general increase in the neuroinflammatory burden for the individual.


The article provides an overview of the clinical interaction between AIDS or HIV infection and mental illness. Topics discussed include complexities involved in HIV care and mental health such as HIV-associated neurocognitive disorders, prescription of psychotropic medication in the context of antiretroviral therapy (ART), and the risk factors associated with HIV infection among patients with mental disorders.


We analyzed temporal patterns of alcohol misuse, smoking, and depression among veterans in care to determine whether these conditions vary concordantly or sequentially. Using the Veterans Aging Cohort Study, harmful alcohol use (AUDIT-C >/= 4), current smoking, and depression (PHQ-9 >/= 8), were measured. In regression analyses, predictors included each outcome condition at baseline, the other two conditions in the same survey, the other two conditions in the immediately preceding survey, number of years since enrollment, and HIV status. We found that current smoking and depression were more common among HIV infected individuals. Harmful alcohol use was more common among uninfected individuals. Temporal analyses suggested a concurrent pattern: each condition was associated with the other two conditions (p < 0.03, OR 1.12-1.66) as well as with the prior presence of the same condition (p < 0.0001; OR 6.38-22.02). Smoking was associated with prior depression after controlling for current depression (OR 1.16; p = 0.003). In conclusion, alcohol misuse, smoking, and depression were temporally concordant and persistent, raising the question of whether they constitute a common syndrome in HIV infected patients and others with chronic diseases.


HIV continues to disproportionately affect men who have sex with men (MSM). Depression and substance use have been shown to be risk factors of partner violence among male same-sex couples. However, research exploring the risk factors for partner violence victimization after HIV disclosure among MSM is limited. The aim of this study was to determine the association between depressive symptoms, substance use, and disclosure-associated verbal and/or physical violence from a partner among MSM. Data were obtained from 340 HIV-positive MSM. Multivariable logistic regression was used to determine the associations between Center for Epidemiologic Studies-Depression and substance use scores, and disclosure-associated partner violence. After adjusting for age and income, every one-unit increase in substance use scores resulted in a 9 % (OR 1.09; 95 % CI 1.01-1.16) increase in the odds of disclosure-associated partner violence. HIV disclosure interventions for MSM populations should address substance use and potential violence from partners after disclosure.


High prevalence of tobacco use and low success in quitting remain significant problems for reducing disease burden among HIV-infected persons. This study's purpose was to examine participant responsiveness and tobacco dependence treatment adherence and their influences on tobacco abstinence among HIV-infected patients. This non-randomized study included HIV-infected smokers 18 years of age or older, who smoked at least 5 cigarettes per day, and had an interest in quitting smoking in the next 30 days. HIV-infected smokers (n = 247) received a 12-week tobacco dependence treatment intervention that included pharmacotherapy and telephone counseling. Younger age and non-White race were associated with lower adherence to pharmacotherapy. Younger age, non-White race, and increased monthly binge drinking were associated with lower adherence to telephone counseling. High participant responsiveness was associated with adherence to pharmacotherapy, counseling, and
abstinence. Development and testing of interventions to improve adherence to evidence-based tobacco dependence treatment is warranted.


The prevalence of cigarette smoking among persons living with HIV/AIDS (PLWHA) is approximately 40%, significantly higher than that of the general population. Identifying predictors of successful smoking cessation for PLWHA is necessary to alleviate the morbidity and mortality associated with smoking in this population. Weight gain has been associated with smoking relapse in the general population, but has not been studied among PLWHA. Data from 474 PLWHA enrolled in a smoking cessation randomized clinical trial were analyzed to examine the effect of BMI change, from baseline to 3-month follow-up, on smoking outcomes using multiple logistic regression. The odds of 7-day smoking abstinence at 3-month follow-up were 4.22 (95% CI = 1.65, 10.82) times higher for participants classified as BMI decrease and 4.22 (95% CI = 1.62, 11.01) times higher for participants classified as BMI increase as compared to participants with a minimal increase or decrease in BMI. In this sample, both weight gain and loss following smoking cessation were significantly associated with abstinence at 3-month follow-up among HIV-infected smokers. Further research and a better understanding of predictors of abstinence will encourage more tailored interventions, with the potential to reduce morbidity and mortality.


Drawing from a theory of bicultural family functioning 2 models were tested to examine the longitudinal effects of acculturation-related variables on adolescent health risk behaviors and depressive symptoms (HRB/DS) mediated by caregiver and adolescent reports of family functioning. One model examined the effects of caregiver-adolescent acculturation discrepancies in relation to family functioning and HRB/DS. A second model examined the individual effects of caregiver and adolescent acculturation components in relation to family functioning and HRB/DS. A sample of 302 recently immigrated Hispanic caregiver-child dyads completed measures of Hispanic and U.S. cultural practices, values, and identities at baseline (predictors); measures of family cohesion, family communications, and family involvement 6 months postbaseline (mediators); and only adolescents completed measures of smoking, binge drinking, inconsistent condom use, and depressive symptoms 1 year postbaseline (outcomes). Measures of family cohesion, family communications, and family involvement were used to conduct a confirmatory factor analysis to estimate the fit of a latent construct for family functioning. Key findings indicate that (a) adolescent acculturation components drove the effect of caregiver-adolescent acculturation discrepancies in relation to family functioning; (b) higher levels of adolescent family functioning were associated with less HRB/DS, whereas higher levels of caregiver family functioning were associated with more adolescent HRB/DS; (c) and only adolescent reports of family functioning mediated the effects of acculturation components and caregiver-adolescent acculturation discrepancies on HRB/DS.


Because problematic patterns of alcohol and other substance use are prevalent drivers of the HIV/AIDS epidemic, comprehensive interventions are needed for substance-using men who have sex with men (SUMSM). We conducted a systematic review of 12 randomized controlled trials (RCTs) of behavioral interventions for reducing condomless anal intercourse (CAI) in SUMSM. Three RCTs observed that cognitive behavioral or motivational interviewing interventions achieved a 24% to 40% decrease in CAI. Interventions also tended to demonstrate greater efficacy for reducing CAI and substance use among those who had lower severity of substance use disorder symptoms. Although behavioral interventions for SUMSM are one potentially important component of biobehavioral HIV/AIDS prevention, further research is needed to examine whether integrative approaches that cultivate resilience and target co-occurring syndemic conditions demonstrate greater efficacy. Multilevel intervention approaches are also needed to optimize the effectiveness of pre-exposure prophylaxis and HIV treatment as prevention with SUMSM.
OBJECTIVE: HIV infection and bipolar disorder are highly comorbid and associated with frontostriatal disruption, emotional dysregulation, and neurocognitive impairment. Psychiatric and cognitive factors have been linked to antiretroviral nonadherence; however, predictors of psychotropic adherence among HIV+ individuals with psychiatric comorbidities have not been explored. We evaluated predictors of psychotropic adherence among individuals with HIV infection and bipolar disorder.

METHOD: Psychiatric medication adherence of 50 participants with HIV infection and bipolar disorder was tracked for 30 days using Medication Event Monitoring Systems. Participants completed neuropsychiatric, neuromedical, and psychiatric batteries.

RESULTS: Mean psychotropic adherence rate was 78%; 56% of participants achieved >/=90% adherence. Younger age and onset of depressive symptoms, more severe current depressive symptoms, number of previous psychiatric hospitalizations and suicide attempts, poorer neurocognition, and more negative attitudes and self-beliefs toward medications univariably predicted worse psychotropic adherence (p's < .10). A multivariable model demonstrated a combination of current depressive symptoms and more negative attitudes toward medications significantly predicting poorer adherence (R(2) = 0.27, p < 0.003). Secondary analyses revealed an interaction between neurocognition and mood, such that individuals with HIV infection and bipolar disorder who had greater executive dysfunction and depressive symptoms evidenced the poorest psychotropic adherence (p < 0.001).

CONCLUSIONS: Both psychiatric and neurocognitive factors contribute to poorer psychotropic adherence among HIV+ individuals with serious mental illness. Adherence interventions aimed at remedying these factors may be especially fruitful.


This study examines depression-related chatter on Twitter to glean insight into social networking about mental health. We assessed themes of a random sample (n=2,000) of depression-related tweets (sent 4-11 to 5-4-14). Tweets were coded for expression of DSM-5 symptoms for Major Depressive Disorder (MDD). Supportive or helpful tweets about depression was the most common theme (n=787, 40%), closely followed by disclosing feelings of depression (n=625; 32%). Two-thirds of tweets revealed one or more symptoms for the diagnosis of MDD and/or communicated thoughts or ideas that were consistent with struggles with depression after accounting for tweets that mentioned depression trivially. Health professionals can use our findings to tailor and target prevention and awareness messages to those Twitter users in need.


African American men in the US experience disparities across multiple health outcomes. A common mechanism underlying premature declines in health may be accelerated biological aging, as reflected by leukocyte telomere length (LTL). Racial discrimination, a qualitatively unique source of social stress reported by African American men, in tandem with poor mental health, may negatively impact LTL in this population. The current study examined cross-sectional associations between LTL, self-reported racial discrimination, and symptoms of depression and anxiety among 92 African American men 30-50 years of age. LTL was measured in kilobase pairs using quantitative polymerase chain reaction assay. Controlling for sociodemographic factors, greater anxiety symptoms were associated with shorter LTL (b=-0.029, standard error [SE]=0.014; p<0.05). There were no main effects of racial discrimination or depressive symptoms on LTL, but we found evidence for a significant interaction between the two (b=0.011, SE=0.005; p<0.05). Racial discrimination was associated with shorter LTL among those with lower levels of depressive symptoms. Findings from this study highlight the role of social stressors and individual-level psychological factors for physiologic deterioration among African American men. Consistent with research on other populations, greater anxiety may reflect elevated stress associated with shorter LTL. Racial discrimination may represent an additional source of social stress among African American men that has detrimental consequences for cellular aging among those with lower levels of depression.


BACKGROUND: Alcohol has particularly harmful health effects in HIV-infected patients; therefore, HIV clinics are an important setting for integration of brief alcohol intervention and alcohol pharmacotherapy to improve patient outcomes. Current practices of alcohol screening, counseling, and prescription of pharmacotherapy by HIV providers are unknown.

METHODS: We conducted a cross-sectional survey of HIV providers from 8 HIV clinical sites across the United States. Surveys queried knowledge and use of alcohol screening, brief advice, counseling and pharmacotherapy, confidence and willingness to prescribe pharmacotherapy and barriers to their use of alcohol pharmacotherapy. We used multivariable logistic regression to
INTRODUCTION: A disproportionate number of individuals with human immunodeficiency virus (HIV) have mental health and substance-use disorders (MHSUDs), and MHSUDs are significantly associated with their emergency department (ED) visits. With an increasing share of older adults among HIV patients, this study investigated the associations of MHSUDs with ED outcomes of HIV patients in four age groups: 21-34, 35-49, 50-64, and 65+ years. METHODS: We used the 2012 Nationwide Emergency Department Sample (NEDS) dataset (unweighted n=23,244,819 ED events by patients aged 21+, including 115,656 visits by patients with HIV). Multinomial and binary logistic regression analyses, with "treat-and-release" as the base outcome, were used to examine associations between ED outcomes and MHSUDs among visits that included a HIV diagnosis in each age group. RESULTS: Mood and "other" mental disorders had small effects on ED-to-hospital admissions, as opposed to treat-and-release, in age groups younger than 65+ years, while suicide attempts had medium effects (RRR=3.56, CI [2.69-4.70]; RRR=4.44, CI [3.72-5.30]; and RRR=5.64, CI [4.38-7.26] in the 21-34, 35-49, and 50-64 age groups, respectively). Cognitive disorders had medium-to-large effects on hospital admission in all age groups and large effects on death in the 35-49 (RRR=7.29, CI [3.90-13.62]) and 50-64 (RRR=5.38, CI [3.39-8.55]) age groups. Alcohol use disorders (AUDs) had small effects on hospital admission in all age groups (RRR=2.35, 95% CI [1.92-2.87]; RRR=2.15, 95% CI [1.95-2.37]; RRR=1.92, 95% CI [1.73-2.12]; and OR=1.93, 95% CI [1.20-3.10]) in the 21-34, 35-49, 50-64, and 65+ age groups, respectively). Drug use disorders (DUDs) had small-to-medium effects on hospital admission (RRR=4.40, 95% CI [3.87-5.0]; RRR=4.07, 95% CI [3.77-4.40]; RRR=4.17, 95% CI [3.83-4.55]; and OR=2.53, 95% CI [2.70-3.78] in the 21-34, 35-49, 50-64, and 65+ age groups, respectively). AUDs and DUDs were also significantly related to the risk of death, and DUDs had a small effect on the risk of discharge against medical advice in the 35-49 and 50-64 age groups. CONCLUSION: The high prevalence of MHSUDs and their significant roles in ED visit outcomes in patients with HIV provide support for integrated care for these patients outside the ED to reduce their ED visits and costly hospital admissions and institutional care that follows, especially for the increasing numbers of older adults with HIV.

BACKGROUND: Substantial racial/ethnic disparities exist in HIV infection among people who inject drugs (PWID) in many countries. To strengthen efforts to understand the causes of disparities in HIV-related outcomes and eliminate them, we expand the "Risk Environment Model" to encompass the construct "racialized risk environments," and investigate whether PWID risk environments in the United States are racialized. Specifically, we investigate whether black and Latino PWID are more likely than white PWID to live in places that create vulnerability to adverse HIV-related outcomes. METHODS: As part of the Centers for Disease Control and Prevention’s National HIV Behavioral Surveillance, 9170 PWID were sampled from 19 metropolitan statistical areas (MSAs) in 2009. Self-reported data were used to ascertain PWID race/ethnicity. Using Census data and other administrative sources, we characterized features of PWID risk environments at four geographic scales (i.e., ZIP codes, counties, MSAs, and countries). To strengthen efforts to understand the causes of disparities in HIV-related outcomes and eliminate them, we expand the "Risk Environment Model" to encompass the construct "racialized risk environments," and investigate whether PWID risk environments in the United States are racialized. Specifically, we investigate whether black and Latino PWID are more likely than white PWID to live in places that create vulnerability to adverse HIV-related outcomes. METHODS: As part of the Centers for Disease Control and Prevention’s National HIV Behavioral Surveillance, 9170 PWID were sampled from 19 metropolitan statistical areas (MSAs) in 2009. Self-reported data were used to ascertain PWID race/ethnicity. Using Census data and other administrative sources, we characterized features of PWID risk environments at four geographic scales (i.e., ZIP codes, counties, MSAs, and states). Means for each feature of the risk environment were computed for each racial/ethnic group of PWID, and were compared across racial/ethnic groups. RESULTS: Almost universally across measures, black PWID were more likely than white PWID to live in environments associated with vulnerability to adverse HIV-related outcomes. Compared to white PWID, black PWID lived in ZIP codes with higher poverty rates and worse spatial access to substance abuse treatment and in counties with higher violent crime rates. Black PWID were less likely to live in states with laws facilitating sterile syringe access (e.g., laws permitting over-the-counter syringe sales). Latino/white differences in risk environments emerged at the MSA level (e.g., Latino PWID lived in MSAs with higher drug-related arrest rates). CONCLUSION: PWID risk environments in the US are racialized. Future...

INTRODUCTION: We analyzed relationships between place characteristics and being HIV-negative among black, Latino, and white people who inject drugs (PWID) in the US. METHODS: Data on PWID (N = 9077) were from the Centers for Disease Control and Prevention’s 2009 National HIV Behavioral Surveillance. Administrative data were analyzed to describe the 968 ZIP codes, 51 counties, and 19 metropolitan statistical areas (MSAs) where they lived. Multilevel multivariable models examined relationships between place characteristics and HIV status. Exploratory population attributable risk percents (e-PAR%)s were estimated. RESULTS: Black and Latino PWID were more likely to be HIV-negative if they lived in less economically disadvantaged counties, or in MSAs with less criminal-justice activity (i.e., lower drug-related arrest rates, lower policing/corrections expenditures). Latino PWID were more likely to be HIV-negative in MSAs with more Latino isolation, less black isolation, and less violent crime. E-PAR% attributed 8-19% of HIV cases among black PWID and 1-15% of cases among Latino PWID to place characteristics. DISCUSSION: Evaluations of structural interventions to improve economic conditions and reduce drug-related criminal justice activity may show evidence that they protect black and Latino PWID from HIV infection.


Research assessing whether major depressive disorders (MDD) impacts neurocognitive functions in HIV+ persons has yielded inconsistent results. However, none have considered the role of MDD remission, chronicity, and stability on treatment. Ninety-five HIV+ adults clinically stable on combined antiretroviral treatment completed a psychiatric interview, a depression scale, a neuropsychological, daily living, and cognitive complaints assessments at baseline and 18 months. Participants were screened for current (within 12 months of study entry) alcohol and/or substance use disorder. History of alcohol and/or substance abuse disorder prior to the 12 months entry screen and MDD treatments were recorded. Participants were grouped into two psychiatric nomenclatures: (1) lifetime: no MD episode (MDE), single MDE life-event treated and fully remitted, chronic MDD treated and stable, chronic MDD treated and unstable, and baseline untreated MDE; (2) recent: last 2 years MDE (yes or no). We found that lifetime and recent psychiatric history were more strongly associated with decreased in independence in daily living and cognitive complaints than with baseline neuropsychological performance. However, lack of full remission, instability on treatment in chronic MDD, and severity of symptoms in current MDE were factors in whether MDD impacted baseline neuropsychological performance. Depressive symptoms improved at follow-up in those with baseline moderate-severe symptoms, and MDD was not associated with neurocognitive change at 18 months. A history of alcohol and/or substance abuse disorder was significantly more frequent in those with treated and unstable chronic MDD but it was not associated with neuropsychological performance. MDD recurrence, chronicity profiles, and associated comorbidities are keys factors to understand any potential impact on neurocognitive abilities in HIV infection. More comprehensive consideration of these complex effects could serve at constructively updating the HAND diagnostic criteria.


HIV infection among Hispanic men is a public health concern. Certain factors have been identified that may contribute to the high rates of HIV infection among Hispanic men such as migration, acculturation, poverty, and depression. Hispanic men with HIV infection are at risk for additional co-occurring health issues. Given limited research few studies have focused specifically on Hispanic men with HIV infection residing in a U.S.-Mexico border community. This pilot study surveyed participants (n = 39), to better understand co-occurrence of health determinants, especially depression among Hispanic men with HIV infection. The study’s findings indicate that clinicians need to be aware that factors may influence depression among people with Hispanic men
with HIV infection. Clinicians also need awareness of the impact of depression on adherence to HIV care and treatment among Hispanic men with HIV infection. More research is needed to explore the relationship of HIV-related stigma, HIV disclosure, social support, and depression among Hispanic men with HIV infection.


BACKGROUND: Substance use can have major consequences among HIV patients. Interviewer- or self-administered modalities are widely used to measure drug use frequency. This often involves Timeline Follow-Back (TLFB) interviewer-administered measures, or self-administered computerized questions assessing similar information via Audio Computer-Assisted Self Interview (A-CASI). Little is known about agreement between these two modalities on drug use frequency in HIV-infected samples. METHODS: Prior to randomization into a trial of brief interventions to reduce drug use, 240 HIV patients completed a baseline A-CASI assessment battery that included questions on drug use frequency, followed by an interviewer-administered TLFB. Each measure generated number of days patients used their primary drug in the prior 30 days. Agreement between TLFB and A-CASI modalities on days using primary drug was determined using intraclass correlation coefficients (ICC). Regression analysis tested the association of patient characteristics with discrepancies between TLFB and A-CASI modalities. RESULTS: Overall agreement was excellent (ICC=.80), with little variation by primary drug, education, race, current drug treatment, binge drinking or years since HIV diagnosis. Gender, ethnicity (Hispanic vs. non-Hispanic) and age predicted differences in days used (p<0.05); the A-CASI modality reflected more days used than TLFB. CONCLUSIONS: Measures of days used primary drug showed high agreement whether assessed by interviewer-administered TLFB or by questions self-administered via the A-CASI modality. Differences by gender, ethnicity and age suggest some caution in using the TLFB, although additional studies are needed. However, findings generally indicate that studies based on one assessment method or the other can be compared with reasonable confidence.


OBJECTIVE: To summarise and discuss the association between telomerase activity and psychological stress, mental disorders and lifestyle factors. METHOD: A systematic review was carried out to identify prospective or retrospective studies and interventions published up to June 2015 that reported associations between telomerase activity and psychological stress, mental disorders and lifestyle factors. Electronic data bases of PubMed, ProQuest, CINAHL and Google Scholar were searched. RESULTS: Twenty six studies on humans measured telomerase activity in peripheral blood mononuclear cells (PBMCs) or leukocytes and examined its association with psychological stress, mental disorders and lifestyle factors. Of those studies, three reported significantly decreased telomerase activity in individuals under chronic psychological stress. Interestingly, one of the three studies found that acute laboratory psychological stress significantly increased telomerase activity. Nine studies reported mixed results on association between mental disorders and telomerase activity. Of the nine studies, five reported that major depressive disorder (MDD) was associated with significantly increased telomerase activity. In thirteen out of fourteen studies on lifestyle factors, it was reported that physical exercise, diet micronutrient supplementation, mindfulness meditation, Qigong practice or yoga mediation resulted in increase in telomerase activity. In addition, two studies on animal models showed that depression-like behaviour was associated with decreased hippocampus telomerase activity. Five animal studies showed that physical exercise increased telomerase activity by cell-type-specific and genotype-specific manners. CONCLUSION: Although multi-facet results were reported on the association between telomerase activity and psychological stress, mental disorders and lifestyle factors, there were some consistent findings in humans such as (1) decreased telomerase activity in individuals under chronic stress, (2) increased telomerase activity in individuals with MDD, and (3) increased telomerase activity in individuals under lifestyle interventions. Animal studies showed that physical exercise increased telomerase activity in specific cell-types. However, the exact mechanisms for the changes in telomerase activity have not been elucidated. We propose conglomerate models connecting chronic psychological stress, depression, meditation and physical exercise to telomerase activation. Several areas for future research are suggested.


OBJECTIVES: Certain prescribed opioids have immunosuppressive properties, yet their impact on clinically relevant outcomes, including antiretroviral therapy (ART) response among HIV-infected patients, remains understudied. METHODS: Using the Veterans Aging Cohort Study data, we conducted a longitudinal analysis of 4358 HIV-infected patients initiating ART between
OBJECTIVE: Among drug users with HIV and Hepatitis C Virus (HCV) infections, heavy drinking can pose significant risks to health. Yet many drug users with HIV and HCV drink heavily. Clarifying the relationship of drug-using patients’ understanding of their illnesses to their drinking behavior could facilitate more effective intervention with these high-risk groups. METHOD: Among samples of drug users infected with HIV (n=476; 70% male) and HCV (n=1145; 81% male) recruited from drug treatment clinics, we investigated whether patients’ perceptions of the risk for severe outcomes related to HIV and HCV were associated with their drinking status. RESULTS: Patients who perceived HIV to hold a higher risk for severe outcomes were more likely to be risky drinkers (odds ratio: 1.65; p<0.05). Similar associations were observed for HCV. CONCLUSIONS: Emphasizing the severe outcomes of HIV and HCV may help reduce risky drinking among drug users.
who believed that severe outcomes were somewhat likely. Further research is needed to understand the mechanisms of these associations.


**BACKGROUND:** It is likely that alcohol use and abuse increase during and after violent conflicts. The most prominent explanation of this phenomenon has been referred to as self-medication hypothesis. It predicts that psychotropic substances are consumed to deal with conflict-related psychic strains and trauma. In northern Uganda, a region that has been affected by a devastating civil war and is characterized by high levels of alcohol abuse we examined the associations between war-trauma, childhood maltreatment and problems related to alcohol use. Deducing from the self-medication hypothesis we assumed alcohol consumption moderates the relationship between trauma-exposure and psychopathology. **METHODS:** A cross-sectional epidemiological survey targeting war-affected families in post-conflict northern Uganda included data of male (n = 304) and female (n = 365) guardians. We used standardized questionnaires in an interview format to collect data on the guardians' sociodemography, trauma-exposure, alcohol consumption and symptoms of alcohol abuse, PTSD and depression. **RESULTS:** Symptoms of current alcohol use disorders were present in 46 % of the male and 1 % of the female respondents. A multiple regression model revealed the unique contributions of emotional abuse in the families of origin and trauma experienced outside the family-context in the prediction of men's alcohol-related symptoms. We found that alcohol consumption moderated the dose-effect relationship between trauma-exposure and symptoms of depression and PTSD. Significant interactions indicated that men who reported more alcohol-related problems experienced less increase in symptoms of PTSD and depression with increasing trauma-exposure. **CONCLUSIONS:** The gradual attenuation of the dose-effect the more alcohol-related problems were reported is consistent with the self-medication hypothesis. Hence, the functionality of alcohol consumption has to be considered when designing and implementing addiction treatment in post-conflict contexts.


**BACKGROUND:** Most persons living with HIV smoke cigarettes and tend to be highly dependent, heavy smokers. Few such persons receive tobacco treatment, and many die from tobacco-related illness. Although advancements in antiretroviral therapy (ART) have increased the quality and quantity of life, the health harms from tobacco use diminish these gains. Without cessation assistance, thousands will benefit from costly ART, only to suffer the consequences of tobacco-related disease and death. A study was conducted to examine in detail inpatient tobacco treatment for smokers with HIV. **METHODS:** Data collected at hospital admission and data collected by tobacco treatment specialists were examined retrospectively for all patients with HIV who were admitted to an academic medical center for a five-year period. Specifically, the prevalence of cigarette smoking, factors predictive of referral to tobacco treatment, referral for tobacco treatment, treatment participation, and abstinence at six months posttreatment were measured. Differences in referral and treatment participation between all smokers and smokers with HIV were also assessed. **RESULTS:** Among the 422 admitted persons with HIV, 54.5% smoked and 21.7% were referred to inpatient tobacco treatment services. Substance abuse and tobacco-related diagnoses were predictive of referral to inpatient tobacco treatment specialists. Among the 14 treatment participants reached for follow-up, 11 (78.6%) made quit attempts and 3 (21.4%) reported abstinence. Smokers with HIV were less likely to be referred to and treated by tobacco treatment services than all smokers admitted during the same time frame. **CONCLUSIONS:** Although tobacco is a major cause of mortality, few smokers with HIV are offered treatment during hospitalization. Those who are treated attempt to quit. Hospitalization offers a prime opportunity for initiating smoking cessation among those with HIV.


**OBJECTIVE:** We evaluated whether heavy alcohol use, illicit drug use or high levels of anxiety, and depression symptoms were modifiers of the retention through enhanced personal contact intervention. The intervention had previously demonstrated overall efficacy in the parent study. **DESIGN:** Randomized trial. **METHODS:** A total of 1838 patients from six US HIV clinics were enrolled into a randomized trial in which intervention patients received an 'enhanced contact' protocol for 12 months. All participants completed an audio computer-assisted self-interview that measured depression and anxiety symptoms from the Brief Symptom Inventory, alcohol use from the Alcohol Use Disorders Identification Test-Consumption instrument, and drug use from the WHO (Alcohol, Smoking and Substance Involvement Screening Test) questions. The 12-month binary outcome was completing an HIV primary care visit in three consecutive 4-month intervals. The outcome was compared between intervention
and standard of care patients within subgroups on the effect modifier variables using log-binomial regression models. RESULTS: Persons with high levels of anxiety or depression symptoms and those reporting illicit drug use, or heavy alcohol consumption had no response to the intervention. Patients without these ‘higher risk’ characteristics responded significantly to the intervention. Further analysis revealed higher risk patients were less likely to have successfully received the telephone contact component of the intervention. Among higher risk patients who did successfully receive this component, the intervention effect was significant. CONCLUSION: Our findings suggest that clinic-based retention-in-care interventions are able to have significant effects on HIV patients with common behavioral health issues, but the design of those interventions should assure successful delivery of intervention components to increase effectiveness.


The Center for Epidemiological Studies-Depression (CES-D) scale is a widely used measure of depressive symptoms, but its psychometric properties have not been adequately evaluated among adults with HIV/AIDS. This study used an item response theory approach (Rasch analysis) to evaluate the CES-D’s validity and reliability in relation to key demographic and clinical variables in adults with HIV/AIDS. A convenience sample of 347 adults with HIV/AIDS (231 males, 93 females, and 23 transgenders; age range 22-77 years) completed the CES-D. A Rasch model application was used to analyze the CES-D’s rating scale functioning, internal scale validity, person-response validity, person-separation validity, internal consistency, differential item functioning (DIF), and differential test functioning. CES-D scores were generally high and associated with several demographic and clinical variables. The CES-D distinguished 3 distinct levels of depression and had acceptable internal consistency but lacked unidimensionality, five items demonstrated poor fit to the model, 15% of the respondents demonstrated poor fit, and eight items demonstrated DIF related to gender, race, or AIDS diagnosis. Removal of misfitting items resulted in minimal improvement in the CES-D’s substantive and structural validity. CES-D scores should be interpreted with caution in adults with HIV/AIDS, particularly when comparing scores across gender and racial groups.


Highly intoxicated versus sober women were evaluated using multi-group path analyses to test the hypothesis that sexual victimization history would interact with partner pressure to forgo condom use, resulting in greater condom-decision abdication-letting the man decide whether or not to use a condom. After beverage administration, community women (n = 408) projected themselves into a scenario depicting a male partner exerting high or low pressure for unprotected sex. Mood, anticipated negative reactions from the partner, and condom-decision abdication were assessed. In both control and alcohol models, high pressure increased anticipated negative partner reaction, and positive mood was associated with increased abdication. In the alcohol model, victimization predicted abdication via anticipated negative partner reaction, and pressure decreased positive mood and abdication. In the control model, under high pressure, victimization history severity was positively associated with abdication. Findings implicate condom-decision abdication as an important construct in understanding how women’s sexual victimization histories may exert sustained impact on sexual interactions.


Previous data have demonstrated that administration of inflammatory cytokines or their inducers leads to altered basal ganglia function associated with reduced psychomotor speed. Decreased psychomotor speed, referred to clinically as psychomotor retardation, is a cardinal symptom of major depressive disorder (MDD) and has been associated with poor antidepressant treatment response. We therefore examined the association between plasma inflammatory markers and psychomotor speed in ninety-three un-medicated patients with MDD. Psychomotor speed was assessed by a range of neuropsychological tests from purely motor tasks (e.g. movement latency and finger tapping) to those that involved motor activity with increasing cognitive demand and cortical participation (e.g. Trails A and Digit Symbol Substitution Task (DSST)). Linear regression analyses were performed to determine the relationship of inflammatory markers and psychomotor task performance controlling for age, race, sex, education, body mass index, and severity of depression. MDD patients exhibited decreased psychomotor speed on all tasks relative to normative standards. Increased IL-6 was associated with decreased performance on simple and choice movement time tasks, whereas MCP-1 was associated with decreased performance on the finger tapping task and DSST. IL-10 was associated with increased performance on the DSST. In an exploratory principle component analysis including all psychomotor tasks, IL-6 was associated with the psychomotor speed factor. Taken together, the
Drug use is associated with low uptake of HIV antiretroviral therapy (ART), an under-studied step in the HIV care continuum, and insufficient engagement in HIV primary care. However, the specific underlying mechanisms by which drug use impedes these HIV health outcomes are poorly understood. The present qualitative study addresses this gap in the literature, focusing on African-American/Black and Hispanic persons living with HIV (PLWH) who had delayed, declined, or discontinued ART and who also were generally poorly engaged in health care. Participants (N = 37) were purposively sampled from a larger study for maximum variation on HIV indices. They engaged in 1-2 h audio-recorded in-depth semi-structured interviews on HIV histories guided by a multilevel social-cognitive theory. Transcripts were analyzed using a systematic content analysis approach. Consistent with the existing literature, heavy substance use, but not casual or social use, impeded ART uptake, mainly by undermining confidence in medication management abilities and triggering depression. The confluence of African-American/Black or Hispanic race/ethnicity, poverty, and drug use was associated with high levels of perceived stigma and inferior treatment in health-care settings compared to their peers. Furthermore, providers were described as frequently assuming participants were selling their medications to buy drugs, which strained provider-patient relationships. High levels of medical distrust, common in this population, created fears of ART and of negative interactions between street drugs and ART, but participants could not easily discuss this concern with health-care providers. Barriers to ART initiation and HIV care were embedded in other structural- and social-level challenges, which disproportionately affect low-income African-American/Black and Hispanic PLWH (e.g., homelessness, violence). Yet, HIV management was cyclical. In collaboration with trusted providers and ancillary staff, participants commonly reduced substance use and initiated or reinitiated ART. The present study highlights a number of addressable barriers to ART initiation and engagement in HIV care for this vulnerable population, as well as gaps in current practice and potential junctures for intervention efforts.


Objectives: The current cross-cultural study examines the pathways underlying different formations of social networks and social support systems, which affect depression symptoms among older Korean immigrants and non-Hispanic Whites in the United States. Method: Data for this study came from a panel survey of 223 older Korean American immigrants and 201 non-Hispanic White older adults 65 years of age and older living in Los Angeles. Structural equation modeling (SEM) is used to test the proposed conceptual model designed to explain the direct and indirect relationships between social networks and social support on depression symptoms. Results: Empirical evidence from this study indicated different effect of one’s social networks and social support on depression by race/ethnicity. Discussion: The work discussed in this article pointed to the need to recognize the role of culture in assessing the relationships between social networks, social support, and health among older adults.


In addition to physical health challenges, older people living with HIV/AIDS (PLWHA) experience mental health burdens and challenges to their social well-being that diminish their overall health. These health states are synergistic and are driven by HIV and HIV treatments, the aging process itself, and psychosocial and structural conditions of their lives. However, resilience, which we understand as both a trait and a process, may serve to buffer the effects that HIV/HIV treatments, aging, and social/structural conditions may have on the overall well-being of the individual. In this chapter, we examine the extant literate on the mental health and psychosocial challenges experienced by older PLWHA as elements of the total health of the individual. We also provide a contextualization and conceptualization for understanding the significant role that resilience may play in empowering individuals to enact processes which buffer health from the stressors. In this perspective, the health of older PLWHA must be viewed through a lens of power and strength rather than one of deficit. We conclude by outlining a theoretical paradigm for the role of resilience in the health of older HIV-positive adults, which may serve as a guide to clinicians, public health practitioners, and researchers working with this population.

Major depressive disorder is the most common neuropsychiatric complication in human immunodeficiency virus (HIV) infections and is associated with worse clinical outcomes. We determined if detectable cerebrospinal fluid (CSF) HIV ribonucleic acid (RNA) at threshold >/=50 copies/ml is associated with increased risk of depression. The CNS HIV Anti-Retroviral Therapy Effects Research (CHARTER) cohort is a six-center US-based prospective cohort with bi-annual follow-up of 674 participants. We fit linear mixed models (N = 233) and discrete-time survival models (N = 154; 832 observations) to evaluate trajectories of Beck Depression Inventory (BDI) II scores and the incidence of new-onset moderate-to-severe depressive symptoms (BDI >/= 17) among participants on combination antiretroviral therapy (cART), who were free of depression at study entry and received a minimum of three CSF examinations over 2496 person-months follow-up. Detectable CSF HIV RNA (threshold >/=50 copies/ml) at any visit was associated with a 4.7-fold increase in new-onset depression at subsequent visits adjusted for plasma HIV RNA and treatment adherence; hazard ratio (HR) = 4.76, (95 % CI 1.58-14.3); P = 0.006. Depression (BDI) scores were 2.53 points higher (95 % CI 0.47-4.60; P = 0.02) over 6 months if CSF HIV RNA was detectable at a prior study visit in fully adjusted models including age, sex, race, education, plasma HIV RNA, duration and adherence of CART, and lifetime depression diagnosis by Diagnostic Statistical Manual (DSM-IV) criteria. Persistent CSF but not plasma HIV RNA is associated with an increased risk for new-onset depression. Further research evaluating the role of immune activation and inflammatory markers may improve our understanding of this association.


Cocaine use is associated with increased risk of depression in HIV-positive individuals. Individuals who use cocaine are more likely to have depression and show evidence of inflammation. Cocaine use may alter T cell functioning resulting in cytokine activation and thereby increasing susceptibility to depression. In an observational study in Baltimore, Maryland, between August 2003 and December 2012, the prevalence of depression was 40.9 % (183 of 447) participants. Among persons who were depressed, the prevalence of cocaine use was 81.4 % (149 of 183), compared to 69.3 % among persons who were not depressed (183 of 264), P = 0.004. Cocaine use was associated with nearly twofold increased odds of depression, unadjusted odds ratio (OR) 1.94, (95 % CI 1.23, 3.06); P = 0.004, compared to never using cocaine, and OR 1.02, (95 % CI 1.10, 1.05); P = 0.04 in adjusted analysis. A dose-response relationship between increased duration of cocaine use and depression was observed. Frequency and duration of cocaine use may be associated with depression. We speculate that depression among cocaine users with HIV may involve an inflammatory component that needs further examination.


People living with HIV (PLHIV) have almost double the risk of depression than the rest of the population, and depression and anxiety among PLHIV have been linked with greater disease progression and other physical health problems. Studies to date, however, have focused almost exclusively on depression or general mental health. Much less research has investigated predictors of anxiety and generalized stress among HIV-positive gay men. This paper reports findings from a national community-based sample of 357 HIV-positive Australians gay men aged 18 years and older. Participants reported elevated rates of depression, anxiety, and generalized stress symptoms. A significant proportion of men with elevated depression and anxiety symptoms were not receiving treatment or had not been diagnosed. Risk factors for elevated mental health concerns included experiences of internalized stigma and discrimination. Anxiety was also associated with lower T-cell CD4 counts. A key protective factor was access to social support. The type of support, in particular emotional support, was found to be more important than the source of support. Our findings suggest that greater emphasis is needed on mental health screening and the provision of emotional support for PLHIV.
Tobacco smoking is associated with adverse health effects among people living with HIV (PLWH), including a higher risk of cancer and cardiovascular problems. Further, there is evidence that PLWH are two to three times more likely to smoke than the general population. The aim of this study was to examine the association between tobacco smoking and biomarkers of HIV disease progression, including unsuppressed viral load (viral load >200 copies/mL) and low CD4 cell count (<200 cells/mm(3)). Recent tobacco smoking was reported by 40% (n = 5942) of 14,713 PLWH enrolled in Ryan White Part A programs in the New York City metropolitan area. In multivariate analyses controlling for sociodemographic and clinical characteristics, recent tobacco smoking was independently associated with unsuppressed viral load (AOR = 1.38, CI 1.26-1.50) and low CD4 cell count (AOR = 1.12, CI 1.01-1.24). Findings suggest the importance of routine assessments of tobacco use in clinical care settings for PLWH.

Persons who inject drugs (PWID) may be at risk of acquiring HIV and sexually transmitted infections (STIs) from risky sexual practices and elevated disease prevalence within their drug injection and sexual networks. We conducted a personal (egocentric) network study of young PWID (aged 18-30) from the Chicago metropolitan area. Logistic regression with generalized estimating equations evaluated associations between individual and network factors and sexual behaviors. Of 162 participants, 116 (71.6%) were non-Hispanic White and 135 reported on 314 sexual network members. Multiplexity-having network members with overlapping roles as injection and sexual partners—was associated with more condomless vaginal sex (aOR 5.55; 95% CI 1.62-19.0) and anal sex (aOR 6.79; 95% CI 2.49-18.5) and less exchange sex among women (aOR 0.12; 95% CI 0.03-0.40), adjusting for sociodemographic and sexual network characteristics. The contribution of individual and sexual network factors to HIV/STI transmission among young PWID warrants further research.

LGBTQ older adults have higher levels of psychological distress as compared to older adults in general. They also experience multiple barriers to accessing equitable, culturally competent mental health and aging services because of their distinct histories and particular social contexts. This article discusses this lack of access to services, and highlights an innovative way mental health services are being delivered in LGBTQ communities.

Proceeding from a phenomenological perspective, the present study investigated the experiences of seven homeless women who had lived through childhood trauma and subsequent substance abuse, with specific focus on the recovery process experienced by each. Applying the analytical protocol of Giorgi (1985) to the written accounts obtained from the participants, 15 constituent themes of the recovery process were identified. In order to illuminate the participants’ experiences with minimal influence of any possible researcher bias, the researcher refrained from labelling, judging or diagnosing the women’s life circumstances. Consequently, no treatment paradigm was applied to help explain, predict or judge the behaviour of the participants during the course of this research.

BACKGROUND: Alcohol consumption is highly prevalent in the general population and among HIV-infected population. This study aimed to compare the pattern of alcohol consumption and to describe characteristics associated with heavy alcohol consumption in individuals from the general population with patients infected with HIV. METHODS: Participants for this analysis came from a population-based cross-sectional study and from a consecutive sampling of patients infected with HIV. Participants aged 18 years or older were interviewed using similar questionnaires with questions pertaining to socio-demographic characteristics, alcohol consumption, smoking, physical activity, and HIV-related characteristics, among others. Blood pressure and anthropometric measures were measured using standardized procedures. RESULTS: Weekly alcohol consumption was more prevalent among individuals from the general population than HIV-infected patients: 57.0 vs. 31.1%, P<0.001. The prevalence of
Heavy episodic drinking was higher in the population sample as well: 46.1 vs. 17.0%, P<0.001. In the general population, heavy alcohol consumption was more prevalent in men. Cigarette smoking was independently associated with heavy alcohol consumption among HIV infected patients and directly associated among participants from the general population, even after controlling for sex, age, skin color, and smoking.

CONCLUSIONS: Heavy alcohol consumption is more prevalent in the general population than among HIV-infected patients. Individuals aware about their disease may reduce the amount of alcoholic beverages consumption comparatively to healthy individuals from the general population.


For optimal health, people living with HIV (PLWH) need to adhere to antiretroviral therapy (ART). We explored the relationship between symptoms of depression and ART adherence for PLWH born inside versus outside of Canada. PLWH taking ART (N = 57) completed self-assessments of depression and adherence to ART. Adherence rates did not differ significantly for PLWH who were born outside (66.7% were >/=95% adherent) versus inside Canada (51.6% were >/=95% adherent), but the relationship between symptoms of depression and ART adherence depended on the country of birth: for individuals born in Canada, depression was associated with lower ART adherence (beta = -.21, p = .005, 95% confidence interval -.35 to -.07); for PLWH born outside of Canada there was no association between symptoms of depression and ART adherence. Symptoms of depression may not universally affect ART adherence; country of birth may be one critical variable impacting this relationship.


New York City has experienced the largest HIV epidemic among persons who use psychoactive drugs. We examined progress in placing HIV seropositive persons who inject drugs (PWID) and HIV seropositive non-injecting drug users (NIDU) onto antiretroviral treatment (ART) in New York City over the last 15 years. We recruited 3511 PWID and 3543 NIDU from persons voluntarily entering drug detoxification and methadone maintenance treatment programs in New York City from 2001 to 2014. HIV prevalence declined significantly among both PWID and NIDU. The percentage who reported receiving ART increased significantly, from approximately 50 % (2001-2005) to approximately 75 % (2012-2014). There were no racial/ethnic disparities in the percentages of HIV seropositive persons who were on ART. Continued improvement in ART uptake and TasP and maintenance of other prevention and care services should lead to an "End of the AIDS Epidemic" for persons who use heroin and cocaine in New York City.


BACKGROUND: HIV infected (HIV+) individuals may be more susceptible to alcohol-related harm than uninfected individuals. METHODS: We analyzed data on HIV+ and uninfected individuals in the Veterans Aging Cohort Study (VACS) with an Alcohol Use Disorders Identification Test-Consumption AUDIT-C score from 2008 to 2012. We used Cox proportional hazards models to examine the association between alcohol exposure and mortality through July, 2014; and linear regression models to assess the association between alcohol exposure and physiologic injury based on VACS Index Scores. Models were adjusted for age, race/ethnicity, smoking, and hepatitis C infection. RESULTS: The sample included 18,145 HIV+ and 42,228 uninfected individuals. Among HIV+ individuals, 76% had undetectable HIV-1 RNA (<500 copies/ml). The threshold for an association of alcohol use with mortality and physiologic injury differed by HIV status. Among HIV+ individuals, AUDIT-C score >/=4 (hazard ratio [HR] 1.25, 95% CI 1.09-1.44) and >/=30 drinks per month (HR, 1.30, 95% CI 1.14-1.50) were associated with increased risk of mortality. Among uninfected individuals, AUDIT-C score >/=5 (HR, 1.19, 95% CI 1.07-1.32) and >/=70 drinks per month (HR 1.13, 95% CI 1.00-1.28) were associated with increased risk. Similarly, AUDIT-C threshold scores of 5-7 were associated with physiologic injury among HIV+ individuals (beta 0.47, 95% CI 0.22, 0.73) and a score of 8 or more was associated with injury in uninfected (beta 0.29, 95% CI 0.16, 0.42) individuals. CONCLUSIONS: Despite antiretroviral therapy, HIV+ individuals experienced increased mortality and physiologic injury at lower levels of alcohol use compared with uninfected individuals. Alcohol consumption limits should be lower among HIV+ individuals.
Kahler, C. W., et al. (2016). "Direct and Indirect Effects of Heavy Alcohol Use on Clinical Outcomes in a Longitudinal Study of HIV Patients on ART." AIDS Behav.

In a cohort of patients receiving care for HIV, we examined longitudinally the impact of past 30-day frequency of heavy drinking (consuming 5+ drinks on one occasion) on HIV-related (detectable viral load and CD4+ T cell count) and non-HIV-related (hemoglobin and biomarkers of kidney function and liver fibrosis) clinical outcomes and the extent to which these effects were due to reduced antiretroviral therapy (ART) adherence. Data came from the Study to Understand the Natural History of HIV/AIDS in the Era of Effective Therapy. Between March 2004 and June 2006, 533 individuals receiving ART were recruited and followed every 6 months for six years. Using longitudinal mediation analysis, we estimated natural direct effects (NDE) of heavy drinking frequency (never, 1-3 times, or 4+ times in the past 30 days) on clinical outcomes and natural indirect effects (NIE) mediated via ART adherence. A one-level increase in heavy drinking frequency had a significant negative NDE on CD4+ T-cell counts (-10.61 cells/mm3; 95% CI [-17.10, -4.12]) and a significant NIE through reduced ART adherence of -0.72 cells/mm3 (95% CI [-1.28, -0.15]), as well as a significant NIE on risk of detectable viral load (risk ratio = 1.03; 95% CI [1.00, 1.05]). Heavy drinking had a significant detrimental NIE on a combined index of 5-year mortality risk and detrimental NDE and total effect on a biomarker of liver fibrosis. Heavy drinking has deleterious effects on multiple clinical outcomes in people living with HIV, some of which are mediated through reduced ART adherence.


Many studies have investigated risk factors for suicidal ideation and suicide attempt; however, most have failed to show differences in risk factors between suicidal ideation and suicide attempt among the human immunodeficiency virus (HIV)-infected population. This study was designed to identify differences in risk factors between suicidal ideation and suicide attempts among HIV-infected adults in Seoul. A face-to-face survey of 457 HIV-infected adults was conducted by the Seoul Metropolitan Government in 2013. Multivariate logistic regression analysis was used to identify factors associated with suicidal ideation and suicide attempt. Among 422 participants, 44% had suicidal ideation, and 11% had suicide attempts. The independent risk factors for suicidal ideation were young and middle age, living with someone, history of AIDS-defining opportunistic disease, history of treatment for depression, lower social support, and psychological status. Beneficiaries of National Medical Aid, economic barriers to treatment, history of treatment for depression, and lower psychological status were independently associated with suicide attempts. Patients with HIV in Korea were treated without cost in some centers. Thus, experiencing an economic barrier to treatment might be due in part to ignorance of HIV care policies. Our findings indicate that suicide attempts are associated with socioeconomic factors and information inequality regarding medical care. In conclusion, suicidal ideation closely associated with the psychosocial factors, whereas suicide attempt demonstrates a stronger association with socioeconomic factors. Suicide prevention measures should be implemented to provide information to help HIV-infected patients.


CONTEXT: Smoking is responsible for increased morbidity and mortality in HIV-infected smokers. OBJECTIVE: To assess the efficacy of behavioral interventions for smoking cessation among HIV-infected smokers compared with the standard care. DATA SOURCES: PubMed, Cochrane, CINHAL, PsychINFO, and Google Scholar were searched for randomized controlled trials published in English. STUDY SELECTION: Eligibility criteria were randomized controlled trials with targeted behavioral interventions compared with standard of care (or enhanced standard of care) aimed at promoting abstinence in HIV-infected smokers. A total of 17,384 articles were found and 17,371 were excluded; 13 full text articles were obtained and reviewed, and 8 met the eligibility criteria (Kappa = 0.94). DATA EXTRACTION: The primary outcome was expired carbon monoxide-verified 7-day point prevalence abstinence rates. Adequate sequence generation and freedom from incomplete or selective outcome reporting was used to assess study quality. RESULTS: A total of 1822 subjects from 8 studies yielded a statistically significant effect of behavioral interventions in increasing abstinence in HIV-infected smokers with a moderate effect size (relative risk: 1.51; 95% confidence interval: 1.17 to 1.95). Those studies with interventions of 8 sessions or more had a large effect size for abstinence (relative risk: 2.88; 95% confidence interval: 1.89 to 4.61). When stratified by the number of sessions, there was no heterogeneity. CONCLUSIONS: Targeted behavioral smoking cessation interventions are efficacious. Interventions consisting of 8 sessions or more had the greatest treatment efficacy.
Major depressive disorder (MDD) is projected to become the second most common cause of disability by 2020 calling for a better understanding its antecedents across the lifespan and in diverse socio-cultural settings. In this paper we describe the risk factors of MDD among older people (50 years +) living in HIV-endemic central and southwestern Uganda. A cross-sectional study was undertaken among 471 respondents (50 years +) participating in the Wellbeing of Older People’s Study cohort of the MRC/UVRI Uganda research Unit on AIDS in Uganda. Participants were from five strata: HIV negative, HIV positive on ART, HIV positive not on ART, having an adult child on ART, and having an adult child who died of HIV. Overall MDD prevalence was 9.2% (95% CI 6.7-12.2%) with a prevalence among males of 7.4% (95% CI 4.0-12.3%) and females of 10.3% (95% CI 7.0-14.3%). Factors significantly associated with MDD included: declining socio-economic status, increasing disability scores, decreasing mean grip strength, reported back pain, and not having hypertension. Marginally associated with MDD was being HIV infected and not on ART.


INTRODUCTION: Injection drug use is the most frequently reported risk behavior among new cases of hepatitis C virus infection, and recent reports of increases in infection are of great concern in many communities. This study assessed the prevalence and trends in injection drug use among U.S. high school students. METHODS: Data were from CDC’s Youth Risk Behavior Surveillance System, which collects information on health risk behaviors at the national, state, and large urban school district levels. Analyses were conducted in 2014. RESULTS: In 2013, 1.7% of high school students nationwide had ever injected any illegal drug. Nationwide, ever injecting any illegal drug did not change significantly from 1995 to 2013, except among black non-Hispanic students. For this subgroup, both a significant linear increase from 1995 to 2013 and a significant quadratic trend were observed, with injection drug use increasing from 1995 to 2009 and decreasing from 2009 to 2013. Significant linear increases in injection drug use occurred in five states (Arkansas, Hawaii, Maine, Maryland, and New York) and six large urban school districts (Baltimore, Memphis, Miami-Dade County, New York City, Philadelphia, and Seattle). Significant linear decreases occurred in three states (Massachusetts, South Dakota, and West Virginia). Both a significant linear increase and quadratic trend were observed in Maine; quadratic trends were observed in Tennessee, Utah, and Palm Beach County, Florida. CONCLUSIONS: In some geographic areas and population groups, an increasing or high frequency of injection drug use was found among high school students, who should be targeted for prevention.


BACKGROUND: Persons living with HIV (PLWH) and substance use/misuse experience significant barriers to engagement in HIV care at every step of the HIV care continuum including: (1) HIV testing and diagnosis (2) linkage to clinical care (3) retention in care pre-antiretroviral therapy (ART) (4) ART initiation and adherence (5) viral suppression. We qualitatively explored the facilitators of and barriers to participation in the HIV care continuum among PLWH with substance use/misuse. METHODS: We performed semi-structured in-depth interviews with 34 PLWH in care with recent substance use. The transcripts were analyzed in an iterative process using an editing style analysis. Interviews were conducted until thematic saturation was achieved. RESULTS: Participants attributed an escalation in drug use at the time of diagnosis to denial of their disease and the belief that their death was inevitable and cited this as a barrier to treatment entry. In contrast, participants reported that experiencing adverse physical effects of uncontrolled HIV infection motivated them to enroll in care. Reported barriers to retention and adherence to care included forgetting medications and appointments because of drug use, prioritizing drug use over HIV treatment and side effects associated with medications. Participants described that progression of illness, development of a medication taking ritual and a positive provider-patient relationship all facilitated engagement and reengagement in care. CONCLUSIONS: PLWH with substance use engaged in care describe barriers to and facilitators of optimal engagement related to and distinct from substance use. Greater understanding of the biologic, psychological and social factors that promote and impair engagement in care can inform interventions and reduce the increased morbidity and mortality experienced by PLWH with substance use.


HIV-positive men who have sex with men (HIVMSM) face severe stigma and high levels of stressors, and have high prevalence of mental health problems (e.g., depression and anxiety). Very few studies explored the role of positive psychological factors on mental health problems among HIVMSM. The present study investigated the prevalence of two mental health problems (anxiety and depression), and their associated protective (gratitude) and risk (enacted HIV-related stigma, and
perceived stress) factors among HIVMSM in China. A cross-sectional survey was conducted among 321 HIVMSM in Chengdu, China, by using a structured questionnaire. Over half (55.8%) of the participants showed probable mild to severe depression (as assessed by the Center of Epidemiologic Studies Depression scale); 53.3% showed probable anxiety (as assessed by the General Anxiety Disorder scale). Adjusted logistic regression models revealed that gratitude (adjusted odds ratio (ORa = 0.90, 95% confidence intervals (95% CI) = 0.86-0.94) was found to be protective, whilst perceived stress (ORa = 1.17, 95% CI = 1.12-1.22) and enacted stigma (ORa = 7.72, 95% CI = 2.27-26.25) were risk factors of depression. Gratitude (ORa = 0.95, 95% CI = 0.91-0.99) was also found to be protective whilst perceived stress (ORa = 1.19, 95% CI = 1.14-1.24) was a risk factor of anxiety. Gratitude did not moderate the associations found between related factors and poor mental health. It is warranted to promote mental health among HIVMSM, as depression/anxiety was highly prevalent. Such interventions should consider enhancement of gratitude, reduction of stress, and removal of enacted stigma as potential strategies, as such factors were significantly associated with depression/anxiety among HIVMSM.


PURPOSE: Investigate whether characteristics of geographic areas are associated with condomless sex and injection-related risk behavior among racial/ethnic groups of people who inject drugs (PWID) in the United States. METHODS: PWID were recruited from 19 metropolitan statistical areas for 2009 National HIV Behavioral Surveillance. Administrative data described ZIP codes, counties, and metropolitan statistical areas where PWID lived. Multilevel models, stratified by racial/ethnic groups, were used to assess relationships of place-based characteristics to condomless sex and injection-related risk behavior (sharing injection equipment). RESULTS: Among black PWID, living in the South (vs. Northeast) was associated with injection-related risk behavior (adjusted odds ratio [AOR] = 2.24, 95% confidence interval [CI] = 1.21-4.17; P = .011), and living in counties with higher percentages of unaffordable rental housing was associated with condomless sex (AOR = 1.02, 95% CI = 1.00-1.04; P = .046). Among white PWID, living in ZIP codes with greater access to drug treatment was negatively associated with condomless sex (AOR = 0.93, 95% CI = 0.88-1.00; P = .038). CONCLUSIONS: Policies that increase access to affordable housing and drug treatment may make environments more conducive to safe sexual behaviors among black and white PWID. Future research designed to longitudinally explore the association between residence in the south and injection-related risk behavior might identify specific place-based features that sustain patterns of injection-related risk behavior.


Methamphetamine (METH) has become one of the most widely abused drugs in South Florida, particularly among MSM who may or may not be HIV seropositive. High rates of childhood trauma have been reported among HIV-infected MSM (Chartier et al., 2010), but, the association of childhood trauma, and mood disorders with methamphetamine use in HIV-infected men, has not been comprehensively explored. A better understanding of the association between these factors could improve existing substance abuse treatment intervention strategies and medical treatment programs (e.g., medication adherence; Carrico, 2010) to enhance positive health outcomes for male meth abusers living with the psychological consequences of childhood abuse. This study, as part of a larger study, examined the occurrence of childhood trauma and depression in a group of HIV seropositive METH abusing MSM. Significantly higher levels of depression symptom severity were found among METH users relative to non-METH users (p < .001). Irrespective of HIV status, METH users also reported higher frequencies of emotional, physical and sexual child abuse relative to non-METH users (p < .001). Among meth users, depression was predicted by childhood emotional neglect. These results suggest that childhood maltreatment may be implicated in the development of emotional distress (e.g., depression) and higher prevalence of methamphetamine/drug abuse in this population. These findings have important implications for substance abuse interventions, specifically targeting METH addiction among MSM. Addressing childhood trauma and depression may play a key role in enhancing the effectiveness of interventions for methamphetamine addiction.


Rates of depression and anxiety are disproportionately high among gay men in part because of the impact of stigma and discrimination. Mindfulness is known to prevent stressful reactions to challenging life events. This study examined whether higher levels of dispositional mindfulness attenuated the impact of sexuality- and age-related discrimination on the mental health and self-esteem of middle-aged and older gay men. A total of 369 gay-identified men aged 40 years and older participated in a national community-based survey in Australia. Measures included the K10 Psychological Distress Scale for mental health, the
Rosenberg Self-Esteem Scale, and a short-form Mindfulness Attention Awareness Scale. Gay men who reported experiences of sexuality- and age-related discrimination in the past 2 years were more likely to be psychologically distressed and to have lower self-esteem than those who reported no such experiences. However, in a series of hierarchical regressions, those who had experienced either of these types of discrimination were no more likely to be psychologically distressed or to have lower self-esteem if they reported high levels of dispositional mindfulness. Mindfulness appears to attenuate the mental health impact of sexuality- and age-related discrimination among middle-aged and older gay men. Providing mindfulness training in clinical and community settings could be considered as 1 way of assisting this vulnerable group to cope with the impact of stigma and discrimination. (PsycINFO Database Record (c) 2016 APA, all rights reserved. (journal abstract)


The purpose of this paper was to describe and appraise the research evidence on the effects of acute alcohol intoxication and sexual arousal on sexual risk behaviors in men who have sex with men (MSM) and to examine its implications for design of HIV prevention interventions that target MSM. Toward that end, the paper begins with a discussion of research on sexual arousal in men and alcohol and their acute effects on sexual behaviors. This is followed by a review of empirical evidence on the combined acute effects of alcohol and sexual arousal in heterosexual men (the large majority of studies) and then in MSM. The empirical evidence and related theoretical developments then are integrated to derive implications for developing effective HIV prevention interventions that target MSM.


We examined the influence of age on associations between affective states, social support, and alcohol use by age cohorts. We recruited 96 older Black adults living with HIV from the southeastern United States in 2013 and 2014. Participants completed questionnaires assessing demographics, psychological function, and substance use. Hierarchical regression analyses assessed the relationship between psychosocial factors and alcohol use in a 50- to 59-year-old group, and a 60-years-and-older age group. After controlling for covariates, trait anger, state anger, and life stress were positively associated with alcohol consumption in the younger group, while social support was negatively associated with alcohol consumption in the older group. Interventions should target negative affective states in 50- to 59-year-old adults with HIV, and preserve social support for adults with HIV as they age, as such interventions will likely have an impact on these individuals’ alcohol consumption and longstanding quality of life.


Estimates suggest 30% of adults report the highest levels of loneliness. Though men are more likely than women to use illicit substances and engage in heavy drinking, the prevalence of substance use in women is growing and their escalation toward dependence occurs more rapidly. Loneliness and substance use have greater relevance within the HIV+ population, with higher rates of substance misuse than the general population. However, the association between loneliness and substance use within HIV+ individuals remains understudied. The purpose of the present study was to test the hypothesis that there would be an association between loneliness and substance moderated by gender in HIV+ older adults. A cross-sectional study was conducted between October 2013 and January 2014. Study participants included 96 HIV-positive Black/African American men and women recruited through the University of Florida Center for HIV/AIDS Research, Education and Service (UF CARES) in Jacksonville, Florida. Participants completed an interviewer-administered assessment examining mental and behavioral health. Pearson correlations examined associations between loneliness and substance use. Binary logistic regression analyses stratified by gender examined the association between loneliness and substance use while controlling for covariates. Among women, loneliness was associated with illicit drug use, AOR = 3.37, 95% CI: 1.23-9.21, p = .018 and heavy drinking, AOR = 2.47, 95% CI: 1.07-5.71, p = .033. No significant associations were found between loneliness and illicit drug use, and heavy drinking in men. Substance use among women in this population may be linked to loneliness. Interventions should be gender specific. Further research into this association is necessary as it will likely have important clinical implications for this population.
Depression in HIV/AIDS patients affects adherence and disease progression and often goes unnoticed. DHIVA is a cross-sectional epidemiologic survey, investigating the prevalence of depression in people living with HIV through use of a validated self-administered scale (CES-D-20), as well as the degree of concordance between the physician’s perception and patients' reports. A total of 690 HIV-infected patients attending 24 centers across Italy were enrolled. Concordance was calculated by K statistics. Association between depression and subject characteristics were evaluated through univariate and multivariate logistic models (OR and 95%CI). The prevalence of depressive symptoms was 48.8% from patient’s questionnaires and 49.5% from physicians' reports, with a low/fair concordance (K = .38, p < .001). CES-D-20 found severe depression in 22.5% of the patients vs 4% identified by physicians. 135/155 (87%) of the severely depressed patients (according to CES-D-20) were considered as non or mildly/moderately depressed by physicians. Risk of severe depression was associated with unemployment (p < .001), previous depression (p < .001), treatment failure (p = .001), and former smoking status (p = .018). Depression is frequent in HIV-infected patients in the HAART era, with significant discrepancy between physician perception and the self-reported CES-D-20 results. Screening should be mandatory in all HIV patients.


Introduction HIV-infection is a very stigmatized, chronic disease with increased rates of psychiatric disorders, being major depression the most common. Objective To review the recent research related to depression in HIV-infected patients. Methods Literature review based on PubMed/Medline, using the keywords “HIV” and “depression”. Results HIV-infected patients have a chance 2-7 times higher of developing major depression, around the time of diagnosis or during the course of their illness. However, only fewer than 50% of the cases are recognized clinically. Several factors contribute to its under-recognition and under-treatment, such as the overlap between the neurovegetative symptoms of depression, the somatic symptoms of HIV disease, and the effects of comorbid diseases; the mistaken belief that depressive symptoms are expected in this group; the neuropsychiatric side effects associated with some antiretrovirals. Besides, major depression presents important diagnostic challenges due to biological, psychological, and social components associated with the infection. The authors will analyze the clinical presentation. Depression has been associated with a negative impact on quality of life, poorer HAART adherence, faster HIV disease progression and increased mortality risk. Importantly, however, appropriate psychiatric intervention can do it over. In fact, studies suggest that patients receiving SSRI treatments for depression have rates of adherence and CD4 + T-cell counts similar to non-depressed patients receiving HAART. Conclusions The high prevalence of major depression in HIV-positive individuals and its serious consequences if untreated, increase even further the importance of its effective identification and subsequent treatment in this group of patients.

Martinez, O., et al. (2016). "Relationship Factors Associated with Sexual Risk Behavior and High-Risk Alcohol Consumption Among Latino Men Who Have Sex with Men: Challenges and Opportunities to Intervene on HIV Risk." Arch Sex Behav.

The HIV epidemic continues to be a major public health concern, affecting communities with varying prevention and treatment needs. In the U.S., Latino men who have sex with men (MSM) bear a disproportionate burden of HIV incidence. While recent studies have highlighted the relevance of relationship factors for HIV transmission among MSM generally, the unique needs and experiences of Latino MSM have received relatively little attention. Consequently, associations between relationship factors and HIV risk among Latino MSM remain unknown. This mixed-method study examined relationship status and dynamics and potential HIV-related risk behaviors among Latino MSM. Quantitative analyses with 240 Latino MSM investigated associations between relationship status and engagement in condomless anal intercourse (CAI). Focus groups with 20 Latino male couples and 10 health service providers explored the impact of relationship dynamics on sexual behaviors, as well as opportunities to intervene on HIV risk. The majority of participants were predominantly Spanish speaking, most screened positive for high-risk alcohol consumption in the past month, more than half engaged in CAI in the past 3 months, and a majority reported multiple sexual partners in this period. Among participants in same-sex relationships (n = 175), approximately half reported multiple partners in the previous 3 months and more than two-thirds reported CAI in this time period. Being in a same-sex relationship was positively associated with high-risk alcohol consumption and being age 30 or older and negatively associated with having multiple partners. Moreover, being in a same-sex relationship significantly increased the likelihood that participants would report engaging in CAI. Qualitative analyses identified themes related to relationship dynamics and sexual behavior, as well as opportunities to intervene on HIV risk. Despite the challenges encountered by Latino male couples, most participants expressed commitment to and support for their partners. As such, prevention efforts involving Latino male couples must address relationship dynamics and the role they play in sexual health, including safer sex practices.

In the United States more than half of everyone who ever smoked has quit. Most people addicted to nicotine require several quit attempts to stop, but in some people with HIV a failed quit attempt predicts future success. People with HIV appear to have a harder time quitting than people without HIV. CDC analysis of nationally representative samples figured a quit ratio of 52% in the general population versus 32% in HIV-positive people. Studies in HIV populations indicate that those most likely to quit smoking include older people, pregnant women, and people with a high motivation to quit, a previous quit attempt, or recent pulmonary disease. US health authorities recommend that clinicians adopt the 5As approach to smoking cessation: ask, advise, assess, assist, and arrange. But only a little more than half of US clinicians assist smokers in picking a smoke ending strategy, and only 10% arrange follow-up within the first week after a quit date. Smoking cessation medications recommended and tested in people with HIV are varenicline, bupropion, and nicotine replacement in various forms. Success with these strategies generally ranges from 10% to 20% in HIV-positive people, with higher success rates in some subgroups. Successful nondrug strategies to support drug therapy in people with HIV include an Internet-based interactive program, cell-phone reminder calls, one-time 1-hour one-on-one counseling, and formal clinician education.


The impact of HIV and its treatment on the effects of alcohol remain unclear. Blood alcohol concentrations have been noted to be higher in HIV infected individuals prior to antiretroviral initiation. Our goal was to compare number of drinks to "feel a buzz or high" among HIV infected and uninfected men, stratified by viral load (VL) suppression. Data includes 1478 HIV infected and 1170 uninfected men in the veterans aging cohort study who endorsed current drinking. Mean (SD) number of drinks to feel a buzz was 3.1 (1.7) overall. In multivariable analyses, HIV infected men reported a lower mean number of drinks to feel a buzz compared to uninfected men (coef = -14 for VL < 500; -34 for VL >/= 500; p </= .05). Men with HIV, especially those with a detectable VL, reported fewer drinks to feel a buzz. Future research on the relationship between alcohol and HIV should consider the role of VL suppression.

Millar, B. M., et al. (2016). "The Impact of Comorbidities, Depression, and Substance Use Problems on Quality of Life Among Older Adults Living With HIV." AIDS Behav.

Older adults living with HIV (OALWH) comprise a growing population with a range of complex and interconnecting medical and psychosocial needs. Based on the biopsychosocial model with its emphasis on a holistic approach to various aspects of people’s lives, the current study explored associations between physical health, psychological health, substance use, and overall quality of life. Drawing on data from 114 substance-using OALWH (aged 50 or older), we employed linear regression to show associations between the number of current comorbid health conditions on quality of life, over and above depression, substance use problems, and demographic characteristics (age, race/ethnicity, gender, sexual orientation, education, and relationship status). In both bivariate and multivariable contexts, the number of comorbid conditions was associated with reduced quality of life. Depression and substance use were also negatively associated with quality of life. These findings indicate that clinical and supportive care for OALWH, particularly when related to mental health and substance use, should also include an integrated focus on the comparatively high number of current comorbid conditions that often accompany, and potentially complicate, HIV treatment and quality of life.


BACKGROUND: Characterizing methamphetamine use in relation to age, HIV serostatus and seroconversion is pertinent given the increasingly older age of the population with HIV and the intertwined epidemics of methamphetamine use and HIV. OBJECTIVES: Study aims were to investigate whether (i) methamphetamine use differ by age and HIV serostatus, and (ii) receiving an HIV diagnosis impacts methamphetamine use among younger and older persons with HIV. METHODS: This study
examined methamphetamine use characteristics among 217 individuals with a lifetime methamphetamine dependence diagnosis who completed an in-person study assessment. RESULTS: Multivariable regressions revealed that HIV serostatus uniquely attenuates methamphetamine use, such that persons with HIV report a smaller cumulative quantity (beta = -0.16, p = 0.01) and a fewer number of days (beta = -0.18, p = 0.004) of methamphetamine use than persons without HIV. Among the HIV+ sample, all participants persisted in methamphetamine use after receiving an HIV diagnosis, with about 20% initiating use after seroconversion. Repeated measures analysis of variance indicated that density of methamphetamine use (i.e. grams per day used) was greater among the younger, relative to the older, HIV+ group (p = 0.02), and increased for both age groups following seroconversion (p < 0.001). CONCLUSION: These analyses indicate that although HIV serostatus may attenuate methamphetamine use behaviors, many people with HIV initiate, or persist in, methamphetamine use after receiving an HIV diagnosis. These findings raise the question of whether tailoring of prevention and intervention strategies might reduce the impact of methamphetamine and HIV across the age continuum.


We aimed to compare rates of illicit drug-related hospitalisations in HIV-negative (HIV-ve) (n = 1325) and HIV-positive (HIV+ve) (n = 557) gay and bisexual men (GBM) with rates seen in the general male population and to examine the association between self-reported illicit drug use and drug-related hospitalisation. Participants were asked how often they used a range of illicit drugs in the previous 6 months at annual interviews. Drug-related hospital admissions were defined as hospital admissions for mental or behavioural disorders due to illicit drug use (ICD 10: F11-16, F18, F19), drug poisoning (T40-T45, T50) or toxic effect of gases (T53, T59, T65). Drug-related hospitalisations were 4.8 times higher in the HIV-ve cohort [SIR 4.75 (95 % CI 3.30-6.91)] and 3.5 times higher in the HIV+ve cohort [SIR 3.51 (1.92-5.88)] compared with the general population. Periods of weekly drug use [IRR 1.86 (1.01-3.46)], poly-drug use [IRR 2.17 (1.07-4.38)] and cannabis use [low use-IRR 1.95 (1.01-3.77), high use-IRR 2.58 (1.29-5.16)] were associated with drug-related hospitalisation in both cohorts, as was being a consistently high meth/amphetamine user throughout follow-up [IRR 3.24 (1.07-9.83)] and being an inconsistent or consistent injecting drug user throughout follow-up [IRR 3.94 (1.61-9.66), IRR 4.43(1.04-18.76), respectively]. Other risk factors for drug-related hospitalisation indicated the likelihood of comorbid drug and mental health issues in GBM hospitalised for drug use.


Physical function limitations have been associated with poor health outcomes, which have a negative impact on quality of life of older individuals. This study examined the association between depression, viral load, and acculturation with physical function among Latino men living with HIV. A secondary data analysis was performed using a cross-sectional data of 146 Latino immigrant men living with HIV in New York City and Washington, DC. Physical function was measured using the Short-Form Health Survey (SF-12). Uncontrolled HIV infection and depression were associated with worse physical function, thus implying the importance of adequate health care to address these conditions. Preserving physical function should start during middle adulthood, particularly among people living with HIV because of their greater risk of developing age-related challenges such as depression, diabetes, cardiovascular diseases among others. This study informs future interventions to preserve physical function and achieve the goal of successful aging.


Depressive symptoms cause major impairment and may accelerate HIV progression despite the use of antiretroviral medication. The somatic symptoms criteria for HIV infection and depression partially overlap, which can make differential diagnosis challenging. Because of chronic inflammation caused by HIV infection, HIV-positive patients may develop somatic and affective-cognitive symptoms of depression. Inflammation-related depression is primarily characterized with severe somatic symptoms such as fatigue and sleep disturbance. This study sought to explore the patterns of somatic and cognitive-affective depressive symptoms that characterize HIV-positive patients. Our specific aims were (1) to identify subtypes of depressive symptoms in a sample of HIV-positive patients; and (2) to test the subtypes’ difference on inflammatory and HIV disease
progression biomarkers. HIV-positive men and women (N=102) with and without depressive symptoms were randomly selected from an Italian HIV clinic. Depressive symptoms (PHQ-9), viral load (VL), CD4+, IL-6, TNF-alpha, and monocytes were assessed. The three subtypes formed using Latent Class Analysis (LCA) identified patients with (1) severe cognitive-affective and somatic depressive symptoms; (2) severe/moderate somatic symptoms; and (3) absent or low depressive symptoms. The subtype with severe/moderate somatic symptoms was characterized with elevated levels of IL-6 and monocytes. No difference on HIV progression biomarkers was found. The subtypes of depressive symptoms might help differentiating depressive symptoms from HIV- and inflammatory-related somatic symptoms. When present, cognitive-affective and/or somatic symptoms cause significant impairment to patients' lives and thus warrant further assessment and treatment.


BACKGROUND: Depression is a prevalent psychiatric disorder with high personal and public health consequences, partly due to a high risk of recurrence. This longitudinal study examines personality traits, structural and subjective social support dimensions as predictors of first and recurrent episodes of depression in initially non-depressed subjects. METHODS: Data were obtained from the Netherlands Study of Depression and Anxiety (NESDA). 1085 respondents without a current depression or anxiety diagnosis were included. 437 respondents had a prior history of depression, 648 did not. Personality dimensions were measured with the NEO-FFI, network size, partner-status, negative and positive emotional support were measured with the Close Person Questionnaire. Logistic regression analyses (unadjusted and adjusted for clinical variables and sociodemographic variables) examined whether these psychosocial variables predict a new episode of depression at two year follow up and whether this differed among persons with or without a history of depression. RESULTS: In the unadjusted analyses high extraversion (OR:.93, 95% CI (.91-.96), P<.001), agreeableness (OR:.94, 95% CI (.90-.97), P<.001), conscientiousness (OR:.93, 95% CI (.90-.96), P<.001) and a larger network size (OR:.76, 95% CI (.64-.90), P=.001) significantly reduced the risk of a new episode of depression. Only neuroticism predicted a new episode of depression in both the unadjusted (OR:1.13, 95% CI (1.10-1.15), P<.001) and adjusted analyses (OR:1.06, 95% CI (1.03-1.10), P<.001). None of the predictors predicted first or recurrent episodes of depression differently. LIMITATIONS: we used a relatively short follow up period and broad personality dimensions. CONCLUSIONS: Neuroticism seems to predict both first and recurrent episodes of depression and may be suitable for screening for preventive interventions.


BACKGROUND: Suicidal ideation is the most proximal risk factor for suicide and can indicate extreme psychological distress; identification of its predictors is important for possible intervention. Depression and stressful or traumatic life events (STLEs), which are more common among HIV-infected individuals than the general population, may serve as triggers for suicidal thoughts. METHODS: A randomized controlled trial testing the effect of evidence-based decision support for depression treatment on antiretroviral adherence (the SLAM DUNC study) included monthly assessments of incident STLEs, and quarterly assessments of suicidal ideation (SI). We examined the association between STLEs and SI during up to one year of follow-up among 289 Southeastern US-based participants active in the study between 7/1/2011 and 4/1/2014, accounting for time-varying confounding by depressive severity with the use of marginal structural models. RESULTS: Participants were mostly male (70%) and black (62%), with a median age of 45 years, and experienced a mean of 2.36 total STLEs (range: 0-12) and 0.48 severe STLEs (range: 0-3) per month. Every additional STLE was associated with an increase in SI prevalence of 7% (prevalence ratio (PR) (95% confidence interval (CI)): 1.07 (1.00, 1.14)), and every additional severe STLE with an increase in SI prevalence of 19% (RR (95% CI): 1.19 (1.00, 1.42)). LIMITATIONS: There was a substantial amount of missing data and the exposures and outcomes were obtained via self-report; methods were tailored to address these potential limitations. CONCLUSIONS: STLEs were associated with increased SI prevalence, which is an important risk factor for suicide attempts and completions.

Understanding the nexus of aging, HIV, and substance use is key to providing appropriate services and support for their aging, HIV seropositive patients. The proportion of PLWHA aged 50 and older is growing due to a variety of factors like decreases in mortality due to highly active retroviral therapy and non-negligible HIV incidence. We describe prevalence of alcohol, tobacco, and other drug use and participation in substance use treatment and 12-step programs among 95 HIV-positive patients aged 50 and older engaged in care. Most (73.7%) smoked cigarettes in their lifetime and 46.3% were current smokers. Most were at medium (81.1%) or high risk (13.7%) for an alcohol use disorder. With respect to illicit drug use, 48.4% had used marijuana, cocaine, crack, methamphetamines, heroin, and/or prescription opiates without a prescription in the last 12 months; 23.2% met criteria for drug dependence. Marijuana was the most commonly reported illicit drug (32.6%) followed by cocaine and crack (10.5% each), heroin and prescription opiates (7.4% each), and methamphetamines (6.3%). Among those who had not used drugs in the past 12 months, 36.7% had been in a substance use treatment program and 26.5% had participated in a 12-step program in their lifetime; 8.2% were currently in treatment and 16.3% were currently participating in a 12-step program. Among those who had used an illicit drug in the past 12 months, 37.0% had never been in treatment, 34.8% had been in treatment in their lifetime, and 28.3% were currently in treatment. With respect to 12-step programs, 27.3% of those meeting dependence criteria had never participated, 45.5% had participated in their lifetimes, and 27.3% were currently participating. Our findings suggest that older adults in HIV care settings could benefit from Screening, Brief Intervention, and Referral to Treatment interventions and/or integrated services for substance abuse and medical treatment.


BACKGROUND: Mental disorders are the leading global cause of years lived with disability; the majority of this burden exists in low and middle income countries (LMICs). Over half of mental illness is attributable to depression and anxiety disorders, both of which have known treatments. While the scarcity of mental health care providers is recognized as a major contributor to the magnitude of untreated disorders in LMICs, studies in LMICs find that evidence-based treatments for depression and anxiety disorders, such as brief, structured psychotherapies, are feasible, acceptable and have strong efficacy when delivered by local non-specialist personnel. However, most mental health treatment studies using non-specialist providers in LMICs deploy traditional efficacy designs (T1) without the benefit of integrated mental health treatment models shown to succeed over vertical interventions or methods derived from new implementation science to speed policy change. Here, we describe an effectiveness-implementation hybrid study that evaluates non-specialist delivery of mental health treatment within an HIV clinic for HIV-positive (HIV+) women affected by gender-based violence (GBV) (HIV+ GBV+) in the Nyanza region of Kenya. METHODS/DESIGN: In this effectiveness-implementation hybrid type I design, 200 HIV+ women with major depressive disorder (MDD) and posttraumatic stress disorder (PTSD) who are receiving care at a Family AIDS Care Education and Services (FACES)-supported clinic in Kisumu, Kenya will be randomized to: (1) interpersonal psychotherapy (IPT) + treatment as usual (TAU) or (2) TAU, both delivered within the HIV clinic. IPT will consist of 12 weekly 60-minute individual IPT sessions, delivered by non-specialists trained to provide IPT. Primary effectiveness outcomes will include MDD and PTSD diagnosis on the Mini International Diagnostic Interview (MINI). Primary implementation outcomes will include treatment cost-benefit, acceptability, appropriateness, feasibility and fidelity of the IPT delivery within an HIV clinic. DISCUSSION: This trial leverages newly defined effectiveness-implementation hybrid designs to gather data on mental health treatment implementation within an HIV care clinic, while testing the effectiveness of an evidence-based treatment for use with a large underserved population (HIV+ GBV+ women) in Kenya. TRIAL REGISTRATION: CLINICAL TRIALS IDENTIFIER: NCT02320799, registered on 9 September 2014.


INTRODUCTION: Smoking is more prevalent among persons living with HIV (PLWH) than the general population. Little is known about the prevalence of non-cigarette tobacco and poly-tobacco use (PTU; using multiple tobacco products) among this population, which, in the general population is associated with poor health and cessation outcomes. We aimed to characterize the prevalence of cigarette and non-cigarette tobacco use, PTU, and correlates of tobacco use status among a nationally-representative sample of PLWH. METHODS: Data came from 472 HIV-positive adults from the 2005-2013 National Survey on Drug Use and Health (NSDUH). RESULTS: The prevalence of PTU overall was 8.7% (95% CI=5.6-13.2), and 16.6% (95% CI=10.2-25.7) among past-year tobacco users. In multinomial logistic regression analyses, participants with a high school education or greater had a higher likelihood of cigarette use (aORR=2.03, 95% CI=1.03-4.00) and non-cigarette tobacco use (aORR=3.60, 95% CI=0.19-0.66) than those with less than or equal to a high school education. Past month binge drinkers (aORR=0.24, 95% CI=0.12-0.50) were less likely to be non-cigarette tobacco users compared to abstainers.
users than single product users. Compared to 18-25 year olds, individuals age 26-34 (aRRR=0.13, 95% CI=0.03-0.65) and 35+ (aRRR=0.24, 95% CI=0.09-0.63), and with lifetime anxiety disorder(s) (aRRR=0.18, 95% CI=0.06-0.57) were less likely to be PTUs as compared to single product users. Individuals who reported liking to test themselves by doing risky things were more likely to be PTUs than single product users (aRRR=2.95, 95% CI=1.27-6.84). CONCLUSIONS: PTU was slightly higher than in the general population, and should be taken into account when developing cessation interventions tailored to tobacco users living with HIV.


BACKGROUND: Although the relationship between depression and "offline" social support is well established, numerous questions surround the relationship between "online" social support and depression. We explored this issue by examining the social support dynamics that characterize the way individuals with varying levels of depression (Study 1) and SCID-diagnosed clinically depressed and non-depressed individuals (Study 2) interact with Facebook, the world's largest online social network.

METHOD: Using a novel methodology, we examined how disclosing positive or negative information on Facebook influences the amount of social support depressed individuals (a) actually receive (based on actual social support transactions recorded on Facebook walls) and (b) think they receive (based on subjective assessments) from their Facebook network. RESULTS: Contrary to prior research indicating that depression correlates with less actual social support from "offline" networks, across both studies depression was positively correlated with social support from Facebook networks when participants disclosed negative information (p=.02 in Study 1 and p=.06 in Study 2). Yet, depression was negatively correlated with how much social support participants thought they received from their Facebook networks (p=.005 in Study 1 and p=.001 in Study 2). LIMITATIONS: The sample size was relatively small in Study 2, reflecting difficulties of recruiting individuals with Major Depressive Disorder. CONCLUSIONS: These results demonstrate that an asymmetry characterizes the relationship between depression and different types of Facebook social support and further identify perceptions of Facebook social support as a potential intervention target. (243 words; 250 max).


The burden of mental, neurological, and substance use (MNS) disorders increased by 41% between 1990 and 2010 and now accounts for one in every 10 lost years of health globally. This sobering statistic does not take into account the substantial excess mortality associated with these disorders or the social and economic consequences of MNS disorders on affected persons, their caregivers, and society. A wide variety of effective interventions, including drugs, psychological treatments, and social interventions, can prevent and treat MNS disorders. At the population-level platform of service delivery, best practices include legislative measures to restrict access to means of self-harm or suicide and to reduce the availability of and demand for alcohol. At the community-level platform, best practices include life-skills training in schools to build social and emotional competencies. At the health-care-level platform, we identify three delivery channels. Two of these delivery channels are especially relevant from a public health perspective: self-management (eg, web-based psychological therapy for depression and anxiety disorders) and primary care and community outreach (eg, non-specialist health worker delivering psychological and pharmacological management of selected disorders). The third delivery channel, hospital care, which includes specialist services for MNS disorders and first-level hospitals providing other types of services (such as general medicine, HIV, or paediatric care), play an important part for a smaller proportion of cases with severe, refractory, or emergency presentations and for the integration of mental health care in other health-care channels, respectively. The costs of providing a significantly scaled up package of specified cost-effective interventions for prioritised MNS disorders in low-income and lower-middle-income countries is estimated at US$3–4 per head of population per year. Since a substantial proportion of MNS disorders run a chronic and disabling course and adversely affect household welfare, intervention costs should largely be met by government through increased resource allocation and financial protection measures (rather than leaving households to pay out-of-pocket). Moreover, a policy of moving towards universal public finance can also be expected to lead to a far more equitable allocation of public health resources across income groups. Despite this evidence, less than 1% of development assistance for health and government spending on health in low-income and middle-income countries is allocated to the care of people with these disorders. Achieving the health gains associated with prioritised interventions will require not just financial resources, but committed and sustained efforts to address a range of other barriers (such as paucity of human resources, weak governance, and stigma). Ultimately, the goal is to massively increase opportunities for people with MNS disorders to access services without the prospect of discrimination or impoverishment and with the hope of attaining optimal health and social outcomes.

Alcohol-antiretroviral therapy (ART) interactive toxicity beliefs reflect perceived adverse outcomes of mixing alcohol and ART. Previous research has shown a significant relationship between alcohol-ART interactive toxicity beliefs and ART non-adherence, over and above other correlates of non-adherence such as human immunodeficiency virus (HIV)symptoms and frequency of alcohol use. Most past studies have collected data over extended periods and have not determined if alcohol use and missed medications occur at the day-level among people holding interactive toxicity beliefs. Previous daily analyses, however, have been limited by self-reported adherence and relatively short periods of observation. To address these gaps in the literature, men and women living with HIV in Atlanta, GA, were enrolled in a 45-day observational cohort study. Daily alcohol use was collected using two-way interactive text message surveys and daily adherence was collected via the Wisepill device. Fifty-seven participants completed a measure of alcohol-ART interactive toxicity beliefs and contributed 2565 days of daily data. Participants who endorsed high levels of interactive toxicity beliefs had significantly more days when they missed doses of medication. Alcohol-antiretroviral toxicity beliefs predicted missing doses of medication on days when participants were drinking and on days when they were not drinking. Multilevel multivariate regressions showed that these toxicity beliefs predicted daily missed doses of medication over and above quantity of alcohol consumed, depression and general medication concerns. This study replicates and extends previous literature and indicates the necessity of addressing alcohol-ART toxicity beliefs within adherence interventions.


Depression is a common mental disorder affecting individuals. Although many strides have been made in the area of depression, little is known about depression in special populations, especially African American men. African American men often differ in their presentation of depression and are often misdiagnosed. African American men are at greater risk for depression, but they are less likely to participate in mental health care. This article explores depression in African American by looking at environmental factors, sigma, role, and other unique to this populations, such as John Henryism. Interventions to encourage early screening and participation in care are also discussed.


OBJECTIVES: We compared the mortality of persons with and without anxiety and depression in a nationally representative survey and examined the role of socioeconomic factors, chronic diseases and health behaviors in explaining excess mortality. METHODS: The 1999 National Health Interview Survey was linked with mortality data through 2011. We calculated the hazard ratio (HR) for mortality by presence or absence of anxiety/depression and evaluated potential mediators. We calculated the population attributable risk of mortality for anxiety/depression. RESULTS: Persons with anxiety/depression died 7.9 years earlier than other persons. At a population level, 3.5% of deaths were attributable to anxiety/depression. Adjusting for demographic factors, anxiety/depression was associated with an elevated risk of mortality [HR=1.61, 95% confidence interval (CI)=1.40, 1.84]. Chronic diseases and health behaviors explained much of the elevated risk. Adjusting for demographic factors, people with past-year contact with a mental health professional did not demonstrate excess mortality associated with anxiety/depression while those without contact did. CONCLUSIONS: Anxiety/depression presents a mortality burden at both individual and population levels. Our findings are consistent with targeting health behaviors and physical illnesses as strategies for reducing this excess mortality among people with anxiety/depression.

The purpose of this integrative review is to examine and synthesize extant literature pertaining to barriers to substance abuse and mental health treatment for persons with co-occurring substance use and mental health disorders (COD). Electronic searches were conducted using ten scholarly databases. Thirty-six articles met inclusion criteria and were examined for this review. Narrative review of these articles resulted in the identification of two primary barriers to treatment access for individuals with COD: personal characteristics barriers and structural barriers. Clinical implications and directions for future research are discussed. In particular, additional studies on marginalized sub-populations are needed, specifically those that examine barriers to treatment access among older, non-White, non-heterosexual populations.


OBJECTIVES: This study aims to examine the relationship between middle-aged and older adults' depressive symptomology and anti-depressant use and the frequency of falls within the previous 12 months, controlling for sociodemographic variables, health indicators, and health behaviors. METHOD: From the 2010 National Social Life, Health, and Aging Project, 2338 cases were examined. Falls were categorized into a binary variable, comparing zero falls with one or more falls. An unadjusted model was run to examine the relationship between independent and dependent variables. Potential covariates were added into the model, and backward elimination was used among independent variables with a univariate P < 0.05 to identify the covariates with the strongest association with falls. This final adjusted binary logistic regression model was then used to examine the relationship between falls and the independent variables. RESULTS: In the adjusted model, anti-depressant use was positively associated with falls (P = 0.001), as was being female (P < 0.001), having diabetes (P = 0.018), and having increased limitations in daily activities (P < 0.001). The relationship between depressive symptomology and anti-depressant prescription was also significantly associated with falls (P = 0.006). CONCLUSION: While findings confirm that a relationship between depressive symptomology and anti-depressant use are associated with falls among middle-aged and older adults, additional studies are needed that simultaneously examine the influence of these two risk factors.


Substance use is highly prevalent among people living with HIV (PLWH) and associated with poor health outcomes. Although understudied, integrating substance use and medical care for PLWH may decrease substance use. Using a quasi-experimental design, the authors tested an integrated model of substance use treatment provided by social workers located in HIV medical care settings in North Carolina. Participants were interviewed at baseline (N= 204), six months (n = 157), and 12 months (n = 138) using the Addiction Severity Index-Lite (ASI). In linear mixed analyses, statistically significant decreases were detected in ASI alcohol use (p = .003) and drug use (p = .023) severity scores after treatment participation. This was true regardless of gender, race, sexual orientation, education, self-rated health status, and age, suggesting there were no differences in integrated treatment outcomes across demographic groups. In addition, greater reductions in anxiety and depression were associated with lower ASI alcohol and drug severity scores after treatment participation. Study findings suggest that integrated care in HIV clinics with enhanced communication between social workers and HIV medical providers may deliver improved treatment outcomes for PLWH.


BACKGROUND: Cigarette smoking is widespread among HIV-infected patients, who confront increased risk of smoking-related co-morbidities. The effects of HIV infection and HIV-related variables on smoking and smoking cessation are incompletely understood. We investigated the correlates of smoking and quitting in an HIV-infected cohort using a validated natural language processor to determine smoking status. METHOD: We developed and validated an algorithm using natural language processing (NLP) to ascertain smoking status from electronic health record data. The algorithm was applied to records for a cohort of 3487 HIV-infected from a large health care system in Boston, USA, and 9446 uninfected control patients matched 3:1 on age, gender, race and clinical encounters. NLP was used to identify and classify smoking-related portions of free-text notes. These
classifications were combined into patient-year smoking status and used to classify patients as ever versus never smokers and current smokers versus non-smokers. Generalized linear models were used to assess associations of HIV with 3 outcomes, ever smoking, current smoking, and current smoking in analyses limited to ever smokers (persistent smoking), while adjusting for demographics, cardiovascular risk factors, and psychiatric illness. Analyses were repeated within the HIV cohort, with the addition of CD4 cell count and HIV viral load to assess associations of these HIV-related factors with the smoking outcomes.

RESULTS: Using the natural language processing algorithm to assign annual smoking status yielded sensitivity of 92.4, specificity of 86.2, and AUC of 0.89 (95% confidence interval [CI] 0.88-0.91). Ever and current smoking were more common in HIV-infected patients than controls (54% vs. 44% and 42% vs. 30%, respectively, both P<0.001). In multivariate models HIV was independently associated with ever smoking (adjusted rate ratio [ARR] 1.18, 95% CI 1.13-1.24, P <0.001), current smoking (ARR 1.33, 95% CI 1.25-1.40, P<0.001), and persistent smoking (ARR 1.11, 95% CI 1.07-1.15, P<0.001). Within the HIV cohort, having a detectable HIV RNA was significantly associated with all three smoking outcomes. CONCLUSIONS: HIV was independently associated with both smoking and not quitting smoking, using a novel algorithm to ascertain smoking status from electronic health record data and accounting for multiple confounding clinical factors. Further research is needed to identify HIV-related barriers to smoking cessation and develop aggressive interventions specific to HIV-infected patients.


Individuals with HIV infection are living substantially longer on antiretroviral therapy, but hospitalization rates continue to be relatively high. We do not know how overall or diagnosis-specific hospitalization rates compare between HIV-infected and uninfected individuals or what conditions may drive hospitalization trends. Hospitalization rates among United States Veterans were calculated and stratified by HIV serostatus and principal diagnosis disease category. Because alcohol-related diagnoses (ARD) appeared to have a disproportional effect, we further stratified our calculations by ARD history. A multivariable Cox proportional hazards model was fitted to assess the relative risk of hospitalization controlling for demographic and other comorbidity variables. From 1997 to 2011, 46,428 HIV-infected and 93,997 uninfected patients were followed for 1,497,536 person-years. Overall hospitalization rates decreased among HIV-infected and uninfected patients. However, cardiovascular and renal insufficiency admissions increased for all groups while gastrointestinal and liver, endocrine, neurologic, and non-AIDS cancer admissions increased among those with an alcohol-related diagnosis. After multivariable adjustment, HIV-infected individuals with an ARD had the highest risk of hospitalization (hazard ratio 3.24, 95 % CI 3.00, 3.49) compared to those free of HIV infection and without an ARD. Still, HIV alone also conferred increased risk (HR 2.08, 95 % CI 2.04, 2.13). While decreasing overall, risk of all-cause hospitalization remains higher among HIV-infected than uninfected individuals and is strongly influenced by the presence of an ARD.


OBJECTIVE: Concerns have been raised that primary studies of diagnostic accuracy of depression screening tools may exaggerate estimates of accuracy and that this could also influence the results of meta-analyses. No studies, however, have evaluated the quality of meta-analyses of depression screening tools. Our objective was to evaluate the quality of meta-analyses of the diagnostic accuracy of depression screening tools. METHODS: We searched MEDLINE and PsycINFO from January 1, 2005 through March 13, 2016 for recent meta-analyses in any language on the diagnostic accuracy of depression screening tools. Two reviewers independently assessed methodological quality using the AMSTAR tool with appropriate adaptations made for studies of diagnostic test accuracy. RESULTS: We identified 21 eligible meta-analyses. The majority provided a list of included studies (100%), included a comprehensive literature search (95%) and assessed risk of bias of included studies (71%). Meta-analyses less consistently included non-published evidence (38%), listed excluded studies (33%), incorporated risk of bias findings into conclusions (33%), and assessed selective cutoff reporting (29%). Meta-analyses rarely reported that duplicate study selection or data extraction occurred (14%), mentioned 'a priori' protocols (10%), or reported on conflicts of interest (0%) or funding sources (0%) of primary studies. Only 6 of 21 included meta-analyses complied with at least 7 of 14 adapted AMSTAR items. CONCLUSIONS: The methodological quality of most meta-analyses of the diagnostic test accuracy of depression screening tools is suboptimal. Improving quality will reduce the risk of inaccurate estimates of accuracy and inappropriate inferences.

**PURPOSE:** Recent results suggest the risk of a new onset of depression increases with longer duration of opioid analgesic use. It is unclear whether new-onset depression related to opioid analgesic use is a function of the dose prescribed or the duration of use or both. **METHODS:** Using a retrospective cohort design, we collected patient data from 2000 to 2012 from the Veterans Health Administration (VHA), and from 2003 to 2012 from both Baylor Scott & White Health (BSWH) and the Henry Ford Health System (HFHS). Patients (70,997 VHA patients, 13,777 BSWH patients, and 22,981 HFHS patients) were new opioid users, aged 18 to 80 years, without a diagnosis of depression at baseline. Opioid analgesic use duration was defined as 1 to 30, 31 to 90, and more than 90 days, and morphine equivalent dose (MED) was defined as 1 to 50 mg/d, 51 to 100 mg/d, and greater than 100 mg/d of analgesic. Pain and other potential confounders were controlled for by inverse probability of treatment-weighted propensity scores. **RESULTS:** New-onset depression after opioid analgesic use occurred in 12% of the VHA sample, 9% of the BSWH sample, and 11% of the HFHS sample. Compared with 1- to 30-day users, new-onset depression increased in those with longer opioid analgesic use. Risk of new-onset depression with 31 to 90 days of opioid analgesic use ranged from hazard ratio [HR] = 1.18 (95% CI, 1.10-1.25) in VHA to HR = 1.33 (95% CI, 1.16-1.52) in HFHS; in opioid analgesic use of more than 90 days, it ranged from HR = 1.35 (95% CI, 1.26-1.44) in VHA to HR = 2.05 (95% CI, 1.75-2.40) in HFHS. Dose was not significantly associated with a new onset of depression. **CONCLUSIONS:** Opioid-related new onset of depression is associated with longer duration of use but not dose. Patients and practitioners should be aware that opioid analgesic use of longer than 30 days imposes risk of new-onset depression. Opioid analgesic use, not just pain, should be considered a potential source when patients report depressed mood.


Several studies have shown that chronic opioid analgesic use is associated with increased risk of new-onset depression. It is not known if patients with remitted depression are at increased risk of relapse after exposure to opioid analgesics. A retrospective cohort design using patient data from the Veterans Health Administration (VHA; n = 5,400), and Baylor Scott & White Health (BSWH; n = 842) was performed with an observation period in the VHA from 2002 to 2012 and in the BSWH from 2003 to 2012. Eligible patients had a diagnosis of depression at baseline and experienced a period of remission. Risk of depression recurrence was modeled in patients that either started taking an opioid or continued without opioid prescriptions before or during remission. Cox proportional hazard models were used to measure the association between opioid use and depression recurrence controlling for pain, and other confounders. Patients exposed to an opioid compared with those unexposed had a significantly greater risk of depression recurrence in both patient populations (VHA: hazard ratio [HR] = 2.17, 95% confidence interval [CI], 2.01-2.34; BSWH: HR = 1.77; 95% CI, 1.42-2.21). These results suggest opioid use doubles the risk of depression recurrence even after controlling for pain, psychiatric disorders, and opioid misuse. Further work is needed to determine if risk increases with duration of use. Repeated screening for depression after opioid initiation may be warranted. **PERSPECTIVE:** In 2 large patient cohorts with large differences in demographic characteristics and comorbidity, patients with remitted depression who were exposed to opioid analgesics were 77% to 117% more likely to experience a recurrence of depression than those who remained opioid -free. Routine, not just at initiation of treatment, screening for depression is warranted.


Major depressive disorder is often comorbid with diabetes and associated with worse glycemic control. Exercise improves glycemic control and depression, and thus could be a parsimonious intervention for patients with comorbid diabetes and major depression. Because patients with diabetes and comorbid depression are often sedentary and lack motivation to exercise, we developed a group exercise intervention that integrates strategies from behavioral activation therapy for depression to increase motivation for and enjoyment of exercise. We conducted a 6-month pilot randomized controlled trial to test the feasibility of the behavioral activation exercise intervention (EX) for women with diabetes and depression. Of the 715 individuals who contacted us about the study, 29 participants were randomized to the EX condition or an enhanced usual care condition (EUC), which represents 4.1% of participants who initially contacted us. Inclusion criteria made recruitment challenging and limits the feasibility of recruiting women with diabetes and depression for a larger trial of the intervention. Retention was 96.5% and 86.2% at 3 and 6 months. Participants reported high treatment acceptability; use of behavioral activation strategies and exercise class attendance was acceptable. No condition differences were observed for glycemic control, depressive symptoms, and physical activity, though depressive symptoms and self-reported physical activity improved over time. Compared to participants in the EUC condition, participants in the EX condition reported greater exercise enjoyment and no increase in avoidance behavior.
over time. Using behavioral activation strategies to increase exercise is feasible in a group exercise setting. However, whether these strategies can be delivered in a less intensive manner to a broader population of sedentary adults, for greater initiation and maintenance of physical activity, deserves further study.


This paper explores the interaction between gender-based violence and alcohol use and their links to vulnerability to HIV-infection in a population of women and their regular male partners in Kampala, Uganda. Data derive from 20 life history interviews (10 women and 10 men). Participants were drawn from a cohort of women at high risk of sexually transmitted infection (including HIV). Six of the women were current or former sex workers. Findings reveal that life histories are characterised by recurrent patterns of gender inequity related to violence, limited livelihood options and socioeconomic disadvantage. Overall, findings suggest women are able to negotiate safer sex and protect themselves better against abuse and violence from clients than from their intimate partners, although the status of men as 'client' or 'partner' is transitory and fluid. Among male respondents, alcohol led to intimate partner violence and high levels of sexual-risk taking, such as engagement with sex workers and reduced condom use. However, male partners are a heterogeneous group, with distinct and contrasting attitudes towards alcohol, condom use and violence. Actions to address gender-based violence need to be multi-pronged in order to respond to different needs and circumstances, of both women and men.


Both HIV disease and advanced age have been associated with alterations to cerebral white matter, as measured with white matter hyperintensities (WMH) on fluid-attenuated inversion recovery (FLAIR) magnetic resonance imaging (MRI), and more recently with diffusion tensor imaging (DTI). This study investigates the combined effects of age and HIV serostatus on WMH and DTI measures, as well as the relationships between these white matter measures, in 88 HIV seropositive (HIV+) and 49 seronegative (HIV-) individuals aged 23-79 years. A whole-brain volumetric measure of WMH was quantified from FLAIR images using a semi-automated process, while fractional anisotropy (FA) was calculated for 15 regions of a whole-brain white matter skeleton generated using tract-based spatial statistics (TBSS). An age by HIV interaction was found indicating a significant association between WMH and older age in HIV+ participants only. Similarly, significant age by HIV interactions were found indicating stronger associations between older age and decreased FA in the posterior limbs of the internal capsules, cerebral peduncles, and anterior corona radiata in HIV+ vs. HIV- participants. The interactive effects of HIV and age were stronger with respect to whole-brain WMH than for any of the FA measures. Among HIV+ participants, greater WMH and lower anterior corona radiata FA were associated with active hepatitis C virus infection, a history of AIDS, and higher current CD4 cell count. Results indicate that age exacerbates HIV-associated abnormalities of whole-brain WMH and fronto-subcortical white matter integrity.


This paper describes two phases of formative research that had the goal of developing a treatment designed to improve adherence with the nicotine patch in HIV-positive Latino smokers. Each research phase (Phase I and II) was conducted independent of the other and used different qualitative methods to inform the development of the intervention. Phase I interviewed n=14 smokers who had previous experience using the nicotine patch to gain detailed understanding of how, when, and why they used it; their perceived barriers to using it; and their perspective on ways to improve adherence to it. Phase II provided n=35 smokers with brief smoking cessation treatment and nicotine patches, then interviewed them in "near real time" over a two month period about their use of the patch during a quit attempt (e.g., perceived barriers and facilitators). Authors of the paper extracted relevant themes emerging from the interview transcripts across the two phases. Results indicated that consistent use of the nicotine patch was associated with maintaining high motivation for use (i.e., not necessarily motivation to quit, but motivation to continue patch use); linking its use with established daily routines (e.g., with taking other medications, with brushing teeth); and maintaining realistic expectations for patch efficacy (e.g., that users may still experience some level of craving and/or withdrawal). This information will be used to develop and pilot test a brief treatment module that focuses on improving nicotine patch adherence.

BACKGROUND: While low social support is a risk factor for mental illness, anxiety and depression's relationship with social impairment specifically resulting from a medical condition is poorly understood. We hypothesize that when a medical illness makes it difficult for people to form and maintain close relationships with others, they will be at increased risk for anxiety and depression. METHODS: Two nationally representative surveys, the National Comorbidity Survey-Replication and National Latino and Asian American Study, included 6805 adults with at least one medical illness and information on social impairment attributed to a medical condition. The Composite International Diagnostic Interview evaluated a 12-month history of anxiety and depressive disorders. RESULTS: 8.2% of our sample had at least moderate difficulty in forming and maintaining close relationships due to a medical condition. In bivariate analyses, younger age, Latino ethnicity, less education, worse financial status, more chronic illnesses, physical health and discomfort, and problems with mobility, home management, and self-care were associated with this social impairment. In multivariable analyses accounting for possible confounders, there was a dose-dependent relationship between social impairment and the prevalence of anxiety and depression. LIMITATIONS: Data are cross-sectional and our analyses are therefore unable to determine cause-and-effect relationships. CONCLUSIONS: Among adults with one or more medical conditions, social impairment attributed to medical illness was associated with a significantly greater odds of anxiety and depression. Further clarification of this relationship could inform more targeted, personalized interventions to prevent and/or alleviate mental illness in those with chronic medical conditions.


BACKGROUND: The role of alcohol consumption in HIV-related adaptive immune dysfunction is debated. We hypothesized that heavy drinking would be associated with greater evidence of immunosenescence (i.e., aging-related decline of adaptive immune function) among antiretroviral therapy (ART)-naive HIV-infected individuals. METHODS: Using data from the Russia ARCH cohort study, we conducted a cross-sectional analysis of ART-naive HIV-infected individuals recruited between 2012 and 2014. INDEPENDENT VARIABLE: Heavy drinking defined as >4 standard drinks in a day (or >14 standard drinks per week) for men and >3 per day (or >7 per week) for women, respectively. DEPENDENT VARIABLES: Percentage of CD8+ and CD4+ T-cells with a phenotype consistent with immunosenescence (i.e., expressing CD28-CD57+, or memory [CD45RO+ CD45RA+] phenotype and not the naive [CD45RO-CD45RA+] phenotype). STATISTICAL ANALYSIS: Multiple linear regression adjusted for confounders. RESULTS: Of 214 eligible participants, 61% were heavy drinkers. Mean age was 33 years and the cohort was predominantly male (72%). Hepatitis C prevalence was high (87%) and mean log10 HIV-1 RNA copies/ml was 4.6. We found no significant differences by drinking status in the percentage of immunosenescent, memory, or naive CD8+ or CD4+ T-cells. CONCLUSIONS: In this cross-sectional analysis, heavy drinking in the setting of untreated HIV infection did not appear to be associated with alterations in T-cell phenotypes consistent with immunosenescence. To substantiate these findings, longitudinal studies should assess whether changes in alcohol consumption are associated with changes in these and other immunosenescent T-cell phenotypes.


OBJECTIVE: To study the gender differences in perceived social support and life events in patients with depression. METHODS: A total of 118 patients aged 18 to 60 years, with depressive disorder according to the DSM-IV-TR, were evaluated using the Multidimensional Scale of Perceived Social Support and Presumptive Stressful Life Events Scale. RESULTS: The perceived social support score was significantly higher in males than females (p < 0.001). Males perceived significantly higher social support from friends than females (p < 0.001), whereas support from significant others was higher in females. There was a higher mean number of total life events as well as specific type of life events in males that became apparent after controlling for education (p < 0.05). Financial loss or problems was the most commonly reported life event in both males and females. Work-related problems were more commonly reported by males, whereas family and marital conflict were more frequently reported by females. CONCLUSION: Perceived social support and stressful life events were higher in males with depression than females.


BACKGROUND: Treatment of comorbid chronic disease, such as depression, in people living with HIV/AIDS (PLWHA) increasingly falls to HIV treatment providers. Guidance in who will best respond to depression treatment and which patient-
Men who have sex with men (MSM) are the largest risk group in the US HIV epidemic and African American MSM (AA MSM) are disproportionately affected. Substance-abusing sexual minorities warrant attention as they are at elevated risk for HIV, yet are not a homogeneous risk group. The purpose of this study was to use latent class analysis to identify patterns of drug and alcohol use in a sample of 359 AA MSM and examine associations with sexual risk. Three classes were identified: Individuals who used multiple substances (poly-users) (18%), alcohol/marijuana users (33%) and individuals who had low probability of reporting drug or problematic alcohol use (50%). Results from multivariate analysis indicate that poly-users were older and more likely to report sex exchange and recent sexually transmitted infection compared to the other classes. Alcohol and poly-users were more likely to report sex under the influence. Identifying and defining substance use patterns can improve specification of risk groups and allocation of prevention resources.


Poor psychosocial health contributes to HIV risk behavior and reduced engagement in treatment and care. This study investigates depression and its correlates among 11,992 MSM recruited via respondent driven sampling in 12 cities across India using the Patient Health Questionnaire-9 and supplemented by analysis of qualitative research from 15 sites with 363 MSM. Overall prevalence of depression was 11%, with substantial variation across sites and subgroups of MSM, and high prevalence of suicidal thoughts among depressed MSM. In multivariable analyses identification as a kothi (feminine sexual identity) [adjusted odds ratio (aOR) = 1.91], disclosure of being MSM to non-family (aOR = 1.7) and family (aOR = 2.4), disclosure of HIV-status (aOR = 5.6), and substance use were associated with significantly higher odds of depression. Qualitative results emphasized dire social consequences of disclosing MSM- and HIV-status, especially to family, including suicidality. Combination prevention interventions should include mental health services that address disclosure, suicidality, and substance use. (English)

La mala salud psicosocial contribuye a los comportamientos de riesgo para el VIH y reduce la participación en el tratamiento y cuidado médico. Este estudio investiga la depresión y los factores que se encuentran correlacionados con ella en 11.992 HSH reclutados a través de un muestreo dirigido por entrevistados (MCE) en 12 ciudades de la India usando el Cuestionario sobre la Salud del Paciente-9 y complementado por una investigación cualitativa en 15 sitios con 363 HSH. La prevalencia general de la depresión fue del 11%, con una variación sustancial entre los sitios y subgrupos de HSH y con alta prevalencia de pensamientos suicidas entre los HSH deprimidos. En el análisis multivariable, el identificarse como kothi (identidad sexual femenina) (odds ratio ajustada [ORa] = 1.91), el divulgarse como HSH a otra persona en el entorno familiar (ORa = 1.7), o fuera del entorno familiar (ORa = 2.4), el divulgar el estado serológico de VIH positivo (ORa = 5.6), y el consumo de sustancias, fueron los factores que estuvieron asociados significativamente con mayores probabilidades de depresión. Los resultados cualitativos enfatizan que existen consecuencias sociales graves en cuanto a la divulgación de ser HSH o a la divulgación de un estado serológico de VIH positivo, especialmente a la familia, incluyendo el riesgo suicida. Las intervenciones de prevención combinadas deben incluir servicios de salud mental que abarquen la divulgación, el riesgo suicida, y el uso de sustancias. (Spanish)

Chronic obstructive pulmonary disease (COPD) is a chronic inflammatory lung disease characterized by progressive and only partially reversible symptoms. Worldwide, the incidence of COPD presents a disturbing continuous increase. Anxiety and depression are remarkably common in COPD patients, but the evidence about optimal approaches for managing psychological comorbidities in COPD remains unclear and largely speculative. Pharmacological treatment based on selective serotonin reuptake inhibitors has almost replaced tricyclic antidepressants. The main psychological intervention is cognitive behavioral therapy. Of particular interest are pulmonary rehabilitation programs, which can reduce anxiety and depressive symptoms in these patients. Although the literature on treating anxiety and depression in patients with COPD is limited, we believe that it points to the implementation of personalized strategies to address their psychopathological comorbidities.


Pain has been associated with increased risk for mortality in some studies. We analyzed data from a cohort study [HIV-longitudinal interrelationships of viruses and ethanol (HIV-LIVE)] of HIV-infected persons with alcohol use disorders enrolled 2001-2003 to explore whether reporting moderate or greater pain interference was associated with mortality. The main independent variable was pain that at least moderately interfered with work based on a single question from the SF-12. Primary analyses dichotomized at "moderately" or above. Cox proportional hazards models assessed the association between pain interference and death adjusting for demographics, substance use, CD4 count, HIV viral load and co-morbidities. Although significant in unadjusted models (HR = 1.58 (95 % CI 1.03-2.41; p value = 0.04)), after adjusting for confounders, >/=moderate pain interference was not associated with an increased risk of death [aHR = 1.30 (95 % CI 0.81-2.11, p value = 0.28)]. Among HIV-infected persons with alcohol use disorders, we did not detect a statistically significant independent association between pain interference and risk of death after adjustment for potential confounders.


BACKGROUND: Internalization of HIV-related stigma may inhibit a person's ability to manage HIV disease through adherence to treatment regimens. Studies, mainly with white men, have suggested an association between internalized stigma and suboptimal adherence to antiretroviral therapy (ART). However, there is a scarcity of research with women of different racial/ethnic backgrounds and on mediating mechanisms in the association between internalized stigma and ART adherence.

METHODS: The Women's Interagency HIV Study (WIHS) is a multicenter cohort study. Women living with HIV complete interviewer-administered questionnaires semiannually. Cross-sectional analyses for the current article included 1168 women on ART for whom data on medication adherence were available from their last study visit between April 2013 and March 2014, when the internalized stigma measure was initially introduced. RESULTS: The association between internalized stigma and self-reported suboptimal ART adherence was significant for those in racial/ethnic minority groups (AOR = 0.69, P = 0.009, 95% CI: 0.52 to 0.91), but not for non-Hispanic whites (AOR = 2.15, P = 0.19, 95% CI: 0.69 to 6.73). Depressive symptoms, loneliness, and low perceived social support mediated the association between internalized stigma and suboptimal adherence in the whole sample, as well as in the subsample of minority participants. In serial mediation models, internalized stigma predicted less-perceived social support (or higher loneliness), which in turn predicted more depressive symptoms, which in turn predicted suboptimal medication adherence. CONCLUSIONS: Findings suggest that interconnected psychosocial mechanisms affect ART adherence, and that improvements in adherence may require multifaceted interventions addressing both mental health and interpersonal factors, especially for minority women.


Prescription medication use (other than antiretroviral therapy (ART)) is highly prevalent among people living with HIV. Prescription medications may be used medically or non-medically: non-medical use includes using more medication than prescribed, using medication prescribed to someone else, or using medication for a purpose other than its prescribed use. During 12 weeks in 2014-2015, we characterized medical and non-medical prescription medication use among HIV-positive patients attending an academic medical center (n = 149) and a community clinic (n = 105). Separately for the past year and the past month,
these 254 participants self-reported their use of prescription opioids, sedatives, stimulants, anti-anxiety medications, antipsychotic medications, and erectile dysfunction medications. Respondents were largely male (91%), aged 40 or older (61%), identified as gay or bisexual (79%), and were men who have sex with men (85%). ART use was nearly universal (95%). Nearly half (43%) of participants reported medical use of prescription opioids; 11% of the opioid use was reported as non-medical use. Anti-anxiety medication use was also frequent, and differed by site: 41% of community-clinic responders reported medical use of anti-anxiety medications compared to 23% of hospital clinic respondents who reported medical use. Prescription sedative use was also approximately twice as high among community-clinic participants, with medical use reported by 43% of respondents and non-medical use by 12%; in comparison, at the hospital clinic, sedative use was reported by 18% (medical) and 7% (non-medical) of participants. Stimulant use was rare in both sites. No demographic characteristic was significantly associated with medical or non-medical use of any prescription medication. The current focus of many studies on only non-medical prescription medication use not only underestimates the widespread exposure of HIV-positive individuals to these drugs, but may also underestimate potential adverse effects of prescription medications in this population.


As individuals live longer with HIV, this "graying of the HIV epidemic" has introduced a new set of challenges including a growing number of age and inflammation-related diseases such as cardiovascular disease, type II diabetes, cancer, and dementia. The biological underpinnings of these complex and co-morbid diseases are not fully understood and become very difficult to disentangle in the context of HIV and aging. In the current review we examine the contributions and interactions of HIV, stress, and cognitive impairment and query the extent to which inflammation is the linchpin in these dynamic interactions. Given the inter-relatedness of stress, inflammatory mechanisms, HIV, and cognitive impairment, future work will either need to address multiple dimensions simultaneously or embrace the philosophy that breaking the aberrant cycle at any one point will subsequently remedy the other related systems and processes. Such a single-point intervention may be effective in early disease states, but after perpetuation of an aberrant cycle, adaptations in an attempt to internally resolve the issue will likely lead to the need for multifaceted interventions. Acknowledging that HIV, inflammation, and stress may interact with one another and collectively impact cognitive ability is an important step in fully understanding an individual’s complete clinical picture and moving towards personalized medicine.


BACKGROUND: Many people living with HIV suffer from depressive symptoms. In a previous pilot study, self-help cognitive behavioral therapy (in booklet format) was found to be effective in treating depressive symptoms in people with HIV. We developed an online self-help program in Dutch and English (based on the booklet) for people with HIV and depressive symptoms. Besides the main question regarding the effectiveness of the program aimed at lowering depressive symptoms, sub-questions will focus on the moderators of treatment success (for which patients is the program especially beneficial?) and the mechanisms of change underlying the treatment outcome (which mediators affect the outcome of treatment?). In this paper, the protocol of the study will be described. METHODS/DESIGN: The effectiveness of the program will be investigated by comparing the intervention group with a waiting list-control group in a randomized controlled design, by including a pretest and three post-tests. The self-help program contains four main components: activation, relaxation, changing maladaptive cognitions, and goal attainment. Participants with mild to moderate depressive symptoms will work on the program for 6 to 10 weeks, during which a coach will provide motivational support by telephone once a week. Participants in the control condition will receive weekly minimal support from a coach for 8 weeks, and after the second post-test, they can gain access to the self-help program. Depressive symptoms and possible mediators (e.g., activation, cognitive coping, self-efficacy, and goal adjustment) will be assessed by self-report three times during the intervention/waiting period and at the pretest and first post-test. DISCUSSION: The proposed study aims to evaluate the effectiveness of an online self-help intervention for people with HIV and depressive symptoms. If the intervention is shown to be effective, the program will be implemented. Consequently, many patients with HIV could be reached, and their psychological care may be improved. TRIAL REGISTRATION: Netherlands Trial Register: NTR5407.


The HIV/AIDS epidemic continues to disproportionately affect racial and ethnic minority groups and women in the United States. Prevention research suggests that reduced alcohol use and increased HIV testing are associated with lower incidence of HIV transmission among high-risk populations. Multivariable logistic regression analyses of the 2009 National Health Interview Survey data were performed for a national sample of 15,470 adult women to examine the relationship between alcohol use and likelihood of HIV testing. There is a significant association between level of alcohol use and HIV testing. Women who identified as heavy drinkers and moderate drinkers were significantly less likely to report ever testing for HIV. Findings add to the

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limited literature on the association between alcohol use and HIV testing behaviors among women. Given the incidence of HIV among women, this study highlights the importance of HIV testing, especially for alcohol-using women.


OBJECTIVES: In HIV-negative populations, light-to-moderate alcohol consumption is associated with a lower cardiovascular morbidity and mortality than alcohol abstention. Whether the same holds true for HIV-infected individuals has not been evaluated in detail. DESIGN: Cohort study. METHODS: Adults on antiretroviral therapy in the Swiss HIV Cohort Study with follow-up after August 2005 were included. We categorized alcohol consumption into: abstention or very low (<1 g/d), low (1-9 g/d), moderate (10-29 g/d in women and 10-39 g/d in men), and high alcohol intake. Cox proportional hazards models were used to describe the association between alcohol consumption and cardiovascular disease-free survival (combined endpoint), cardiovascular disease events (CADE) and overall survival. Baseline and time-updated risk factors for CADE were included in the models. RESULTS: Among 9741 individuals included, there were 788 events of major CADE or death during 46,719 patient-years of follow-up, corresponding to an incidence of 1.69 events/100 person-years. Follow-up according to alcohol consumption level was 51% no or very low, 20% low, 23% moderate, and 6% high intake. As compared with no or very low alcohol intake, low (hazard ratio 0.79, 95% confidence interval 0.63 to 0.98) and moderate alcohol intakes (0.78, 0.64 to 0.95) were associated with a lower incidence of the combined endpoint. There was no significant association between alcohol consumption and CADE.

CONCLUSIONS: Compared with no or very low alcohol consumption, low and moderate intake associated with a better CADE-free survival. However, this result was mainly driven by mortality and the specific impact of drinking patterns and type of alcoholic beverage on this outcome remains to be determined.


HIV infection rates continue to disproportionately affect Black men who have sex with men (Black MSM) compared to other groups. Research has shown that higher rates of substance use and higher levels of depression are positively correlated with higher sexual risk behavior, and little research has examined relationships between high levels of religiosity and spirituality prevalent in Black culture and issues of substance use and depression among Black MSM. This study did just that and found a relationship between religiosity, spirituality, and risk behavior. These relationships suggest that future HIV prevention models might incorporate religiosity and spirituality to increase the efficacy of risk reduction interventions for Black MSM.


As people living with HIV age, they face increasing self-management work related to HIV infection plus the prevention and mitigation of multiple chronic health conditions, including daily health practices (i.e., physical activity, nutrition), engaging in a supportive community, and accepting the chronicity of HIV. Our purpose was to describe the relationship between HIV self-management practices and mental wellness (depressive symptoms, perceived stress). Ninety-three adult people living with HIV on antiretroviral therapy were enrolled and completed a survey. We used descriptive statistics to summarize variables, and Spearman rank correlation and quantile regression to study associations between variables. Participants' average age was 48.6 years, 56% were male, and 87% were African American. Daily self-management practices were associated with depressive symptoms (r = -0.19; p <= .01) and perceived stress (r = -0.14; p = .06); engaging with a supportive community and accepting the chronicity of HIV were not associated with mental wellness (all p > .05).


PURPOSE: Research on the relationship between sexual orientation-related stigma and risks for HIV among men who have sex with men (MSM) is limited. This study tests a hypothesis that substance use and depressive symptoms mediate the relationship between stigma in the health care system and HIV-related risk practices among MSM in Maseru, Lesotho. METHODS: In 2014, we conducted a cross-sectional study among MSM in Lesotho accrued via respondent-driven sampling including a survey and biological testing for HIV. The hypothesis was tested using structural equation modeling. RESULTS: Of the 318 participants, 22.3% had experienced stigma in the health care system. Stigma in the health care system was associated with depression (beta = 0.329, P = .018) and alcohol use (beta = 1.417, P = .001). Noninjection illicit drug use (beta = 0.837, P = .039) and alcohol use (beta
significantly predicted number of sex partners. Stigma was directly associated with condomless anal sex (beta = 0.441, P = .036), and no indirect association was found. CONCLUSIONS: Alcohol use and depressive symptoms mediate the relationship between MSM stigma in the health care system and reported number of sex partners. The implications are significant with a focus on the need for comprehensive interventions addressing stigma and mental health when aiming to improve more proximal HIV-related risk practices for MSM.


We concatenate 28 years of historical depressive symptoms data from a longitudinal cohort study of U.S. gay men who are now midlife and older (n = 312), with newly collected survey data to analyze trajectories of depressive symptomatology over time and their impact on associations between current stress and depressive symptoms. Symptoms are high over time, on average, and follow multiple trajectories. Aging-related stress, persistent life-course sexual minority stress, and increasing sexual minority stress are positively associated with depressive symptoms, net of symptom trajectories. Men who had experienced elevated and increasing trajectories of depressive symptoms are less susceptible to the damaging effects of aging-related stress than those who experienced a decrease in symptoms over time. Intervention efforts aimed at assisting gay men as they age should take into account life-course depressive symptom histories to appropriately contextualize the health effects of current social stressors.


In this study, we investigated if a single-item indicator measured the degree to which people were open about their same-sex attraction ("out") as accurately as a multi-item scale. For the multi-item scale, we used the Outness Inventory, which includes three subscales: family, world, and religion. We examined correlations between the single- and multi-item measures; between the single-item indicator and the subscales of the multi-item scale; and between the measures and internalized homonegativity, social attitudes towards homosexuality, and depressive symptoms. In addition, we calculated Tjur's R (2) as a measure of predictive power of the single-item indicator, multi-item scale, and subscales of the multi-item scale in predicting two health-related outcomes: depressive symptoms and condomless anal sex with multiple partners. There was a strong correlation between the single- and multi-item measures (r = 0.73). Furthermore, there were strong correlations between the single-item indicator and each subscale of the multi-item scale: family (r = 0.70), world (r = 0.77), and religion (r = 0.50). In addition, the correlations between the single-item indicator and internalized homonegativity (r = -0.63), social attitudes towards homosexuality (r = -0.38), and depression (r = -0.14) were higher than those between the multi-item scale and internalized homonegativity (r = -0.55), social attitudes towards homosexuality (r = -0.21), and depression (r = -0.13). Contrary to the premise that multi-item measures are superior to single-item measures, our collective findings indicate that the single-item indicator of outness performs better than the multi-item scale of outness.


Experiencing sexual violence in childhood or adolescence is highly prevalent among some women living with HIV, often resulting in anxiety and depression symptoms in adulthood. Anxiety and depression have been associated with HIV medication nonadherence, yet little research has assessed distinct components of anxiety and depression as risk factors of HIV medication nonadherence. The current study examined distinct symptom components of anxiety and depression as predictors of HIV medication non-adherence among women living with HIV and childhood sexual abuse enrolled in a coping intervention. This secondary analysis included a sample of 85 women living with HIV and childhood sexual abuse and being prescribed antiretroviral medication who completed measures on anxiety, depression, and medication adherence. Results from a logistic regression analysis suggest that distinct components of anxiety may be related to medication nonadherence among this population. Targeted mental health interventions for this population may increase adherence to antiretroviral medication.


There are approximately one million older lesbian, gay, bisexual, and transgender (LGBT) adults in the USA. Their mental health issues result from interactions between genetic factors and stress associated with membership in a sexual minority group.
Although advancements in acceptance and equal treatment of LGBT individuals have been occurring, sexual minority status remains associated with risks to physical and mental well-being. Older LGBT adults are more likely to have experienced mistreatment and discrimination due to living a majority of their lives prior to recent advancements in acceptance and equal treatment. All LGBT adults experience one common developmental challenge: deciding if, when, and how to reveal to others their gender identity and/or sexual orientation. LGBT individuals have higher rates of anxiety, depression, and substance use disorders and also are at increased risk for certain medical conditions like obesity, breast cancer, and human immunodeficiency virus (HIV). Improved education and training of clinicians, coupled with clinical research efforts, holds the promise of improved overall health and life quality for older LGBT adults.


**OBJECTIVE:** This article reports the integration and outcomes of implementing intervention services for substance use disorder (SUD) in three New York City public sexually transmitted disease (STD) clinics. **METHODS:** The screening, brief intervention, and referral to treatment (SBIRT) service model was implemented in the STD clinics in 2008. A relational database was developed, which included screening results, service dispositions, face-to-face interviews with 6-month follow-ups, and treatment information. **RESULTS:** From February 2008 to the end of September 2012, 146,657 STD clinic patients 18 years or older were screened for current or past substance use disorders; 15,687 received a brief intervention; 954 received referrals to formal substance abuse treatment; 2082 were referred to substance abuse support services such as Alcoholics Anonymous (AA), and 690 were referred to mental health, social or HIV awareness services. Intervention services delivered through SBIRT resulted in improvements in multiple outcomes at 6 month follow-up. Patients who received interventions had reduced SUD risks, fewer mental health problems, and fewer unprotected sexual contacts. **CONCLUSION:** Delivery of SUD services in a public health setting represents a significant policy and practice change and benefits many individuals whose SUDs might otherwise be overlooked. Intervention services for substance use disorder were integrated and highly utilized in the STD setting. Further research needs to focus on the long-term impact of SUD interventions in the STD setting, their cost effectiveness, and the extent they are financially sustainable under the new healthcare law.


Individuals infected with HIV experience high rates of depression when compared to their sero-negative counterparts. Although symptoms of depression have been consistently linked to poor medication adherence among persons living with HIV/AIDS, their relation to retention in care are less well-known. The purpose of this study was to examine whether clusters of depressive symptoms influence retention in care and if so, whether these clusters had different relations to retention in care. This is a secondary data analysis of a larger study that investigated the role of health literacy, cognitive impairment, and social determinants on retention in HIV care. Individuals with HIV were recruited from South Florida from August 2009 to May 2011. A total of 210 participants were included in the current analyses. A measure of visit constancy was calculated to represent the number of 4-month intervals with at least one kept visit. Individual items on the Center for Epidemiological Studies Depression Scale short form (CES-D10) and factor analysis of the CES-D10 were independent variables. Overall, there was a high prevalence of depressive symptoms in the study participants. Furthermore, factor analysis showed that certain clusters of depressive symptoms were significantly associated with visit constancy. Specifically, negative mood/somatic symptoms were associated with a greater odds of missing a visit in any of the observed 4-month time periods than positive mood factor. Those patients reporting somatic symptoms and negative mood may need additional intervention and support to be effectively retained in care and successfully follow through with appointments and care.
B. Comorbidities


OBJECTIVE: Chronic obstructive pulmonary disease (COPD) prevalence is increasing among aging HIV-infected individuals. We determined the association between COPD and self-reported measures of frailty [adapted frailty-related phenotype (aFRP)] and physical limitation, and a clinical biomarker of physiologic frailty [Veterans Aging Cohort Study (VACS) Index] in HIV-infected compared with uninfected individuals. DESIGN: Cross-sectional study of VACS participants between 2002 and 2012. METHODS: Prefrail/aFRP was obtained from self-reported surveys. Prefrail was defined as 1-2 domains of physical shrinking, exhaustion, slowness and low physical activity; aFRP was defined as at least 3 domains. Physical limitation scale was determined from 12 self-reported survey items assessing limitations performing physical activities. VACS index includes age and laboratory measurements. We used regression models to test for associations between COPD and outcomes in models stratified by HIV status. RESULTS: The sample included 3538 HIV-infected and 3606 uninfected participants; 67 and 63% were black (P = 0.0003), 97 and 92% were men (P < 0.0001) and 4 and 5% had COPD (P = 0.2). In unadjusted analyses, COPD was associated with all three outcomes (P < 0.0001). In adjusted analyses, COPD was associated with increased prefrail and aFRP in HIV-infected and uninfected participants (P <= 0.01 for all comparisons). COPD was associated with physical limitation in both groups (P < 0.0001). There was an interaction between COPD and physical limitation by HIV status with increased physical limitation among HIV-infected participants (P = 0.04). COPD was not associated with VACS index. CONCLUSION: COPD was strongly associated with aFRP and physical limitations. COPD management may mediate frailty through functional limitations rather than physiologic biomarkers, especially in HIV-infected individuals.


BACKGROUND: Persons living with HIV are at a higher risk of cardiovascular disease despite effective antiretroviral therapy and dramatic reductions in AIDS-related conditions. We sought to identify the epidemiology of heart failure (HF) among persons living with HIV in the United States in an era of contemporary antiretroviral therapy. METHODS: Explorys is an electronic healthcare database that aggregates medical records from 23 healthcare systems nationwide. Using systemized nomenclature of medicine-clinical terms (SNOMED-CT), we identified adult patients (age>18), who had active records over the past year (September 2014-September 2015). We described the prevalence of HF in HIV patients by demographics and treatment and compared them to HIV-uninfected controls. RESULTS: Overall, there were 36,400 patients with HIV and 12,208,430 controls. The overall prevalence of HF was 7.2% in HIV and 4.4% in controls (RR 1.66 [1.60-1.72], p<0.0001). The relative risk of HF associated with HIV infection was higher among women and younger age groups. Patients receiving antiretroviral therapy had only marginally lower risk (6.4% vs. 7.7%, p<0.0001) of HF compared to those who were untreated. Compared to uninfected patients with HF, HIV patients with HF were less likely to receive antiplatelet drugs, statins, diuretics, and ACE/ARBs (p<0.0001 for all comparisons). For patients with HIV and HF, receiving care from a cardiologist was associated with higher use of antiplatelets, statins, betablockers, ACE/ARBs, and diuretics. CONCLUSIONS: Persons with HIV are at higher risk for HF in this large contemporary sample that includes both men and women. Although the prevalence of heart failure is higher in older HIV patients, the relative risk associated with HIV is highest in young people and in women. HIV patients are less likely to have HF optimally treated, but cardiology referral was associated with higher treatment rates.


This cross-sectional study evaluates the prevalence and factors associated with sleep disturbances in French adult HIV-infected outpatients. Patients fulfilled a self-administered questionnaire on their health behavior, sleep attitudes (Pittsburgh sleep quality index, PSQI), quality of life and depression; 1354 patients were enrolled. Median sleeping time was 7 h. Poor sleep quality was observed in 47 % of the patients, and moderate to serious depressive symptoms in 19.7 %. Factors significantly associated with sleep disturbances were depression, male gender, active employment, living single, tobacco-smoking, duration of HIV infection, nevirapine or efavirenz-including regimen. Prevalence of poor sleepers is high in this HIV adult outpatient population. Associated factors seem poorly specific to HIV infection and more related to social and psychological status. Taking care of these disturbances may prove to be an effective health management strategy.
OBJECTIVE: To describe trends in the prevalence of diabetes among hospitalized HIV-infected patients between 1997 and 2012 in Spain and compare them with those of age- and sex-matched non-HIV-infected patients. METHODS: The study was based on Spanish national hospital discharge data. We performed a retrospective study for the period 1997-2012. HIV infection (HIV-infected versus non-HIV-infected [control group]) and the calendar period in relation to widespread use of combination antiretroviral therapy (cART) (1997-1999; 2000-2003; 2004-2007 and 2008-2012), were the exposure variables. The outcome variables were diabetes of diagnosis and in-hospital mortality (IHM). RESULTS: From 1997 to 2012, we identified 91,752 cases of diabetes: 15,398 in the HIV-infected group (403,277 hospital admissions) and 76,354 in the non-HIV-infected group (1,503,467 hospital admissions). Overall, HIV-infected patients had lower prevalence values for diabetes than non-HIV-infected patients throughout the follow-up (3.8% vs. 5.1%; p<0.001). The prevalence of diabetes increased 1.56-fold among non-HIV-infected patients and 4.2-fold among HIV-infected patients. The prevalence of diabetes in females was almost twice as high in HIV-infected patients as in non-HIV-infected patients during the last study period (4.72% vs. 2.88%; p<0.001). Diabetes showed a protective effect against IHM throughout the study period (aOR = 0.70; 95% CI, 0.65-0.75). CONCLUSIONS: During the cART era, the prevalence of diabetes has increased sharply among HIV-infected hospitalized patients compared with matched non-HIV-infected subjects. The prevalence of diabetes is rising very fast among HIV-infected women. Diabetes has a protective effect on IHM among HIV-infected patients. Nevertheless, our study has several limitations. No information is available in the database used on important sociodemographic characteristics and relevant clinical variables including duration of the HIV infection, treatments used, drug resistance, treatment adherence or CD4 count, among others. Also, it is possible that increase of diabetes prevalence could reflect the improvement in recording habits.


BACKGROUND: The use of salivary biomarkers in stress research is increasing, and the precision and accuracy with which researchers are able to measure these biomarkers have dramatically improved. Chronic psychosocial stress is often linked to the pathogenesis of cardiovascular disease (CVD). Salivary biomarkers represent a noninvasive biological method of characterizing the stress phenomenon that may help to more fully describe the mechanism by which stress contributes to the pathogenesis and outcomes of CVD. OBJECTIVES: We conducted a systematic review of 40 research articles to identify the salivary biomarkers researchers have most commonly used to help describe the biological impact of chronic psychosocial stress and explore its associations with CVD risk. We address strengths and weaknesses of specimen collection and measurement. METHODS: We used PubMed, CINAHL, EBSCOhost, Web of Science, BIOSIS Previews, Biological Sciences (ProQuest), and Dissertations/Theses (ProQuest) to retrieve 387 initial articles. Once we applied our inclusion/exclusion criteria to specifically target adult human studies dealing with chronic stress rather than acute/laboratory-induced stress, 40 studies remained, which we synthesized using Preferred Reporting Items for Systematic Reviews and Meta-Analyses criteria. RESULTS: Cortisol was the biomarker used most frequently. Sources of psychosocial stress included job strain, low socioeconomic status, and environmental factors. Overall, psychosocial stress was associated with CVD risks such as vascular pathology (hypertension, blood pressure fluctuation, and carotid artery plaque) as well as metabolic factors such as abnormal blood glucose, dyslipidemia, and elevated cardiac enzymes. CONCLUSION: Diverse salivary biomarkers have been useful in stress research, particularly when linked to CVD risks.


The hypothesis of the present study is that the polymorphisms in the APOC3, CEPT, ACE, and ACTN3 genes can affect the outcome of nutritional intervention and the plasma lipid profile of HIV+ patients. To test the hypothesis, genetic material was collected from buccal cells, and serum was collected for biochemical analysis. Sixty-five patients were analyzed. The incorporation of protease inhibitor (PI) was more frequent in women (77% vs 33% in men). Nutritional intervention improved anthropometric parameters independent of the genotype. Patients with the RR genotype for the ACTN3 R577X polymorphism had lower glycemia (RR = 95.4 +/- 6.5 mg/dL, RX = 102.6 +/- 10.6 mg/dL, XX = 110.1 +/- 16.3 mg/dL; P = .03) and a greater reduction in low-density lipoproteins (LDL) after intervention (LDL: RR = -23.7 +/- 5.1 mg/dL, RX = 1.32 +/- 24.4 mg/dL; P = .01). Patients using PI had a negative response to dietary intervention regarding the levels of high-density lipoprotein (-2.4 +/- 1.70 with PI; 2.56 +/- 1.60 mg/dL without PI; P = .02), very low density lipoprotein (0.84 +/- 2.73 with IP, -5.46 +/- 3.37 mg/dL without PI; P = .03), and triglycerides (1.79 +/- 13.22 with PI, -34.00 +/- 17.67 mg/dL without PI; P = .052). This response was also independent of the genotype (P > 0.05) and suggested the need for oral lipid-lowering drugs in all HIV+ patients using PI.
results indicate that the ACTN3 R577X polymorphism is a good predictor of both the lipid profile and the prognosis of nutritional intervention in reducing LDL in HIV+ patients.


With the progressive increase in life-expectancy of human immunodeficiency virus (HIV)-positive patients in the "highly active antiretroviral therapy" (HAART) era, co-morbidities, particularly cardiovascular (CV) diseases (CVD) are emerging as an important concern. The pathophysiology of CVD in this population is complex, due to the interaction of classical CV risk factors, viral infection and the effects of antiretroviral therapy (ARV). The role of ARV drugs in HIV is double edged. While these drugs reduce systemic inflammation, an important factor in CV development, they may at the same time be proatherogenic by inducing dyslipidemia, body fat redistribution and insulin resistance. In these patients primary prevention is challenging, considering the lower median age at which acute coronary syndromes occur. Furthermore prevention is still limited by the lack of robust evidence-based, HIV-specific recommendations. Therefore we performed a comprehensive evaluation of the literature to analyze current knowledge on CVD prevalence in HIV-infected patients, traditional and HIV-specific risk factors and risk stratification, and to summarize the recommendations for primary prevention of CVD in this HIV population.


The development of efficient combined antiretroviral therapies has lengthened the mean life span of the population affected with human immunodeficiency virus (HIV) transforming this terminal infection to a chronic yet manageable disease. Nonetheless, patients with HIV--treatment naive or not--exhibit larger risks for coronary artery disease than the noninfected population. Moreover, coronary atherosclerosis/arteriosclerosis may be the most prevalent condition in the HIV-infected population that is being accentuated by the effects of viral agents and the antiretroviral drugs, especially protease inhibitors. Nonetheless, generalized metabolic dysfunctions and premature senescence are often attributed to the viremia caused by the HIV infection directly and primarily. Therefore, a multifactorial approach is to be considered when attempting to explain the strong correlation between HIV and coronary artery disease, including co-opportunistic viremias and vitamin D insufficiency/deficiency.


OBJECTIVE: To identify patients in a human immunodeficiency virus (HIV) study cohort who have fallen by applying supervised machine learning methods to radiology reports of the cohort. METHODS: We used the Veterans Aging Cohort Study Virtual Cohort (VACS-VC), an electronic health record-based cohort of 146 530 veterans for whom radiology reports were available (N=2 977 739). We created a reference standard of radiology reports, represented each report by a feature set of words and Unified Medical Language System concepts, and then developed several support vector machine (SVM) classifiers for falls. We compared mutual information (MI) ranking and embedded feature selection approaches. The SVM classifier with MI feature selection was chosen to classify all radiology reports in VACS-VC. RESULTS: Our SVM classifier with MI feature selection achieved an area under the curve score of 97.04 on the test set. When applied to all the radiology reports in VACS-VC, 80 416 of these reports were classified as positive for a fall. Of these, 11 484 were associated with a fall-related external cause of injury code (E-code) and 68 932 were not, corresponding to 29 280 patients with potential fall-related injuries who could not have been found using E-codes. DISCUSSION: Feature selection was crucial to improving the classifier’s performance. Feature selection with MI allowed us to select the number of discriminative features to use for classification, in contrast to the embedded feature selection method, in which the number of features is chosen automatically. CONCLUSION: Machine learning is an effective method of identifying patients who have suffered a fall. The development of this classifier supplements the clinical researcher’s toolkit and reduces dependence on under-coded structured electronic health record data.
Over the last 2 decades human immunodeficiency virus (HIV) infection has become a chronic disease requiring long-term management. Aging, antiretroviral therapy, chronic inflammation, and several other factors contribute to the increased risk of cardiovascular disease in patients infected with HIV. In low-income and middle-income countries where antiretroviral therapy access is limited, cardiac disease is most commonly related to opportunistic infections and end-stage manifestations of HIV/acquired immunodeficiency syndrome, including HIV-associated cardiomyopathy, pericarditis, and pulmonary arterial hypertension. Cardiovascular screening, prevention, and risk factor management are important factors in the management of patients infected with HIV worldwide.


The relation between insulin resistance (IR) and coronary artery disease in patients with human immunodeficiency virus (HIV) infection remains incompletely defined. Fasting serum insulin and glucose measurements from 448 HIV-infected and 306 uninfected men enrolled in the Multicenter AIDS Cohort Study were collected at semiannual visits from 2003 to 2013 and used to compute the homeostatic model assessment of IR (HOMA-IR). Coronary computed tomographic angiography (CTA) was performed at the end of the study period to characterize coronary pathology. Associations between HOMA-IR (categorized into tertiles and assessed near the time of the CTA and over the 10-year study period) and the prevalence of coronary plaque or stenosis >/=50% were assessed with multivariate logistic regression. HOMA-IR was higher in HIV-infected men than HIV-uninfected men when measured near the time of CTA (3.2 vs 2.7, p = 0.002) and when averaged over the study period (3.4 vs 3.0, p <0.001). The prevalence of coronary stenosis >/=50% was similar between both groups (17% vs 15%, p = 0.41). Both measurements of HOMA-IR were associated with greater odds of coronary stenosis >/=50% in models comparing men with values in the highest versus the lowest tertiles, although the effect of mean HOMA-IR was stronger than the single measurement of HOMA-IR before CTA (odds ratio 2.46, 95% CI 1.95 to 3.11, vs odds ratio 1.43, 1.20 to 1.70). This effect was not significantly modified by HIV serostatus. In conclusion, IR over nearly a decade was greater in HIV-infected men than HIV-uninfected men, and in both groups, was associated with significant coronary artery stenosis.


HIV(+) persons stable on antiretroviral therapy (ART) face early onset of age-related diseases. This may arise from a high burden of cytomegalovirus (CMV). To address the role of CMV, we investigated univariate and multivariate associations between markers of systemic and endothelial inflammation, vascular damage, insulin resistance (IR), neurocognitive decline, and antibodies reactive with CMV. In this study, HIV(+) participants (n = 91) aged >45 years with <50 copies HIV RNA/ml plasma after >2 years on ART were assessed for cardiovascular risk (the D:A:D algorithm), type II diabetes (the HOMA-IR index), and neurocognitive performance. Blood samples were assayed for lipids, T cells, insulin, glucose, C-reactive protein, CX3CL1, sTNF-R1, total immunoglobulin G (IgG), and antibodies reactive with CMV lysate, glycoprotein B, or immediate-early-1. Levels of antibodies detected with the three antigens were tightly correlated. Levels of CMV lysate antibody were higher in patients than in age-matched healthy controls and reflected their nadir CD4 T-cell count (p = .001), total IgG (p = .02), and age (p = .08). Levels of CMV lysate antibody correlated with D:A:D score (p = .04), neurocognitive performance (p = .045), and fasting insulin (p = .02). In multivariable analyses, some associations reflected the effect of age, but CMV lysate antibody and CD8 T-cell counts were significant predictors of the HOMA-IR index (R^2 = 0.09, p = .01) independent of age. We conclude that associations between levels of CMV antibodies, cardiovascular risk, and neurocognitive health in HIV(+) patients stable on ART are moderated by age-associated increases in response to CMV, while CMV antibodies may be independently linked with IR.

Our objective was to evaluate the association of plasma inflammatory biomarkers with MetS in an older population of treated HIV-infected (HIV(+)) as compared to age-matched HIV-negative (HIV(-)) adults. This was done in a retrospective observational study. Plasma concentrations of complement component 3 (C3), cystatin C, fibroblast growth factor 1, interleukin 6, oxidized LDL, soluble RAGE, soluble CD163, soluble CD14, and osteopontin were measured in 79 HIV(+) participants on combination antiretroviral treatment (cART) with a suppressed HIV viral load and 47 HIV(-) participants with a median age of 59 (range 50 to 79). Outcomes were individual MetS components (hypertension, type II diabetes, dyslipidemia, and obesity) and MetS. Covariates were screened for inclusion in multivariable models. Odds ratios are reported per 50 mg/dl increase in C3. In the HIV(+) group, higher C3 levels were associated with MetS (OR 3.19, p = 0.004), obesity (OR 2.02, p = 0.01), type II diabetes (OR 1.93, p = 0.02), and at a trend level with dyslipidemia (OR 1.87, p = 0.07) and hypertension (OR 1.66, p = 0.09). C3 levels were significantly higher in HIV(+) participants with MetS compared to those without MetS (p = 0.002). C3 was higher among HIV(+) patients with three or four MetS components as compared to those with one or two (p = 0.04) and those with none (p = 0.002). No associations were found between C3 and the outcomes for HIV(-) participants. C3 is strongly associated with both MetS and MetS components in an older HIV(+) sample on cART compared to HIV(-) controls. C3 warrants further investigation as a marker of cardiometabolic risk among persons aging with HIV.

Butler, C. R. and A. M. O'Hare (2016). "Considerations in Applying the Results of Randomized Controlled Clinical Trials to the Care of Older Adults With Kidney Disease in the Clinical Setting: The SHARP Trial." Adv Chronic Kidney Dis 23(1): 29-35.

The Study of Heart and Renal Protection (SHARP) found that treatment with ezetimibe and low-dose simvastatin reduced the incidence of major atherosclerotic events in patients with kidney disease. Due to the paucity of evidence-based interventions that lower cardiovascular morbidity in this high-risk population, the SHARP trial will likely have a large impact on clinical practice. However, applying the results of clinical trials conducted in select populations to the care of individual patients in real-world settings can be fraught with difficulty. This is especially true when caring for older adults with complex comorbidity and limited life expectancy. These patients are often excluded from clinical trials, frequently have competing health priorities, and may be less likely to benefit and more likely to be harmed by medications. We discuss key considerations in applying the results of the SHARP trial to the care of older adults with CKD in real-world clinical settings using guiding principles set forth by the American Geriatrics Society's Expert Panel on the Care of Older Adults with Multimorbidity. Using this schema, we emphasize the importance of evaluating trial results in the unique context of each patient's goals, values, priorities, and circumstances.


OBJECTIVE: In virologically suppressed HIV-infected adults, noncommunicable diseases (NCDs) have been associated with immune senescence and low CD4/CD8 lymphocyte ratio. Age differences in the relationship between CD4/CD8 ratio and NCDs have not been described. DESIGN: Observational cohort study. METHODS: We assessed CD4/CD8 ratio and incident NCDs (cardiovascular, cancer, liver, and renal diseases) in HIV-infected adults started on antiretroviral therapy between 1998 and 2012. Study inclusion began once patients maintained virologic suppression for 12 months (defined as baseline). We examined age and baseline CD4/CD8 ratio and used Cox proportional hazard models to assess baseline CD4/CD8 ratio and NCDs. RESULTS: This study included 2006 patients. Low baseline CD4/CD8 ratio was associated with older age, male sex, and low CD4 lymphocyte counts. In models adjusting for CD4 lymphocyte count, CD4/CD8 ratio was inversely associated with age (P < 0.01). Among all patients, 182 had incident NCDs, including 46 with coronary artery disease (CAD) events. CD4/CD8 ratio was inversely associated with risk of CAD events [adjusted HR per 0.1 increase in CD4/CD8 ratio = 0.87, 95% confidence interval (CI): 0.76-0.99, P = 0.03]. This association was driven by those under age 50 years (adjusted HR 0.83 [0.70-0.97], P = 0.02) vs. those over age 50 years (adjusted HR = 0.96 [0.79-1.18], P = 0.71). CD4/CD8 ratio was not significantly associated with incident noncardiac NCDs. CONCLUSIONS: Higher CD4/CD8 ratio after 1 year of HIV virologic suppression was independently predictive of decreased CAD risk, particularly among younger adults. Advanced immune senescence may contribute to CAD events in younger HIV patients on antiretroviral therapy.
We investigate the associations of three established plasma biomarkers in the context of HIV and treatment-related variables including a comprehensive cardiovascular disease risk assessment, within a large ambulatory HIV cohort. Patients were recruited in 2010 to form the Royal Perth Hospital HIV/CVD risk cohort. Plasma sCD14, sCD163 and CXCL10 levels were measured in 475 consecutive patients with documented CVD risk (age, ethnicity, gender, smoking, blood pressure, BMI, fasting metabolic profile) and HIV treatment history including immunological/virological outcomes. The biomarkers assessed showed distinct associations with virological response: CXCL10 strongly correlated with HIV-1 RNA (p<0.001), sCD163 was significantly reduced among 'aviraemic' patients only (p = 0.02), while sCD14 was unaffected by virological status under 10,000 copies/ml (p>0.2). Associations between higher sCD163 and protease inhibitor therapy (p = 0.05) and lower sCD14 with integrase inhibitor therapy (p = 0.02) were observed. Levels of sCD163 were also associated with CVD risk factors (age, ethnicity, HDL, BMI), with a favourable influence of Framingham score <10% (p = 0.04). Soluble CD14 levels were higher among smokers (p = 0.002), with no effect of other CVD risk factors, except age (p = 0.045). Our findings confirm CXCL10, sCD163 and sCD14 have distinct associations with different aspects of HIV infection and treatment. Levels of CXCL10 correlated with routinely monitored variables, sCD163 levels reflect a deeper level of virological suppression and influence of CVD risk factors, while sCD14 levels were not associated with routinely monitored variables, with evidence of specific effects of smoking and integrase inhibitor therapy warranting further investigation.


BACKGROUND AND OBJECTIVE: It has been postulated that the inversion of the CD4:CD8 ratio as a hallmark of immunosenescence can be an independent factor that can herald the risk of co-morbidities. We studied the influence of aging and inversion of the CD4:CD8 ratio in the incidence of comorbidities and mortality in the cohort of Hospital Severo Ochoa.

METHODS: We analyzed the differences in the incidence rates of age-adjusted morbidities and evaluated the inversion of the CD4:CD8 ratio as predictor of mortality and development of comorbidities. RESULTS: Age was associated with an increased incidence rate of diabetes mellitus, fractures, COPD and non-AIDS malignancies. We found an increased incidence rate of non-AIDS clinical events (OR 2.25; 95% CI 1.025-4.94) and AIDS events (OR 3.48; 95% CI 1.58-7.64) in individuals with CD4:CD8 ratio<0.7. Moreover, patients with a CD4:CD8 ratio<0.7 ratio had a higher risk of mortality (OR 5.96; 95% CI 0.73 to 48.40).

CONCLUSION: It is important to detect and prevent non-AIDS comorbidities in the presence of a CD4:CD8 ratio<0.7.


As the HIV population continues to live longer as a result of antiretroviral therapy, liver-related mortality has become one of the leading causes of non-AIDS related death in this patient population. The liver possesses a remarkable regenerative capacity but undergoes complex biological changes in response to aging and inflammation that result in decreased cellular regeneration and a tipping of the scales towards fibrogenesis. Patients with HIV infection have serological evidence of ongoing inflammation, with elevations in some biomarkers persisting despite adequate virologic control. In addition, HIV-co-infected patients have markers of advanced age on liver biopsy and increased prevalence of fibrosis as compared to an age-matched HCV mono-infected cohort. In this review, we will discuss the biology of aging, age-related changes in the liver, and the relevant mechanisms by which HIV causes inflammation in the context of accelerated aging, fibrosis of the liver, and other viral co-infection.


BACKGROUND AND OBJECTIVE: The HIV/AIDS-related issue has given rise to a priority concern in which potential new therapies are increasingly highlighted to lessen the negative impact of highly active anti-retroviral therapy (HAART) in the healthcare industry. With the motivation of "medical applications," this study focuses on the main advanced feature selection techniques and classification approaches that reflect a new architecture, and a trial to build a hybrid model for interested parties.

METHODS: This study first uses an integrated linear-nonlinear feature selection technique to identify the determinants influencing HAART medication and utilizes organizations of different condition-attributes to generate a hybrid model based on a rough set classifier to study evolving HIV/AIDS research in order to improve classification performance. RESULTS: The proposed model makes use of a real data set from Taiwan's specialist medical center. The experimental results show that the proposed
model yields a satisfactory result that is superior to the listed methods, and the core condition-attributes PVL, CD4, Code, Age, Year, PLT, and Sex were identified in the HIV/AIDS data set. In addition, the decision rule set created can be referenced as a knowledge-based healthcare service system as the best of evidence-based practices in the workflow of current clinical diagnosis. CONCLUSIONS: This study highlights the importance of these key factors and provides the rationale that the proposed model is an effective alternative to analyzing sustained HAART medication in follow-up studies of HIV/AIDS treatment in practice.


HIV-associated sensory neuropathy (HIV-SN) is a common complication of HIV and remains highly prevalent even with modern HIV management strategies, causing debilitating pain in millions globally. We review HIV-SN diagnosis and management. We suggest most HIV-SN cases are easily recognized using clinical screening tools, with physician assessment and/or specialized testing prioritized for atypical cases. Management aims to prevent further nerve damage and optimize symptom control. Symptom relief is difficult and rarely complete, with a lack of proven pharmacological strategies. Work is needed to clarify optimal use of available medications. This includes understanding the marked placebo effect in HIV-SN analgesic trials and exploring 'responder phenotypes'. Limited data support nondrug strategies including hypnosis, meditation, psychology, physical activity and a positive therapeutic relationship.


Background Aging of persons with human immunodeficiency virus (HIV) resulted in high rates of osteopenia and osteoporosis. Multiple cohort studies have reported an increased prevalence of bone demineralization among HIV-infected individuals. The aim of this study was to evaluate bone mineral density (BMD) and risk factors for osteopenia/osteoporosis among HIV-positive patients attending the National Institute for Infectious Diseases "Prof.Dr. Matei Bals", Bucharest, Romania. Methods We performed a cross-sectional study that enrolled 60 patients with HIV. The association between BMD and lifestyle habits (smoking), body mass index (BMI), nadir cluster of differentiation 4 (CD4) cell count, current CD4 cell count, HIV viral load and history of combination antiretroviral therapy (cART) were investigated. The BMD was measured at the lumbar spine, hips and total body using dual-energy X-ray absorptiometry (DEXA). Results In the present study, DEXA evaluation showed an overall prevalence of osteoporosis of 16.66% (ten patients) and a prevalence of osteopenia of 48.33% (29 patients). In men, low BMI and cigarette smoking showed significant association with the diagnosis of lumbar spine demineralization (p=0.034 and p=0.041, respectively). Duration of exposure to cART classes in relation to BMD was also evaluated. The use of non-nucleoside reverse-transcriptase inhibitors (NNRTIs) was associated with low lumbar spine BMD in all patients (p=0.015). Reduced BMD was significantly associated with protease inhibitors (Pis)-containing treatment (p=0.043) in women. Conclusion At lumbar spine DEXA, male gender was statistically associated with reduced BMD. At the left hip Ward's area, decreased BMD T scores were significantly associated with aging. The reduced BMD was higher in patients receiving PI- or NNRTI-containing regimens.


PURPOSE OF REVIEW: Human immunodeficiency virus (HIV) is now managed as a chronic disease. Non-infectious pulmonary conditions have replaced infection as the biggest threat to lung health, particularly as HIV cohorts age, but there is no consensus on how best to maintain long-term lung health. We review the epidemiology and pathogenesis of chronic obstructive pulmonary disease (COPD), pulmonary arterial hypertension (PAH), and lung cancer in HIV-seropositive individuals. RECENT FINDINGS: Diagnoses of COPD are now up to 50% more prevalent in HIV-seropositive individuals than HIV-uninfected controls, and prospective pulmonary function studies find significant impairment in 7% to more than 50% of HIV-seropositive individuals. The prevalence of HIV-PAH is 0.2-0.5%, and lung cancer is two to three times more prevalent in HIV-seropositive individuals. Although host factors such as age and smoking have a role, HIV is an independent contributor to the pathogenesis of COPD, PAH, and lung cancer. Chronic inflammation, immune senescence, oxidative stress, and direct effects of viral proteins are all potential pathogenic mechanisms. Despite their prevalence, non-infectious lung diseases remain underrecognized and evidence for effective screening strategies in HIV-seropositive individuals is limited. SUMMARY: COPD, PAH, and lung cancer are a growing threat to lung health in the highly active antiretroviral therapy era necessitating early recognition.
The success of antiretroviral therapy in treating HIV infection has greatly prolonged life expectancy in affected individuals, transforming the disease into a chronic condition. A number of HIV-associated non-AIDS comorbidities have emerged in the ageing HIV-infected population, including osteoporosis and increased risk of fracture. The pathogenesis of fracture is multifactorial with contributions from both traditional and HIV-specific risk factors. Significant bone loss occurs on initiation of antiretroviral therapy but stabilizes on long-term therapy. Fracture risk assessment should be performed in HIV-infected individuals and bone mineral density measured when indicated. Lifestyle measures to optimize bone health should be advised and, in individuals at high risk of fracture, treatment with bisphosphonates considered.


US Hispanic/Latino individuals are diverse in genetic ancestry, culture, and environmental exposures. Here, we characterized and controlled for this diversity in genome-wide association studies (GWASs) for the Hispanic Community Health Study/Study of Latinos (HCHS/SOL). We simultaneously estimated population-structure principal components (PCs) robust to familial relatedness and pairwise kinship coefficients (KCs) robust to population structure, admixture, and Hardy-Weinberg departures. The PCs revealed substantial genetic differentiation within and among six self-identified background groups (Cuban, Dominican, Puerto Rican, Mexican, and Central and South American). To control for variation among groups, we developed a multi-dimensional clustering method to define a “genetic-analysis group” variable that retains many properties of self-identified background while achieving substantially greater genetic homogeneity within groups and including participants with non-specific self-identification. In GWASs of 22 biomedical traits, we used a linear mixed model (LMM) including pairwise empirical KCs to account for familial relatedness, PCs for ancestry, and genetic-analysis groups for additional group-associated effects. Including the genetic-analysis group as a covariate accounted for significant trait variation in 8 of 22 traits, even after we fit 20 PCs. Additionally, genetic-analysis groups had significant heterogeneity of residual variance for 20 of 22 traits, and modeling this heteroscedasticity within the LMM reduced genomic inflation for 19 traits. Furthermore, fitting an LMM that utilized a genetic-analysis group rather than a self-identified background group achieved higher power to detect previously reported associations. We expect that the methods applied here will be useful in other studies with multiple ethnic groups, admixture, and relatedness.


Background/Purpose: With the development of antiretroviral therapy (ART), a growing number of women with HIV are living longer and transitioning through menopause. HIV infection and menopause lead to some of the same metabolic manifestations, including central adiposity, adverse lipid profiles, and insulin resistance. The Framingham Risk Score (FRS) is recommended to assess CVD risk in women, but its use in HIV-infected postmenopausal minority women has not been examined. Therefore, the purpose of this analysis is to characterize and compare CVD risk in HIV-infected and uninfected postmenopausal minority women using the FRS as an assessment measure. Methods: A cross-sectional analysis was performed in 152 (109 HIV+, 43 HIV-) subjects from an existing study cohort of postmenopausal Hispanic and African-American women. Data necessary to calculate FRS were retrieved by retrospective chart review. Bivariate statistics were used to compare CVD risk factors. Multivariable linear regression was used to determine factors associated with FRS in HIV-infected women. Results: The HIV-infected group was younger, had lower BMI, and lower rates of diabetes versus controls. Over 50% of the HIV-infected group was judged as low risk for CVD according to the FRS (FRS<10%) compared to 28% of the uninfected controls. In a subset of participants matched by age, median FRS did not differ between groups (14.6. (IQR=9.1, 21.6) vs. 15.5 (IQR=12.3, 22.1); p=0.73). Older age at HIV diagnosis was associated with higher (worse) FRS. According to 2013 guidelines, approximately 67% of controls that were not prescribed statin therapy were eligible for treatment. HIV-infected women were similarly underprescribed. Conclusions/Implications: Performance of the FRS may be similarly compromised in postmenopausal HIV-infected and uninfected minority women. Moreover, both groups are under-treated with statin therapy, which may help reduce risk of CVD. Future studies should include longitudinal follow-up for CVD incidence and subclinical measures of CVD to better characterize risk.

HIV infection has progressed from an acute, terminal disease to a chronic illness with cardiovascular disease as the leading cause of death among persons living with HIV. As persons living with HIV infection continue to become older, traditional risk factors for atherosclerosis compounded by the pathophysiological effects of HIV infection and antiretroviral therapy markedly increase the risk for cardiovascular disease. Further, persons living with HIV are also at high risk for cardiomyopathy. Critical care nurses must recognize the risk factors for cardiovascular disease and the pathophysiology and complex treatment options in order to manage care of these patients and facilitate multidisciplinary collaboration. Two case studies are used to highlight the treatment options and nursing considerations associated with cardiovascular disease among persons living with HIV.


The human immunodeficiency virus (HIV) pandemic remains a top national health priority. Chronic inflammation may be a critical component in the disease course of HIV as C-reactive protein (CRP) is elevated and associated with increased mortality. This study examined the effect of 3 months of combined aerobic and resistance exercise training among a diverse cohort of HIV-infected men and women. The fixed effect of time for CRP was found to be non-significant (F[1,57.3] = 1.7, p = 0.19). There was a significant fixed effect for time for upper body (F[1,51.6] = 18.1, p < 0.05) and lower body strength (F[1,48.0] = 15.7, p < 0.05) and significant declines in diastolic blood pressure (p = 0.002) and waist circumference (p = 0.027). Though levels of CRP were not impacted after 3 months training, participants demonstrated a significant increase in muscular strength as well as beneficial changes in metabolic risk factors. Future studies should focus on determining the optimal exercise intervention length and mode to reduce inflammation among individuals living with HIV.


Despite the combined antiretroviral therapy has improved the length and quality of life of HIV infected patients, the survival of these patients is always decreased compared with the general population. This is the consequence of non-infectious illnesses including cardiovascular diseases. In fact large studies have indicated an increased risk of coronary atherosclerotic disease, myocardial infarction even in HIV patients on cART. In HIV infected patients several factors may contribute to the pathogenesis of cardiovascular problems: life-style, metabolic parameters, genetic predisposition, viral factors, immune activation, chronic inflammation and side effects of antiretroviral therapy. The same factors may also contribute to complicate the clinical management of these patients. Therefore, treatment of these non-infectious illnesses in HIV infected population is an emerging challenge for physicians. The purpose of this review is to focus on the new insights in non AIDS-related cardiovascular diseases in patients with suppressed HIV viremia.


OBJECTIVE: To evaluate the prevalence of anal cytology (ACyt) abnormalities among HIV-infected and HIV-uninfected men who have sex with men (MSM). DESIGN: Multicenter cohort study of 723 HIV-infected and 788 HIV-uninfected MSM with ACyt, with a second ACyt collected 2 years later. A referral for high-resolution anoscopy was suggested for abnormal ACyt. METHODS: ACyt samples were collected using a polyester swab and liquid cytology media and read in a central laboratory. RESULTS: Prevalence of any abnormal ACyt was 25% in HIV-uninfected MSM and increased to 38%, 41%, and 47% among HIV-infected MSM with current CD4 T-cell counts >/=500, 350-499, and <350 cells/mm (P < 0.001), respectively. Anal HPV16 DNA was also more common in HIV-infected than HIV-uninfected MSM (25% versus 16%, P < 0.001). Abnormal baseline ACyt together with prevalent HPV16 DNA detection was present in only 7% of HIV-uninfected MSM compared to 18% of HIV-infected MSM with current CD4 < 350, P < 0.001. Among HIV-infected men, 56% of the men with atypical squamous cells of undetermined significance or low-grade squamous intraepithelial lesions ASCs-US/LSILs and 81% of men with atypical squamous cells cannot exclude high-grade (ASC-H)/high-grade squamous intraepithelial lesions (HSIL) had lower grade ACyt findings 18-30 months later ("regressed"). However, 19% of untreated HIV-infected men with ASC-H/HSIL cytology maintained that same grade of cytology in their second test approximately 2 years later, and 15% with ASC-US/LSIL "progressed" to ASC-H/HSIL. Abnormal ACyt had high sensitivity (96%) but low specificity (17%) for biopsy-proven HSIL. CONCLUSIONS: Prevalence of abnormal ACyt remains elevated in HIV-infected men during the current antiretroviral therapy era.


To evaluate the histomorphometric skin changes over aging patients with autopsied acquired immunodeficiency syndrome (AIDS). In 29 skin fragments of autopsied elderly (older than 50 years) and nonelderly patients with AIDS, epidermal thickness, the number of layers, the diameter of cells, the percentage of collagen and elastic fibers in the dermis, and the number and morphology of Langerhans cells were assessed. Statistical analysis was performed by SigmaStat 2.03 program. The thickness of the epidermis (92.55 x 158.94 mum), the number of layers (7 x 9 layers), and the diameter of the cells (13.27 x 17.6 mum) were statistically lower among the elderly. The quantity of collagen fibers (9.68 x 14.11%) and elastic fibers (11.89 x 15.31%) was also significantly lower in the elderly. There was a decrease in total (10.61 x 12.38 cel/mm(2)) and an increase in immature Langerhans cells (6.31 x 4.98 cel/mm(2)) in elderly patients with AIDS. The aging of the skin of patients with AIDS is amended in different histomorphometric aspects, the epidermis constituents suffer less pronounced changes in normal aging, and the dermis has more intense changes in elastic fibers and collagen.


INTRODUCTION: Advances in the treatment of HIV infection in the last decades have increased life expectancy of these patients and raise the question of what kind of effect chronic infection and its treatment might exert on the behavior of age-related conditions such as neurodegenerative diseases. PATIENT DATA: We performed a retrospective analysis of patients' records to assess the frequency of the association between HIV infection and parkinsonian symptoms in our hospital population. Among 249 records we identified four individuals with reported parkinsonian symptoms initiated after HIV diagnosis. Three of them had no other identifiable cause of secondary parkinsonism. All had symptom onset before the age of 60. Based on this study sample one could estimate an incidence rate of nearly 101 per 100.000 person/year, which is similar to the risk of Parkinson's disease in the general population above 70 years. DISCUSSION: These findings suggest that HIV infected individuals might be at a higher risk for developing parkinsonism as a manifestation of early neurodegeneration. Prospective and larger studies are needed to address this particular association and its characteristics.


OBJECTIVE: To determine the association between HIV infection and other risk factors for acute exacerbation of chronic obstructive pulmonary disease (AECOPD). DESIGN: Longitudinal, national Veterans Aging Cohort Study including 43 618 HIV-infected and 86 492 uninfected veterans. METHODS: AECOPD was defined as an inpatient or outpatient COPD ICD-9 diagnosis accompanied by steroid and/or antibiotic prescription within 5 days. We calculated incidence rate ratios (IRR) and 95% confidence intervals (CI) for first AECOPD over 2 years and used Poisson regression models to adjust for risk factors. RESULTS: Over 234 099 person-years of follow-up, 1428 HIV-infected and 2104 uninfected patients had at least one AECOPD. HIV-infected patients had an increased rate of AECOPD compared with uninfected (18.8 vs. 13.3 per 1000 person-years, P < 0.001). In adjusted models, AECOPD risk was greater in HIV-infected individuals overall (IRR 1.54; 95% CI 1.44-1.65), particularly in those with more severe immune suppression when stratified by CD4 cell count (cells/mul) compared with uninfected (HIV-infected CD4 < 200: IRR 2.30, 95% CI 2.10-2.53, HIV-infected CD4 >/= 200-349: IRR 1.32, 95% CI 1.15-1.51, HIV-infected CD4 >/= 350: IRR 0.99, 95% CI 0.88-1.10). HIV infection also modified the association between current smoking and alcohol-related diagnoses with risk for AECOPD such that interaction terms for HIV and current smoking or HIV and alcohol-related diagnoses were each significantly associated with AECOPD. CONCLUSION: HIV infection, especially with lower CD4 cell count, is an independent risk factor for AECOPD. Enhanced susceptibility to harm from current smoking or unhealthy alcohol use in HIV-infected patients may also contribute to the greater rate of AECOPD.
OBJECTIVE: This study was designed to explore the efficacy and safety of saroglitazar 4 mg on hypertriglyceridemia in patients with HIV associated lipodystrophy. METHODS: During this 12-week prospective, multi-centric, open-label, single arm exploratory study, 50 patients were enrolled to receive saroglitazar 4 mg orally once daily in the morning before breakfast. The primary efficacy endpoint was the percent change in triglyceride (TG) levels from baseline to Week 6 and Week 12. The secondary efficacy endpoints were assessment of low-density-lipoprotein (LDL), very-low-density-lipoprotein (VLDL), high-density-lipoprotein (HDL), non-HDL cholesterol, total cholesterol, apo-lipoprotein (Apo) A1, Apo B, and C-peptide and fasting insulin for HOMA beta and HOMA IR. Safety assessment was performed during the study. RESULTS: Saroglitazar 4 mg significantly decreased the serum TG levels from baseline at Week 6 (percent change: -40.98; 95% CI: -50.82, -31.15) and Week 12 (percent change -45.11; 95% CI: -52.37, -37.86). Reduction in VLDL cholesterol (percent change: -46.33; 95% CI: -52.89, -39.76) and total cholesterol (percent change: 7.37; 95% CI: 1.96, 12.78) was observed at week 12 from baseline. Saroglitazar increased HDL cholesterol (percent change: 34.56, 95% CI: 22.22, 46.90), Apo A1 (percent change: 33.16; 95% CI: 18.69, 47.63) and Apo B (percent change: 10.55, 95% CI: 2.86, 18.25) levels at week 12 from baseline. Saroglitazar treatment led to increase in the C-peptide (percent change: 59.42, 95% CI: 48.78, 70.06), fasting insulin levels (percent change: 47.10; 95% CI: 38.63, 55.57), HOMA of beta cell function for C-peptide (percent change: 71.67; 95% CI: 39.09, 104.26) and HOMA of insulin resistance for C-peptide (percent change: 58.29, 95% CI: 46.74, 69.83) at week 12 from baseline. Saroglitazar treatment was safe and well tolerated in this study. CONCLUSION: Overall, the observed changes in lipid profile after 12 weeks of saroglitazar treatment were in the direction of improvement in patients with HIV associated lipodystrophy. TRIAL REGISTRATION: Clinical Trial Registry of India Phase II/CTRI/2010/091/000107.
highlight implications for clinicians caring for patients with these combined comorbidities, and (3) identify key research initiatives to reduce the burden of obstructive lung diseases among HIV-infected persons.


More than one-third of adults in the USA are obese and obesity-related disease accounts for some of the leading causes of preventable death. Mid-life obesity may be a strong predictor of physical function impairment later in life regardless of body mass index (BMI) in older age, highlighting the benefits of obesity prevention on health throughout the lifespan. Adipose tissue disturbances including lipodystrophy and obesity are prevalent in the setting of treated and untreated HIV infection. This article will review current knowledge on fat disturbances in HIV-infected persons, including therapeutic options and future directions.


BACKGROUND: The long-term consequences of wasting among HIV-infected persons are not known. DESIGN: HIV-infected men surviving >/=2 years based on Kaplan-Meier analysis after a clinical diagnosis or weight trajectory consistent with wasting and with available physical function assessment data [grip strength, gait speed, and quality of life (QoL)] were matched to HIV-infected and uninfected men without wasting. METHODS: Matching criteria at the functional assessment included age, calendar year, and CD4 T-cell count and plasma HIV-1 RNA (HIV-infected only). Multivariable linear regression analyses adjusted for age, cohort, race, hepatitis C status, and number of comorbid illnesses were used to assess the impact of wasting on subsequent physical function. RESULTS: Among 85 HIV-infected men surviving >/=2 years after wasting, we evaluated physical function outcomes compared with 249 HIV-infected and 338 HIV-uninfected men with no historical wasting. In multivariable regression models, HIV-infected men with prior wasting had lower grip strength and poorer physical QoL than HIV-infected men with no wasting (P </= 0.03), and poorer physical QoL, but higher mental QoL than HIV-uninfected men (P </= 0.05). When controlling for measures of immune suppression (nadir CD4 T-cell count/AIDS, the association between wasting and physical QoL was markedly attenuated, whereas there was minimal impact on the association between wasting and grip strength. CONCLUSIONS: HIV-infected wasting survivors had weaker grip strength compared with HIV-infected persons without wasting; immune suppression was associated only with physical QoL. HIV-infected survivors of wasting may represent a population of adults at increased risk for physical function decline.


HIV-infected persons are living longer on combination antiretroviral therapy (cART) but experiencing more comorbidities including low bone mineral density (BMD). Using data from the Study to Understand the Natural History of HIV and AIDS in the Era of Effective Therapy (SUN Study), we determined the prevalence of low BMD (T-score below one standard deviation of the reference mean) and compared it with matched controls from the National Health and Nutrition Examination Survey (NHANES). We also assessed 4-year longitudinal BMD changes among participants virologically suppressed on cART. Of 653 participants included in this analysis (77% male, 29% black, median age 41 years, median CD4(+) cell count 464 cells/mm(3), 89% with HIV RNA <400 copies/ml), 51% and 10% had baseline osteopenia and osteoporosis, respectively. Low BMD at the femoral neck was significantly more prevalent than for the NHANES controls (47% versus 29%, p<0.001). Lower body mass index, nonwhite race, longer tenofovir exposure, older age, being unemployed or retired, and lower apolipoprotein E were independently associated with baseline osteoporosis. Among 170 participants virologically suppressed on cART and with longitudinal BMD data, 31% experienced substantial bone loss (>/=5% BMD decline from baseline) over 4 years. Female sex, current smoking, and longer stavudine use were more common among participants who had substantial bone loss, although these variables failed to reach statistical significance. Low BMD was highly prevalent among HIV-infected persons. One-third of participants experienced substantial bone loss despite cART, suggesting the need for monitoring and potential clinical interventions.


Cardiorespiratory fitness (VO2 peak) declines with age and is an independent risk factor for morbidity and mortality in older adults. Identifying biomarkers of low fitness may provide insight for why some individuals experience an accelerated decline of aerobic capacity and may serve as clinically valuable prognostic indicators of cardiovascular health. We investigated the
relationship between circulating ceramides and VO2 peak in 443 men and women (mean age of 69) enrolled in the Baltimore Longitudinal Study of Aging (BLSA). Individual species of ceramide were quantified by HPLC-tandem mass spectrometry. VO2 peak was measured by a graded treadmill test. We applied multiple regression models to test the associations between ceramide species and VO2 peak, while adjusting for age, sex, blood pressure, serum LDL, HDL, triglycerides, and other covariates. We found that higher levels of circulating C18:0, C20:0, C24:1 ceramides and C20:0 dihydroceramides were strongly associated with lower aerobic capacity (P < 0.001, P < 0.001, P = 0.018, and P < 0.001, respectively). The associations held true for both sexes (with men having a stronger association than women, P value for sex interaction <0.05) and were unchanged after adjusting for confounders and multiple comparison correction. Interestingly, no significant association was found for C16:0, C22:0, C24:0, C26:0, and C22:1 ceramide species, C24:0 dihydroceramide, or total ceramides. Our analysis reveals that specific long-chain ceramides strongly associate with low cardiovascular fitness in older adults and may be implicated in the pathogenesis of low fitness with aging. Longitudinal studies are needed to further validate these associations and investigate the relationship between ceramides and health outcomes.


With widespread availability and the use of antiretroviral therapy, patients with human immunodeficiency virus (HIV) in the United States are living long enough to experience non-AIDS-defining illnesses. HIV is associated with an increased risk for cardiovascular disease (CVD) because of traditional CVD risk factors, residual virally mediated inflammation despite HIV treatment, and side effects of antiretroviral therapy. No United States population-wide studies have evaluated patterns of CVD mortality for HIV-infected subjects. Our central hypothesis was that the proportionate mortality from CVD (CVD mortality/total mortality) in the HIV-infected population increased from 1999 to 2013. We used the Centers for Disease Control and Prevention Wide-Ranging Online Data for Epidemiologic Research online database of the United States public health data to assess proportionate CVD mortality from 1999 to 2013 in the HIV-infected, general, and inflammatory polyarthropathy populations; the inflammatory polyarthropathy population was included as a positive control group. Total mortality in the HIV-infected population decreased from 15,739 in 1999 to 8,660 in 2013; however, CVD mortality increased from 307 to 400 during the same period. Thus, proportionate CVD mortality for the HIV-infected population increased significantly from 1999 to 2013 (p <0.0001); this pattern was consistent across races, particularly for men. In contrast, proportionate CVD mortality decreased for the general and inflammatory polyarthropathy populations from 1999 to 2013. In conclusion, CVD has become an increasingly common cause of death in HIV-infected subjects since 1999; understanding evolving mortality risks in the HIV-infected population is essential to inform routine clinical care of HIV-infected subjects as well as CVD prevention and treatment.


The epidemiology of HIV infection and its pulmonary complications in the United States has evolved significantly over nearly 20 years since the advent of combination antiretroviral therapy. While infectious complications are less of a threat to patients whose immune systems have been restored, many HIV-infected persons in the United States remain at high risk for opportunistic infection because they are unaware of their HIV infection, have difficulty maintaining linkage to care, or maintain inadequate viral control. Bacterial pneumonia and Pneumocystis pneumonia remain significantly more prevalent among HIV-infected persons, and together with seasonal influenza are areas where public health efforts to increase antiretroviral therapy, appropriate prophylaxis, and vaccination may decrease burden of disease. Noninfectious pulmonary complications of chronic HIV infection are increasingly recognized in the United States and elsewhere. Chronic obstructive pulmonary disease, asthma, pulmonary hypertension, sleep-disordered breathing, and primary lung cancer may all be more common among persons with HIV; of concern, disease burden in U.S. HIV-infected persons may be underestimated due to lack of diagnostic testing for these conditions. Smoking is among the most prevalent preventable causes of morbidity and mortality affecting persons living with HIV infection, and has particular import to pulmonary disease. As of 2009, 42% of HIV-infected adults in medical care in the United States smoked tobacco (over twice the national rate in the general population). Successful efforts to promote smoking cessation among HIV-infected persons are of critical importance to decrease the burden of chronic pulmonary disease.


In the current era of combination antiretroviral therapy (ART), human immunodeficiency virus (HIV)-infected individuals are living longer and healthier lives. Nevertheless, HIV-infected persons are at greater risk for age-related disorders, which have
been linked to residual immune dysfunction and inflammation. HIV-infected individuals are almost universally co-infected with cytomegalovirus (CMV) and both viruses are associated with inflammation-related morbidities. Therefore, a detailed investigation of the relationship between CMV and aging-related morbidities emerging during chronic HIV infection is warranted. Here, we review the literature on how CMV co-infection affects HIV infection and host immunity and we discuss the gaps in our knowledge that need elucidation.


BACKGROUND: Isolated hepatitis B core antibody (anti-HBc) is a common serologic finding in HIV-infected persons, but the clinical significance is uncertain. We studied HIV/hepatitis C virus (HCV)-infected women over time to determine whether the trajectory of liver disease progression is affected by isolated anti-HBc serologic status.

METHODS: We performed serial enhanced liver fibrosis (ELF) markers on HIV/HCV-coinfected women to assess liver disease progression trajectory over time comparing women with isolated anti-HBc to women with either negative HB serologies, anti-HBs alone, or anti-HBc and anti-HBs. ELF, a serum marker that combines direct markers of extracellular matrix remodeling and fibrosis, was performed on serum stored biannually. Women with at least 3 ELF determinations and persistent HCV RNA positivity were included. RESULTS: Three hundred forty-four women, including 132 with isolated anti-HBc and 212 with other serologic findings, were included. A median of 6 (interquartile range, 5-7) biannual ELF values was available for each woman, totaling 2119 visits. ELF increased over time from a median of 9.07 for women with isolated anti-HBc and 9.10 for those without isolated anti-HBc to 9.83 and 9.88, respectively, with no difference in degree of change or slope in the mixed-effects model including age, race, CD4 count, antiretroviral therapy, and drug and alcohol use. Factors independently associated with liver disease progression were older age, lower CD4, antiretroviral therapy nonuse, and Hispanic ethnicity. CONCLUSION: Isolated anti-HBc serologic status was not associated with accelerated liver disease progression over a median of 9.5 years among HIV/HCV-coinfected women.


OBJECTIVES: To examine sociodemographic factors and chronic health conditions of people living with HIV (PLWHIV/HIV+) at least 65 years old and compare their chronic disease prevalence with beneficiaries without HIV. DESIGN: National fee-for-service Medicare claims data (parts A and B) from 2006 to 2009 were used to create a retrospective cohort of beneficiaries at least 65 years old. METHODS: Beneficiaries with an inpatient or skilled nursing facility claim, or outpatient claims with HIV diagnosis codes were considered HIV+. HIV+ beneficiaries were compared with uninfected beneficiaries on demographic factors and on the prevalence of hypertension, hyperlipidemia, ischemic heart disease, rheumatoid arthritis/osteoarthritis, and diabetes. Odds ratios (OR), 95% confidence intervals (CIs), and P values were calculated. Adjustment variables included age, sex, race/ethnicity, end stage renal disease (ESRD), and dual Medicare-Medicaid enrollment. Chronic conditions were examined individually and as an index from zero to all five conditions. RESULTS: Of 29,060,418 eligible beneficiaries, 24,735 (0.09%) were HIV+. HIV+ beneficiaries were more likely to be Hispanic, African-American, male, and younger (P > 0.0001) and were 1.5-2.1 times as likely to have a chronic disease [diabetes (adjusted OR) 1.51, 95% CI (1.47, 1.55); rheumatoid arthritis/osteoarthritis 2.14, 95% CI (2.08, 2.19)], and 2.4-7 times as likely to have 1-5 comorbid chronic conditions [1 condition (adjusted OR) 2.38, 95% CI (2.21, 2.57); 5 conditions 7.07, 95% CI (6.61, 7.56)]. CONCLUSION: Our results show that PLWHIV at least 65 years old are at higher risk of comorbidities than other fee-for-service Medicare beneficiaries. This finding has implications for the cost and health management of PLWHIV 65 years and older.


BACKGROUND: Hepatitis B virus (HBV) and human immunodeficiency virus (HIV) share transmission mechanisms and thus coinfection is frequent. Active immunization against HBV is essential in HIV patients. Reports using standard and reinforced HBV vaccination schedules vary widely in seroconversion rates depending on the characteristics of the included patients. Regional data concerning HBV vaccination in HIV patients are scarce. We aim to determine the serological response to HBV vaccination using standard schedule in HIV-positive patients and to evaluate characteristics that predict seroconversion.

MATERIALS AND METHODS: We performed a single centre prospective study of HBV vaccination with standard schedule in HIV-positive patients. Adults with negative markers of HBV infection were included between November 2012 and December 2014. Anti-HBs titres were measured 4-8 weeks after completion of vaccination schedule. Clinical, laboratory values and HIV characteristics were analyzed to determine their association with seroconversion and adherence to the HBV vaccination schedule. RESULTS: The study included
245 HIV-positive patients, 68.9% were male and the mean age was 42.1 years. A total of 80.7% of the patients had undetectable HIV viral loads, 86.1% had CD4 counts >200, and 94.7% were on HAART. The response to vaccination was positive in 62% (95% CI, 56-68%) and mean anti-HBs titres of 646 IU/ml. 85.5% of the responders had anti-HBs titres >100 IU/ml. An age less than 45 years, no tobacco use and a CD4/CD8 ratio >0.4 were associated with seroconversion in multivariate analysis. The seroconversion rates were 86% in the subgroup of patients who met these criteria. A total of 97.9% of the study population completed the vaccination schedule. CONCLUSION: The CD4/CD8 ratio was the primary factor associated with positive serological conversion in the multivariate analysis. The seroconversion rates were higher in a selected group of patients who were particularly suitable for the use of the standard HBV vaccination schedule.


PURPOSE: For patients receiving long-term opioid therapy (LtOT), the impact of guideline-concordant care on important clinical outcomes—notably mortality—is largely unknown, even among patients with a high comorbidity and mortality burden (e.g., HIV-infected patients). Our objective was to determine the association between receipt of guideline-concordant LtOT and 1-year all-cause mortality. METHODS: Among HIV-infected and uninfected patients initiating LtOT between 2000 and 2010 through the Department of Veterans Affairs, we used Cox regression with time-updated covariates and propensity-score matched analyses to examine the association between receipt of guideline-concordant care and 1-year all-cause mortality. RESULTS: Of 17,044 patients initiating LtOT between 2000 and 2010, 1048 patients (6%) died during 1 year of follow-up. Patients receiving psychotherapeutic co-interventions (hazard ratio [HR] 0.62; 95% confidence interval [CI] 0.51-0.75; P < 0.001) or physical rehabilitative therapies (HR 0.81; 95% CI 0.67-0.98; P = 0.03) had a decreased risk of all-cause mortality compared to patients not receiving these services, whereas patients prescribed benzodiazepines concurrent with opioids had a higher risk of mortality (HR 1.39; 95% CI 1.12-1.66; P < 0.001). Among patients with a current substance use disorder (SUD), those receiving SUD treatment had a lower risk of mortality than untreated patients (HR 0.47; 95% CI 0.32-0.68; P = < 0.001). No association was found between all-cause mortality and primary care visits (HR 1.12; 95% CI 0.90-1.26; P = 0.32) or urine drug testing (HR 0.96; 95% CI 0.78-1.17; P = 0.67). CONCLUSIONS: Providers should use caution in initiating LtOT in conjunction with benzodiazepines and untreated SUDs. Patients receiving LtOT may benefit from multi-modal treatment that addresses chronic pain and its associated comorbidities across multiple disciplines.


Among species expressing bi-parental care, males’ testosterone is often low when they cooperate with females to raise offspring. In humans, low testosterone men might have an advantage as nurturant partners and parents because they are less prone to anger and reactive aggression and are more empathetic. However, humans engage in cooperative, supportive relationships beyond the nuclear family, and these prosocial capacities were likely critical to our evolutionary success. Despite the diversity of human prosociality, no prior study has tested whether men’s testosterone is also reduced when they participate in emotionally supportive relationships, beyond partnering and parenting. Here, we draw on testosterone and emotional social support data that were collected from older men (n=371; mean: 61.2 years of age) enrolled in the National Health and Nutrition Examination Survey, a US nationally-representative study. Men who reported receiving emotional support from two or more sources had lower testosterone than men reporting zero support (all p<0.01). Males with the most support (4+ sources) also had lower testosterone than those with one source of support (p<0.01). Men who reported emotional support from diverse (kin+non-kin or multiple kin) sources had lower testosterone than those with no support (p<0.05). Expanding on research on partnering and parenting, our findings are consistent with the notion that low testosterone is downstream of and/or facilitates an array of supportive social relationships. Our results contribute novel insights on the intersections between health, social support, and physiology.


Human immunodeficiency virus (HIV)-infected adults who take stable antiretroviral therapy (ART) are at risk for early onset of age-related diseases. This is likely due to a complex interaction between traditional risk factors, HIV infection itself, and other factors, such as underlying immune dysfunction and persistent inflammation. HIV disrupts the balance between the host and coinfecting microbes, worsening control of these potential pathogens. For example, HIV-infected adults are more likely than the general population to have subclinical bursts of cytomegalovirus (CMV) replication at mucosal sites. Production of antigens can activate the immune system and stimulate HIV replication, and it could contribute to the pathogenesis of adverse outcomes.
of aging, like cardiovascular disease and neurocognitive impairment. Further investigation of the relationships between CMV, immune dysfunction, and unsuccessful aging during chronic HIV infection is warranted.


Survival with human immunodeficiency virus (HIV) infection has greatly improved due to effective antiretroviral therapy (ART). As infectious complications have declined, malignancy now accounts for over one-third of deaths among people living with HIV (PLWH). Based on practices in the general population, cancer screening of PLWH can decrease both morbidity and mortality. In this article, we review and consider directed approaches for colorectal, breast, cervical and lung cancer screening. Furthermore, routine physical examinations may detect lymphomas and skin, anal and oral cancers. Comprehensive cancer prevention in PLWH should also include ART adherence, vaccination against oncogenic viruses, treatment of hepatitis viruses and smoking cessation. Cancer screening for PLWH warrants further research on safety and efficacy as well as targeted efforts to increase adherence.


BACKGROUND: Cardiovascular disease (CVD) is a leading health threat for HIV+ patients on antiretroviral therapy (ART); cardiometabolic comorbidities are key predictors of risk. Data are limited on incidence of metabolic comorbidities in HIV+ individuals initiating ART in low and middle income countries (LMICs), particularly for Hispanics. We examined incidence of diabetes and obesity in a prospective cohort of those initiating ART in the Dominican Republic. METHODS: Participants >/=18 years, initiating ART <90 days prior to study enrollment, were examined for incidence of impaired fasting glucose (IFG), diabetes mellitus (DM), overweight, and obesity. Fasting plasma glucose (FPG) 100-125mg/dl defined IFG; FPG >/=126 mg/dl, diagnosis per medical record, or use of hypoglycemic medication defined DM. Overweight and obesity were BMI 25-30 and >/=30kg/m2, respectively. Dyslipidemia was total cholesterol >/=240mg/dl or use of lipid-lowering medication. Framingham risk equation was used to determine ten-year CVD risk at the end of observation. RESULTS: Of 153 initiating ART, 8 (6%) had DM and 23 (16%) had IFG at baseline, 6 developed DM (28/1000 person-years follow up [PYFU]) and 46 developed IFG (329/1000 PYFU). At baseline, 24 (18%) were obese and 36 (27%) were overweight, 15 became obese (69/1000 PYFU) and 22 became overweight (163/1000 PYFU). Median observation periods for the diabetes and obesity analyses were 23.5 months and 24.3 months, respectively. Increased CVD risk (>/>=10% 10-year Framingham risk score) was present for 13% of the cohort; 79% of the cohort had >/=1 cardiometabolic comorbidity, 48% had >/=2, and 13% had all three. CONCLUSIONS: In this Hispanic cohort in an LMIC, incidences of IFG/DM and overweight/obesity were similar to or higher than that found in high income countries, and cardiometabolic disorders affected three-quarters of those initiating ART. Care models incorporating cardiovascular risk reduction into HIV treatment programs are needed to prevent CVD-associated mortality in this vulnerable population.


INTRODUCTION: HIV infection and its therapy which can affect their aerobic capacity and health-related quality of life of patients. OBJECTIVE: We conducted a cross-sectional study to determine if aerobic capacity and health related quality of life was decreased in HIV-infected patients receiving highly active antiretroviral therapy and comparing patients with and without lipodystrophy. RESEARCH DESIGN AND METHODS: HIV-infected patients older than 18 years, and in current use of highly active antiretroviral therapy drugs, were evaluated for blood count, fasting total cholesterol, high density lipoprotein, triglycerides, glucose, HIV viral load and CD4/CD8 counts, body composition, peak oxygen consumption (peak VO2) and metabolic equivalent. Health related quality of life was assessed by using Short Form-36 (SF-36). Statistical analysis was carried out using SPSS version 20.0. RESULTS: A total of 63 patients with mean age of 43.1+-6.4 years were evaluated, of these 34 (54%) had lipodystrophy. The average peak VO2 (31.4+-+-7.6mLkg(-1)min(-1)) was significantly lower (p<0.01) than expected values (37.9+-5.6mLkg(-1)min(-1)) according to the characteristics of the patients. The lipodystrophy group presented with a significant difference in muscle mass, body fat, peak VO2 and metabolic equivalent and in functional capacity domains of SF-36. CONCLUSION: Aerobic capacity values were reduced in HIV-infected patients under highly active antiretroviral therapy when compared to predicted values. Lipodystrophy was associated with reduced aerobic capacity and higher frequency of metabolic syndrome. Lifestyle modification should be a priority in the management of chronic HIV disease.
However, it is not clear whether it is the infection itself or the treatment that causes bone impairment. Microindentation of Bone Mineral Density. J Acquir Immune Defic Syndr 72(3): 314-318.


BACKGROUND: Injecting drug users (IDU) are at premature risk of developing multimorbidity and mortality from causes commonly observed in the elderly. Ageing of the immune system (immune-senescence) can lead to premature morbidity and mortality and can be accelerated by chronic viral infections. Here we investigated the impact of HCV monoinfection and HIV/HCV coinfection on immune parameters in (ex-) IDU. We analyzed telomere length and expression of activation, differentiation and exhaustion markers on T cells at baseline (t = 1) and at follow-up (t = 2) (median interval 16.9 years) in IDU who were: HCV mono-infected (n = 21); HIV/HCV coinfected (n = 23) or multiple exposed but uninfected (MEU) (n = 8). RESULTS: The median time interval between t = 1 and t = 2 was 16.9 years. Telomere length within CD4(+) and CD8(+) T cells decreased significantly over time in all IDU groups (p < 0.001). CD4(+) T-cell telomere length in HCV mono-infected IDU was significantly reduced compared to healthy donors at t = 1 (p < 0.008). HIV/HCV coinfected IDU had reduced CD4(+) and CD8(+) T-cell telomere lengths (p < 0.002) to healthy donors i at t = 1. This was related to persistent levels of immune activation but not due to increased differentiation of T cells over time. Telomere length decrease was observed within all T-cell subsets, but mainly found in immature T cells (CD27(+)CD57(+) ) (p < 0.015). CONCLUSIONS: HCV mono-infection and HIV/HCV coinfection enhance T-cell immune-senescence. Our data suggest that this occurred early during infection, which warrants early treatment for both HCV and HIV to reduce immune senescence in later life.


BACKGROUND: Despite effective antiretroviral treatment (ART), HIV-positive individuals are at increased risk of serious non-AIDS conditions (cardiovascular, liver and renal disease, and cancers), perhaps due in part to ongoing inflammation and/or coagulation. To estimate the potential risk reduction in serious non-AIDS conditions or death from any cause that might be achieved with treatments that reduce inflammation and/or coagulation, we examined associations of interleukin-6 (IL-6), D-dimer, and high-sensitivity C-reactive protein (hsCRP) levels with serious non-AIDS conditions or death in 3 large cohorts. METHODS: In HIV-positive adults on suppressive ART, associations of IL-6, D-dimer, and hsCRP levels at study entry with serious non-AIDS conditions or death were studied using Cox regression. Hazard ratios (HR) adjusted for age, gender, study, and regression dilution bias (due to within-person biomarker variability) were used to predict risk reductions in serious non-AIDS conditions or death associated with lower "usual" levels of IL-6 and D-dimer. RESULTS: Over 4.9 years of mean follow-up, 260 of the 3766 participants experienced serious non-AIDS conditions or death. IL-6, D-dimer and hsCRP were each individually associated with risk of serious non-AIDS conditions or death, HR = 1.45 (95% CI: 1.30 to 1.63), 1.28 (95% CI: 1.14 to 1.44), and 1.17 (95% CI: 1.09 to 1.26) per 2x higher biomarker levels, respectively. In joint models, IL-6 and D-dimer were independently associated with serious non-AIDS conditions or death, with consistent results across the 3 cohorts and across serious non-AIDS event types. The association of IL-6 and D-dimer with serious non-AIDS conditions or death was graded and persisted throughout follow-up. For 25% lower "usual" IL-6 and D-dimer levels, the joint biomarker model estimates a 37% reduction (95% CI: 28 to 46%) in the risk of serious non-AIDS conditions or death if the relationship is causal. CONCLUSIONS: Both IL-6 and D-dimer are independently associated with serious non-AIDS conditions or death among HIV-positive adults with suppressed virus. This suggests that treatments that reduce IL-6 and D-dimer levels might substantially decrease morbidity and mortality in patients on suppressive ART. Clinical trials are needed to test this hypothesis.


Low bone mineral density (BMD) in HIV-infected individuals has been documented in an increasing number of studies. However, it is not clear whether it is the infection itself or the treatment that causes bone impairment. Microindentation...
measures bone material strength (Bone Material Strength index) directly. We recruited 85 patients, 50 infected with HIV and 35 controls. Median Bone Material Strength index was 84.5 (interquartile range 83-87) in HIV-infected patients and 90 (88.5-93) in controls (P < 0.001). No significant differences in BMD between cases and controls at any of the sites examined (total hip, femoral neck, and lumbar spine). HIV infection is associated with bone damage, independently of BMD.


People living with HIV/AIDS (PLWHA) are surviving longer, with an increased risk of cancer. Cancer screening strategies in PLWHA are lacking. We describe the case of a woman with a history of AIDS, who had a nondetectable viral load on treatment. She is an activist, promoting HIV care, but had not undergone routine screening for breast, cervical, or colonic neoplasia. She presented with a left groin mass, which on biopsy proved to be a p16 immuno-histochemical positive squamous cell carcinoma. Anal and cervic vaginal examinations did not show invasive cancer, although high-resolution anoscopy identified high-grade anal dysplasia. A mammogram followed by magnetic resonance imaging showed invasive ductal carcinoma. Her breast cancer was treated with lumpectomy, adjuvant brachytherapy and chemotherapy. The left groin tumor was treated with chemo-radiation. Herein, we also review medical literature concerning anal, cervical, breast, colorectal, and lung cancer screening for PLWHA, which is important for our aging population of PLWHA.


OBJECTIVE: Patients infected with human immunodeficiency virus (HIV) have higher rates of dyslipidemia, atherosclerosis, and chronic inflammation that can damage the vascular system compared with the general population. This can be attributed both to HIV itself and to highly active antiretroviral therapy (HAART) they receive. This review outlines the mechanisms by which HIV and HIV medications can cause vascular complications and identifies strategic areas of research to treat these dysfunctions. REVIEW: HIV and HAART affect the vascular system through several mechanisms that target systemic or metabolic systems and specific cells. HIV causes dyslipidemia and chronic immune activation, which can contribute to atherosclerosis. In addition, HIV damages macrophages, endothelial cells, smooth muscle cells, and platelets, and this damage also plays a role in the development of atherosclerosis. HAART, particularly protease inhibitors, interferes with cholesterol metabolism and can affect macrophages, endothelial cells, and smooth muscle cells. The metabolic changes and cell damage induced by HIV and HAART put HIV patients at increased risk for atherosclerosis, dyslipidemia, and serious cardiovascular events such as myocardial infarction and stroke. CONCLUSIONS: HIV patients have increased risk of developing potentially life-threatening cardiovascular pathology, which cannot be explained by traditional cardiovascular risk factors alone. More research is needed into therapies to target this HIV-specific vasculopathy.


OBJECTIVES: To study the association between CD4/CD8 ratio and morbidity in HIV-infected patients on antiretroviral therapy (ART). METHODS: The APROCO/COPILOTE cohort enrolled patients initiating a protease inhibitor-containing ART in 1997-1999. The association between occurrence of first non AIDS-defining severe events (NADE) and time-dependent measures of immune restoration was assessed by 4 Cox models with different definitions of restoration, CD4+ cell counts (CD4), CD4/CD8 ratio, both CD4 and CD4/CD8 ratio, or a composite variable (CD4 < 500/mm3, CD4 > 500/mm3 and CD4/CD8 ratio < 1, CD4 > 500/mm3 and CD4/CD8 ratio > 1). Models adjusted on baseline characteristics and time-dependent viral load were compared using Akaike Information Criterion. RESULTS: We included 1227 patients. Median duration of follow-up was 9.2 years (IQR: 4.2-11.4). Median CD4 was 530/mm3 at 9 years. Median CD4/CD8 ratio was 0.3 (IQR: 0.2-0.5) at baseline and 0.6 (IQR: 0.4-0.9) after 9 years. Incidence of first NADE was 7.4/100 person-years, the most common being bacterial infections (21%), cardiovascular events (14%) and cancers (10%). For both bacterial infections and cardiovascular events, the CD4/CD8 ratio did not add predictive information to the CD4 cell count. However, low CD4/CD8 ratio was the best predictor of non-AIDS cancers (adjusted HR = 2.13 for CD4/CD8 < 0.5; 95% CI = 1.32-3.44). CONCLUSIONS: CD4/CD8 ratio remains < 1 in most HIV-infected patients despite long-term
CD4+ cell counts restoration on ART. A CD4/CD8 ratio < 0.5 could identify patients who require a more intensive strategy of cancer prevention or screening.


OBJECTIVES: To identify main prognostic factors for 5-year mortality among age-related comorbidities (ARCs) in older people living with HIV (PLHIV). DESIGN: A prospective, multicentre cohort study with a 5-year follow-up period in the late HAART era (from January 2008 to December 2012). SETTING: The Dat’AIDS cohort involving 12 French hospitals. PARTICIPANTS: All actively followed HIV-1 infected patients aged 60 or older. MEASUREMENTS: The study endpoint was all-cause five-year mortality. The following ARCs were considered: chronic renal disease, cardiovascular diseases, cancer, chronic pulmonary disease, cirrhosis, diabetes and nutritional status. Hepatitis C (HCV), hepatitis B (HBV) co-infection and sociodemographic characteristics were also evaluated. Cox’s Proportional Hazards model was used for multivariate analysis. RESULTS: Among 1415 PLHIV aged 60 or more patients included, mean age was 66+/−5.5 years; 154 died (mortality rate 2.47/100 patient-years). The most prevalent ARCs were chronic renal disease (20.1%), diabetes (14.2%) and cardiovascular diseases (12.2%). By multivariate analysis, chronic renal disease (adjusted hazard ratio (aHR)=2.25; 95% confidence interval (CI) [1.58-2.11]; p<10-4), cardiovascular diseases (aHR=2.40; 95%CI[1.64-3.52]; p<10-4), non-HIV related cancer (aHR=1.91; 95%CI[1.20-3.05]; p=0.007), cirrhosis (aHR=2.99; 95%CI[1.68-5.33]; p<10-3), HCV co-infection (aHR=2.00; 95%CI[1.18-3.38]; p=0.009), low body mass index (aHR=2.42; 95%CI[1.46-4.01]; p<10-3) and CD4 cell count < 200 cells/microl (aHR=2.23; 95%CI[1.36-3.65]; p=0.002) were independently associated with 5 year mortality. CONCLUSION: Due to a high prevalence, chronic renal disease and cardiovascular disease are main prognostic factors for 5-year mortality among aged PLHIV.


BACKGROUND: The health implications of weight gain after antiretroviral therapy (ART) for HIV infection are not well characterized and may differ from weight gain among uninfected individuals. We use data from the Veterans Aging Cohort Study to determine whether weight gain after ART has a similar association with incident type 2 diabetes mellitus (DM) as weight gained among HIV-uninfected (uninfected) individuals. METHODS: We explored associations of weight gain and incident diabetes (A1c >/= 6.5%), in the Veterans Aging Cohort Study, a national observational study of HIV-infected (HIV+) individuals demographically matched 1:2 to uninfected controls. From 2000 to 2011, weight change was assessed in the year following ART initiation for HIV+ individuals and date of first available body mass index for uninfected individuals. We estimated hazard ratios (HRs) and 95% confidence intervals (CIs) adjusted for baseline body mass index using Cox regression. RESULTS: HIV+ individuals had lower prevalence of DM at baseline (12% HIV+, 23% uninfected) and lower incident diabetes (5% HIV+, 11% uninfected). The association of weight gain with risk of DM was linear for HIV+ and uninfected but the slope of the association was steeper for HIV+. For each 5 pounds of weight gained, HIV+ had 14% increased risk of DM (HR, 1.14; 95% CI: 1.10 to 1.17) and uninfected individuals had 8% increased risk (HR, 1.08; 95% CI: 1.07 to 1.10) (P < 0.01 for interaction). CONCLUSIONS: Weight gained in the first year after ART initiation is associated with greater risk of DM than that among uninfected individuals. HIV+ individuals initiating ART who are not underweight should avoid substantial weight gain.


CONTEXT: Individuals with HIV have an elevated risk for developing cardiovascular disease compared to controls, particularly in relationship to abnormal deposition of lipid within various body compartments. Dysregulation of lipolysis may contribute to abnormal deposition of lipid in non-adipose tissues such as the heart, leading to untoward health consequences. OBJECTIVE: To evaluate potential relationships between rates of whole-body lipolysis and intramyocardial lipid content in HIV-infected subjects compared to healthy controls. DESIGN: Cross-sectional study. SETTING: National Institutes of Health Clinical Research Center in Bethesda, Maryland. PARTICIPANTS: Forty-six HIV-infected adults and 12 controls without known cardiovascular disease. MAIN OUTCOME MEASURE: Intramyocardial lipid content quantified by MRI and rates of lipolysis determined using stable isotope tracer techniques. RESULTS: We observed a significant positive correlation between the rate of appearance of glycerol and intramyocardial lipid overall (r = 0.323; P = .014) and among the HIV group separately (r = 0.361; P = .014). Multivariate regression analyses including HIV, lipid-lowering therapy, and diabetes identified both rate of appearance of glycerol and age as independent significant predictors of intramyocardial lipid (P = .01 and P = .03, respectively), but these were not significant with inclusion of visceral adipose in the analyses. CONCLUSIONS: To our knowledge, this study is among the first in
humans to characterize the relationship between lipid deposition in the myocardium and direct measurement of whole-body fatty acid metabolism. Our current findings contribute to the growing understanding of factors that promote myocardial steatosis, such as visceral adiposity, and implicate lipolysis as a potential target for interventions to optimize myocardial health.

Hoy, J. and B. Young (2016). "Do people with HIV infection have a higher risk of fracture compared with those without HIV infection?" Curr Opin HIV AIDS 11(3): 301-305.

PURPOSE OF REVIEW: This review details recent findings that inform the prevalence and incidence of fractures in people living with HIV (PLWH) and examines the effects of HIV infection and antiretroviral therapy (ART), as well as demographics and traditional risk factors on fractures. As antiretroviral guidelines have recently changed to recommend the introduction of ART at diagnosis of HIV infection, the long-term effects of ART on bone health and fracture risk need to be better understood. RECENT FINDINGS: It is apparent that both the effects of HIV infection alone and initiation of ART are associated with significant bone loss in individuals with HIV infection, resulting in osteopenia and osteoporosis. The clinical consequence of low bone mineral density is a greater risk of fragility fractures that are more common in older HIV patients, and those on ART. Frailty occurs at a prevalence of about 10% (about twice that of the general population), and the increased propensity of falls results in greater fracture prevalence, morbidity and mortality. SUMMARY: This review examines data from recent cohort studies and clinical trials to inform a better understanding of the complex relationship between the effects of HIV infection, ART and demographics on fractures in PLWH.


BACKGROUND: Although people with serious mental illnesses have a high risk of contracting blood-borne viral infections, sexual health has largely been neglected by researchers and policy makers involved in mental health. Failure to address this shortcoming could increase morbidity and mortality as a result of undetected and untreated infection. We did a systematic review and meta-analysis to estimate the prevalence of blood-borne viral infection in people with serious mental illness. METHOD: We searched the Cochrane Library, Medline, Embase, PsycInfo, CINAHL, and DARE for studies of the prevalence of HIV, hepatitis B virus, and hepatitis C virus in people with serious mental illness, published between Jan 1, 1980, and Jan 1, 2015. We group prevalence data by region and by virus and estimated pooled prevalence. We did a sensitivity analysis of the effect of study quality on prevalence. FINDINGS: After removal of duplicates, we found 373 abstracts, 91 of which met our eligibility criteria. The prevalences of blood-borne viral infections in people with serious mental illness were higher than in the general population in places with low prevalence of blood-borne viruses, such as the USA and Europe, and on par with the general population in regions with high prevalence of blood-borne viruses (Africa for HIV and southeast Asia for hepatitis B virus and hepatitis C virus). Pooled prevalence of HIV in people with serious mental illness in the USA was 6.0% (95% CI 4.3-8.3). Sensitivity analysis showed that quality scores did not significantly affect prevalence. INTERPRETATION: People with serious mental illness are at risk of blood-borne viral infections. However, because of methodological limitations of the studies the prevalence might be overestimated. Serious mental illness is unlikely to be a sole risk factor and risk of blood-borne viral infection is probably multifactorial and associated with low socioeconomic status, drug and alcohol misuse, ethnic origin, and sex. Health providers should routinely discuss sexual health and risks for blood-borne viruses (including risks related to drug misuse) with people who have serious mental illness, as well as offering testing and treatment for those at risk. FUNDING: Wellcome Trust.


BACKGROUND & AIMS: Understanding HCV transmission among people who inject drugs (PWID) is important for designing prevention strategies. This study investigated whether HCV infection among younger injectors occurs from few or many transmission events from older injectors to younger injectors among PWID in Vancouver, Canada. METHODS: HCV antibody positive participants at enrolment or follow-up (1996-2012) were tested for HCV RNA and sequenced (Core-E2). Time-stamped phylogenetic trees were inferred using Bayesian Evolutionary Analysis Sampling Trees (BEAST). Association of age with phylogeny was tested using statistics implemented in the software Bayesian Tip Significance (BaTS) testing. Results associated with clustering (maximum cluster age: five years) were identified using logistic regression. RESULTS: Among 699 participants with HCV subtype 1a, 1b, 2b and 3a infection (26% female, 24% HIV+); 21% were younger (<27years), and 10% had recent HCV seroconversion. When inferred cluster age was limited to <5years, 15% (n=108) were in clusters/pairs. Although a moderate degree of segregation was observed between younger and older participants, there was also transmission between age groups. Younger age (<27 vs. >40, AOR: 3.14; 95% CI: 1.54, 6.39), HIV (AOR: 1.97; 95% CI: 1.22, 3.18) and subtype 3a (AOR: 2.12; 95% CI:
1.33, 3.38) were independently associated with clustering. CONCLUSIONS: In this population of PWID from Vancouver, HCV among young injectors was seeded from many transmission events between HCV-infected older and younger injectors. Phylogenetic clustering was associated with younger age and HIV. These data suggest that HCV transmission among PWID is complex, with transmission occurring between and among older and younger PWID.


The article presents information on the Lesbian, Gay, Bisexual and Transgender (LGBT) Senior Health Quest for the aging generation of LGBT people. It states that the program help promote health and active old age for the older LGBT people. It also features several physical activities for the older LGBT people including line dancing, yoga and healthy foods.


While mortality rates related to cardiovascular disease (CVD) have decreased over time among adults with HIV, excess risk of CVD in the HIV-infected population may persist despite highly active antiretroviral therapy (HAART) treatment and aggressive CVD risk factor control. Beyond atherosclerotic CVD, recent studies suggest that HIV infection may be associated with left ventricular systolic and diastolic function, interstitial myocardial fibrosis, and increased cardiac fat infiltration. Thus, with the increasing average age of the HIV-infected population, heart failure and arrhythmic disorders may soon rival coronary artery disease as the most prevalent forms of CVD. Finally, the question of whether HIV infection should be considered in clinical risk stratification has never been resolved, and this question has assumed new importance with recent changes to lipid treatment guidelines for prevention of CVD.


With increasing success in treating HIV, infected persons are living longer, and a new challenge has emerged - the need to understand how HIV-infected adults are aging. What are the similarities with typical aging and what are the unique aspects that may have resulted from HIV infection, interacting with characteristic life style factors and other comorbid conditions? Are specific diseases and conditions (comorbidities), typically seen as part of the aging process, occurring at accelerated rates or with higher frequency (accentuated) in HIV-infected adults? At this juncture, conclusions should be tentative. Certainly, biological processes that correlate with aging occur earlier in the older adult HIV population. Clinical manifestations of these biological processes are age-associated illnesses occurring in greater numbers (multimorbidity), but they are not accelerated. Specifically cardiovascular disease, certain cancers, and renal disease are more common with other comorbidities less certain. Management of this elevated risk for developing multimorbidity is a major concern for patients and their health care teams. The medical system must respond to the evolving needs of this aging and growing older adult population who will dominate the epidemic. Adopting a more holistic approach to their health care management is needed to achieve optimal health and well-being in the HIV-infected older adult. Geriatric care principles best embody this approach.


BACKGROUND: We characterized associations between smoking, alcohol, and recreational drug use and coronary plaque by HIV serostatus within the Multicenter AIDS Cohort Study (MACS). METHODS: MACS participants (N = 1005, 621 HIV+ and 384 HIV-) underwent non-contrast CT scanning to measure coronary artery calcium; 764 underwent coronary CT angiograms to evaluate plaque type and extent. Self-reported use of alcohol, tobacco, smoked/inhaled cocaine, methamphetamine, ecstasy, marijuana, inhaled nitrates, and erectile dysfunction drugs was obtained at semi-annual visits beginning 10 years prior to CT scanning. Multivariable logistic and linear regression models were performed, stratified by HIV serostatus. RESULTS: Among HIV+ men, current smoking, former smoking, and cumulative pack years of smoking were positively associated with multiple coronary plaque measures (coronary artery calcium presence and extent, total plaque presence and extent, calcified plaque presence, and
stenois >50%). Smoking was significantly associated with fewer plaque measures of comparable effect size among HIV- men; current smoking and calcified plaque extent was the only such association. Heavy alcohol use (>14 drinks/week) was associated with stenois >50% among HIV+ men. Among HIV- men, low/moderate (1-14 drinks/week) and heavy alcohol use were inversely associated with coronary artery calcium and calcified plaque extent. Few significant associations between other recreational drug use and plaque measures were observed. CONCLUSION: Smoking is strongly associated with coronary plaque among HIV+ men, underscoring the value of smoking cessation for HIV+ persons. Alcohol use may protect against coronary artery calcium and calcified plaque progression in HIV- (but not HIV+) men. Few positive associations were observed between recreational drug use and coronary plaque measures.


OBJECTIVES: Hepatitis C virus (HCV) infection causes an alteration in T-cell maturation and activation in patients coinfected with human immunodeficiency virus (HIV). Because interleukin 7 (IL-7) is a major cytokine controlling T-cell homeostasis, we analyzed the potential influence of HCV coinfection on circulating IL-7 levels in HIV-infected women before and after highly active antiretroviral therapy (HAART). DESIGN AND METHODS: This prospective study included 56 HIV monoinfected, 55 HIV/HCV coinfected without HCV viremia, 132 HIV/HCV coinfected with HCV viremia, and 61 HIV/HCV-uninfected women for whom plasma levels of IL-7 were determined by enzyme-linked immunosorbent assay at 1 or more follow-up visits before and after HAART. Cross-sectional analyses of the associations between plasma IL-7 levels and HCV infection, demographic, clinical, and immunologic characteristics were evaluated using univariate and multivariate linear regression models before and after HAART. RESULTS: In multivariate models, IL-7 levels were significantly higher in coinfected HCV viremic women than in HIV monoinfected women (multiplicative effect = 1.48; 95% confidence interval: 1.01 to 2.16; P = 0.04) before HAART, but were similar between these two groups among women after HAART. In addition to HCV viremia, higher IL-7 levels were associated with older age (P = 0.02), lower CD4(+) T-cell count (P = 0.0007), and higher natural killer T-cell count (P = 0.02) in women before HAART. Among HAART-treated women, only lower CD4(+) T-cell count was significantly associated with IL-7 level (P = 0.006). CONCLUSIONS: Our data demonstrate that in HIV-infected women, circulating levels of IL-7 are strongly associated with CD4 T-cell depletion both before and after HAART. Our data also demonstrate that HCV viremia increases circulating IL-7 levels before HAART but not after HAART in coinfected women. This suggests that the effect of HCV on lymphopenia is abrogated by HAART.


The article reports that the U.S. Advisory Committee on Immunization Practices (ACIP) has approved the Recommended Adult Immunization Schedule in the U.S. for the use of vaccines for adults. Topics discussed include precautions for commonly used vaccines, changes in the schedule, licensing of vaccines, tools for primary care, use of vaccines registries, protection from vaccine-preventable diseases, and presents several charts and footnotes for the schedule.


BACKGROUND: Liver disease is a major cause of mortality among HIV-infected persons. There is limited information about the extent to which HIV disease severity impacts liver disease progression. METHODS: We determined the incidence and predictors of advanced hepatic fibrosis measured by the Fibrosis-4 index (> = 3.25) in a large diverse population of HIV-infected patients without significant liver disease at baseline (Fibrosis-4 score < 1.45) in care between January 2000 and March 2014. We used Cox proportional hazards analysis to examine factors associated with progression to Fibrosis-4 score > = 3.25. RESULTS: Among 14,198 HIV-infected patients, hepatitis C virus (HCV) coinfection [adjusted hazard ratio (aHR) 1.9, 95% confidence interval (CI): 1.6 to 2.1], hepatitis B virus coinfection (aHR 1.5, 95% CI: 1.2 to 1.8), alcohol-use disorder (aHR 1.4, 95% CI: 1.2 to 1.6), and diabetes (aHR 1.9, 95% CI: 1.6 to 2.3) were associated with progression to advanced fibrosis in multivariable analysis. In addition, patients at each lower level of time-varying CD4 cell count had a significantly greater risk of progression, with approximately 7-fold higher risk in those with CD4 < 100 cells per cubic millimeter (aHR 6.9, 95% CI: 5.8 to 8.3) compared with CD4 > = 500 cells per cubic millimeter. An increasing gradient of risk was also observed among patients with higher time-varying HIV viral load (VL), with the greatest risk noted with VL > = 100,000 copies per milliliter (aHR 2.6, 95% CI: 2.2 to 3.1) compared with VL < 500 copies per milliliter. CONCLUSIONS: Lower CD4 cell count and higher HIV VL were significantly associated with progression to advanced hepatic fibrosis in a dose-dependent manner, independent of the risk associated with traditional factors: hepatitis C virus or...
hepatitis B virus coinfection, alcohol, and diabetes. Our findings suggest that early treatment of HIV infection could mitigate liver disease.


The proportion of overweight and obese adults in the United States and Canada has increased over the past decade, but temporal trends in body mass index (BMI) and weight gain on antiretroviral therapy (ART) among HIV-infected adults have not been well characterized. We conducted a cohort study comparing HIV-infected adults in the North America AIDS Cohort Collaboration on Research and Design (NA-ACCORD) to United States National Health and Nutrition Examination Survey (NHANES) controls matched by sex, race, and age over the period 1998 to 2010. Multivariable linear regression assessed the relationship between BMI and year of ART initiation, adjusting for sex, race, and baseline CD4(+) count. Temporal trends in weight on ART were assessed using a generalized least-squares model further adjusted for HIV-1 RNA and first ART regimen class. RESULTS: The cohort was 52% men and 48% nonwhite. Nonobese and obese HIV-infected patients did not differ by clinical or demographic characteristics. Obese HIV-uninfected controls were younger than obese HIV-infected patients and less likely to smoke (P < 0.03 for both). Among HIV-infected patients, obesity was associated with greater insulin release, lower insulin sensitivity, and higher serum high-sensitivity C-reactive protein, interleukin-6, and tumor necrosis factor-alpha receptor 1 levels (P < 0.001), but similar lipid profiles, sCD14, sCD163, intercellular adhesion molecule 1 and vascular cell adhesion molecule 1, and carotid intima-media thickness and flow mediated dilation. In contrast, Obese HIV-infected patients had adverse lipid changes, and greater circulating intercellular adhesion molecule 1, vascular cell adhesion molecule 1 and sCD14, compared with obese HIV-uninfected controls after adjusting for age and other factors. CONCLUSION: Obesity impairs glucose metabolism and contributes to circulating high-sensitivity C-reactive protein, interleukin-6, and tumor necrosis factor-alpha receptor 1 levels, but has few additive effects on dyslipidemia and endothelial activation, in Obese HIV-infected adults on long-term antiretroviral therapy.


PURPOSE OF REVIEW: Hepatitis C virus (HCV) coinfection is a common and an important comorbidity in HIV infection. We review current trends in mortality and the potential for early combination antiretroviral therapy (cART) and HCV therapy to improve survival in coinfected patients. RECENT FINDINGS: HIV/HCV coinfection increases risk of death from all causes, and from liver disease and harmful drug use in particular. There is growing evidence for a direct role of HIV in liver fibrogenesis and for cART to decrease the risk of dying from liver disease in coinfected persons. Sustained virologic responses after HCV treatment greatly impact mortality by reducing rates of hepatic decompensation, hepatocellular carcinoma and death from liver-related and nonliver-related causes by at least 50%, but treatment uptake has been low so far. Recent epidemiologic studies do suggest that liver-related mortality is declining in recent calendar periods; however, methodological limitations of currently available studies are important. SUMMARY: Early cART and wider HCV treatment have the potential to markedly reduce HCV-related mortality and thus increase survival overall for HIV-infected populations. However, HCV treatment will need to be greatly scaled up. Given the complex nature of the populations affected, future studies will need to be carefully designed and controlled to rigorously evaluate the impact of these revolutionary therapies on survival.
overweight at baseline had become obese. HIV-infected white women had a higher BMI after 3 years of ART as compared to age-matched white women in NHANES (p = 0.02), while no difference in BMI after 3 years of ART was observed for HIV-infected men or non-white women compared to controls. The high prevalence of obesity we observed among ART-exposed HIV-infected adults in North America may contribute to health complications in the future.


BACKGROUND: Patients with HIV, even with suppressed viremia on combination antiretroviral therapy, are at increased risk for cardiovascular disease. The underlying pathophysiology remains to be clarified. Aortic stiffness, known to be associated with cardiovascular disease in the general population, was investigated in a cohort of HIV type 1 (HIV 1)-infected and similar but uninfected individuals. METHODS: Aortic stiffness was assessed by measuring pulse wave velocity (PWV) with an Arteriograph. Five hundred seven HIV-uninfected and 566 HIV 1-infected individuals, predominantly with suppressed viremia on combination antiretroviral therapy, aged >/=45 years, participating in the ongoing AGEhIV Cohort Study were included in the analysis. Multivariable linear regression was used to investigate whether HIV was independently associated with aortic stiffness, adjusting for traditional cardiovascular risk factors. RESULTS: Study groups were comparable in demographics; smoking and hypertension were more prevalent in HIV-infected participants. PWV was higher in the HIV-infected group (7.9 vs. 7.7 m/s, P = 0.004). After
adjustment for mean arterial pressure, age, gender, and smoking, HIV status was not significantly associated with aortic stiffness. In HIV-infected participants, having a nadir CD4 T-cell count \(<100~\text{cells per cubic millimeter}~\text{was independently associated with a higher PWV. CONCLUSIONS: The increased aortic stiffness in HIV-infected participants was largely explained by a higher prevalence of traditional cardiovascular risk factors, particularly smoking. Although HIV itself was not independently associated with higher aortic stiffness, a prior greater degree of immunodeficiency was. This suggests a detrimental effect of immunodeficiency on the aortic wall, possibly mediated by inflammation.}


**BACKGROUND:** Hepatic fat is related to insulin resistance (IR) and visceral adipose tissue (VAT) in HIV+ and uninfected individuals. Growth hormone (GH) reduces VAT but increases IR. We evaluated the effects of recombinant human GH (rhGH) and rosiglitazone (Rosi) on hepatic fat in a study of a randomized controlled trial. METHODS: HIV+ subjects with abdominal obesity and IR (QUICKI<0.33) were randomized to rhGH 3 mg daily, Rosi 4 mg twice daily, the combination or double placebo. Hepatic fat was measured by magnetic resonance spectroscopy, visceral fat by MRI and IR by frequently sampled intravenous glucose tolerance tests at baseline and week 12. RESULTS: 31 subjects were studied at both time points. Significant correlations between hepatic fat and VAT (r=0.41; P=0.02) and QUICKI (r=0.39; P<0.05) were seen at baseline. IR rose with rhGH but not Rosi. When rhGH treatment groups were combined, hepatic fat expressed as percentage change decreased significantly (P<0.05) but did not change in Rosi (P=0.71). There were no correlations between changes in hepatic fat and VAT (P=0.4) or QUICKI (P=0.6). In a substudy of 21 subjects, a trend was noticed between changes in hepatic fat and serum insulin-like growth factor-1 (IGF-1; P=0.09). CONCLUSIONS: Hepatic fat correlates significantly with both VAT and IR, but changes in hepatic fat do not correlate with changes in VAT and glucose metabolism. Hepatic fat content is reduced by rhGH but Rosi has no effect. These results suggest an independent effect of GH or IGF-1 on hepatic fat. The study was registered at Clinicaltrials.gov (NCT00130286).


**BACKGROUND:** Endothelial progenitor cells (EPCs) are bone marrow-derived cells that contribute to vascular repair. EPCs may be reduced in HIV-infected (HIV+) persons, contributing to cardiovascular disease (CVD). Telmisartan is an angiotensin receptor blocker that increases EPCs in HIV-uninfected adults. OBJECTIVE: To assess telmisartan's effects on EPC number and immunophenotype in older HIV + adults at risk for CVD. METHODS: HIV + persons >/=50 years old with HIV-1 RNA < 50 copies/mL on suppressive antiretroviral therapy and >/=1 CVD risk factor participated in a prospective, open-label, pilot study of oral telmisartan 80 mg daily for 12 weeks. Using CD34 and CD133 as markers of early maturity and KDR as a marker of endothelial lineage commitment, EPCs were quantified via flow cytometry and defined as viable CD3-/CD33-/CD19-/glycophorin- cells of four immunophenotypes: CD133+/KDR+, CD34+/KDR+, CD34+/CD133+, or CD34+/KDR+/CD133+. The primary endpoint was a 12-week change in EPC subsets (NCT01578772). RESULTS: Seventeen participants (88% men, median age 60 years and peripheral CD4+ T lymphocyte count 625 cells/mm3) enrolled and completed the study. After 6 and 12 weeks of telmisartan, frequencies of all EPC immunophenotypes were higher than baseline (all p < 0.10 except week 12 CD133+/KDR+ EPC, p = 0.13). Participants with lower baseline EPC levels had the largest gains. Additionally, the percentage of CD34+ cells with endothelial commitment (KDR+) increased. CONCLUSIONS: Our data suggest that telmisartan use is associated with an increase in circulating EPCs in older HIV + individuals with CVD risk factors. Further controlled studies are needed to assess whether EPC increases translate to a reduction in CVD risk in this population.


The role of psychological risk factors has been under-recognized in most subspecialties of medicine, as well as in general medicine practices. However, considerable evidence indicates that psychosocial factors are involved in the pathogenesis and progression of cardiovascular disease (CVD). Emerging data from cardiac rehabilitation (CR) settings and CR exercise training (CRET) programs have demonstrated the value of comprehensive CRET to improve psychological functioning and reduce all-cause mortality. Recent evidence also supports the role of CRET and the added value of stress management training in the secondary prevention of CVD.
OBJECTIVE: Although the prevalence of HIV-infection among individuals >= 50 years of age has increased, the impact of HIV-infection on risk of death in this population remains to be established. Our aim was to estimate long-term mortality among HIV-infected individuals who were 50 years or older, when compared with an individually-matched cohort from the background population. METHODS: Population-based cohort-study including HIV-infected individuals >= 50 years, who were alive 1 year after HIV-diagnosis (n = 2440) and a comparison cohort individually-matched by age and gender extracted from the background population (n = 14,588). Cumulative survival was evaluated using Kaplan-Meier method and Mortality Rate Ratios (MRRs) were estimated using Cox Regression Models. Study period 1996-2014. RESULTS: Estimated median survival time from age 50 years for HIV-infected individuals increased from 11.8 years (95% CI: 10.2 to 14.5) during 1996-1999 to 22.8 years (20.0-24.2) in 2006-2014. MRR decreased with increasing age from 3.8 (3.1-4.7) for 50-55 years to 1.6 (1.0-2.6) for 75-80 years. In a cohort of well-treated HIV-infected individuals >= 50 years without AIDS-defining events or comorbidity at study inclusion (n = 517). MRR was 1.7 (1.2-2.3) compared with population controls without comorbidity. CONCLUSION: Among HIV-infected individuals estimated median survival time from age 50 years has increased by more than 10 years from 1996-1999 to 2006-2014, but is still substantially lower than in the background population. Even among well-treated HIV-infected individuals >= 50 years without comorbidity or AIDS-defining events the estimated median survival time remains lower than in the general population.

OBJECTIVE: Incidence of HIV-associated non-AIDS (HANA) related comorbidities is increasing in HIV-infected individuals. Our objective was to estimate the risk of HANA comorbidity associated with history of injection drug use (IDU) correctly accounting for higher death rates among people who inject drugs (PWID). DESIGN: We followed HIV-Infected persons aged 25-59 years who enrolled in the Johns Hopkins HIV Clinical Cohort between 1995 and May 2014, from enrollment until HANA comorbidity diagnosis, death, age 60, or administrative censoring. METHODS: We compared cumulative incidence (\('risk'\)), by age, of validated diagnoses of HANA comorbidities among HIV-infected PWID and non-IDU; specifically, we considered end-stage renal disease (ESRD), end-stage liver disease (ESLD), myocardial infarction, stroke, and non-AIDS-defining cancer. We used competing risk methods appropriate to account for death, standardized to the marginal distribution of baseline covariates, and adjusted for potential differential loss-to-clinic. RESULTS: Of 5490 patients included in this analysis, 37% reported IDU as an HIV transmission risk. By age 55 years, PWID had higher risk of ESRD [risk difference = 6.8, 95% confidence interval (CI): -1.9, 15.5] and ESRD (risk difference = 11.1, 95% CI: 1.2, 21.0) than did non-IDU. Risk of myocardial infarction and stroke were similar among PWID and non-IDU. Risk of non-AIDS-defining cancer was lower among PWID than among non-IDU (risk difference at 55 years: -4.9, 95% CI: -11.2, 1.3). CONCLUSION: Not all HANA comorbidities occur with higher incidence in PWID compared with non-IDU. However, higher incidence of ESRD and ESLD among PWIDs highlights the importance of recognition and management of markers of these comorbidities in early stages among PWID.

BACKGROUND: In Sub-Saharan Africa, epidemiological studies have reported an increasing burden of non-communicable diseases (NCD) among people living with HIV. NCD management can be feasibly integrated into HIV care; however, clinic readiness to provide NCD services in these settings should first be assessed and gaps in care identified. METHODS: A cross-sectional survey conducted in July 2013 assessed the resources available for NCD care at 14 HIV clinics in Dar es Salaam, Tanzania. Survey items related to staff training, protocols, and resources for cardiovascular disease risk factor screening, management, and patient education. RESULTS: 43 % of clinics reported treating patients with hypertension; however, only 21 % had a protocol for NCD management. ECHO International Health standards for essential clinical equipment were used to measure clinic readiness; 36 % met the standard for blood pressure cuffs, 14 % for glucometers. Available laboratory tests for NCD included blood glucose (88 %), urine dipsticks (78 %), and lipid panel (57 %). 21 % had a healthcare worker with NCD training. All facilities provided some form of patient education, but only 14 % included diabetes, 57 % tobacco cessation, and 64 % weight management. CONCLUSIONS: A number of gaps were identified in this sample of HIV clinics that currently limit the ability of Tanzanian healthcare workers to diagnose and manage NCD in the context of HIV care. Integrated NCD and HIV care may be successfully achieved in these settings with basic measures incorporated into existing infrastructures at minimal added expense, i.e., improving access to basic functioning equipment, introducing standardized treatment guidelines, and improving healthcare worker education.

BACKGROUND/OBJECTIVE: In a previous report of HIV-infected patients with fat redistribution, we found that recombinant human growth hormone (rhGH) therapy reduced visceral adipose tissue (VAT) but increased insulin resistance, and that the addition of rosiglitazone reversed the negative effects of rhGH on insulin sensitivity. In this study, we sought to determine the effects of rhGH and rosiglitazone therapy on an array of inflammatory and fibrinolytic markers. METHODS: 72 patients with HIV-associated abdominal obesity and insulin resistance were randomized to treatment with rhGH, rosiglitazone, the combination of rhGH and rosiglitazone, or placebo for 12 weeks. Subjects with plasma and serum samples available at weeks 0 (n=63) and 12 (n=46-48) were assessed for adiponectin, C-reactive protein, homocysteine, interleukin-1, interleukin-6, tumor necrosis factor alpha, interferon gamma, fibrinogen, plasminogen activator inhibitor-1 antigen, and tissue plasminogen activator antigen. RESULTS: Treatment with both rosiglitazone alone and the combination of rosiglitazone and rhGH for 12 weeks resulted in significant increases in adiponectin levels from baseline. Adiponectin levels did not change significantly in the rhGH arm alone. There were no significant changes in the other biomarkers among the different treatment groups. DISCUSSION: In this study of HIV-infected patients with altered fat distribution, treatment with rosiglitazone had beneficial effects on adiponectin concentrations, an effect that was also seen with a combination of rosiglitazone and rhGH. RhGH administration alone, however, did not demonstrate any significant impact on adiponectin levels despite reductions in VAT.


OBJECTIVE: New York City’s (NYC’s) life expectancy gains have been greater than those seen nationally. We examined life-expectancy changes over the past decade in selected NYC subpopulations and explored which age groups and causes of death contributed most to the increases. METHODS: We calculated life expectancy with 95% confidence intervals (CIs) for 2001-2010 by sex and race/ethnicity. Life expectancy was decomposed by age group and cause of death. Logistic regressions were conducted to reinforce the results from decomposition by controlling confounders. RESULTS: Overall, NYC residents’ life expectancy at birth increased from 77.9 years (95% CI, 77.8-78.0) in 2001 to 80.9 years (95% CI, 80.8-81.0) in 2010. Decreases in deaths from heart disease, cancer, and HIV disease accounted for 50%, 16%, and 11%, respectively, of the gains. Decreased mortality in older age groups (>/=65 years) accounted for 45.6% of the overall change. CONCLUSIONS: Life expectancy increased for both sexes, across all racial/ethnic groups, and for both the US-born and the foreign-born. Disparities in life expectancy decreased as overall life expectancy increased. Decreased mortality among older adults and from heart disease, cancer, and HIV infection accounted for most of the increases.


BACKGROUND: Lifestyle modification is often difficult for middle-aged and older women living in the community who are at high risk of physical inactivity and metabolic syndrome. OBJECTIVES: To examine the effects of telephone-based motivational interviewing in a 12-week lifestyle modification program on physical activity, MetS, metabolic risks (fasting plasma glucose, blood pressure, triglyceride, high-density lipoprotein, and central obesity), and the number of metabolic risks in community-living middle-aged and older women diagnosed with metabolic syndrome. RESEARCH DESIGN AND METHOD: A randomized controlled trial was conducted. Recruited were 328 middle-aged and older women from a community health center in Taiwan. Eligible women medically diagnosed with metabolic syndrome (n=115) were randomly assigned to one of three groups: The experimental group received an individualized telephone delivered lifestyle modification program that included motivational interviewing delivered by an experienced nurse. The brief group received a single brief lifestyle modification counseling session with a brochure. The usual care group received standard care. Physical activity was assessed with the International Physical Activity Questionnaire and metabolic risks were determined by serum markers and anthropometric measures at pre- and post-intervention. One hundred women completed the study and an intention-to-treat analysis was performed. Generalized estimating equations were used to examine the intervention effects. RESULTS: Women in the experimental group increased physical activity from 1609 to 1892 MET-min/week (beta=846, p=.01), reduced the percentage of diagnosed with metabolic syndrome to 81.6% (beta=-0.17, p=.003), and decreased the number of metabolic risks from 4.0 to 3.6 (beta=-0.50, p<.001), compared to the usual care group (4.4-4.6). There was not a reduction in the percentage of diagnosed with metabolic syndrome...
in the brief group, but they had fewer metabolic risks after 12 weeks (mean=4.0 vs. 4.6, beta=-0.2, p=.02) compared to the usual care group. CONCLUSIONS: Motivational interviewing as a component of an individualized physical activity and lifestyle modification program has positive benefit in reducing metabolic risks in middle-aged and older women.


Background. This retrospective study investigates the healthcare costs of herpes zoster (HZ) in patients with selected immune-compromised (IC) conditions in the United States (US). Methods. Patients with incident HZ diagnosis (index date) were selected from nationwide administrative claims databases from 2005 to 2009. Baseline IC groups, analyzed separately, included adults aged 18-64 years with the following: human immunodeficiency virus infection (HIV), solid organ transplant (SOT), bone marrow or stem cell transplant (BMSCT), or cancer; and older adults (aged >/=65 years) with cancer. Herpes zoster patients (n = 2020, n = 1053, n = 286, n = 13 178, and n = 9089, respectively) were 1-to-1 matched to controls without HZ (with randomly selected index date) in the same baseline group. The healthcare resource utilization and costs (2014 US dollars) during the first 2 postindex quarters were compared between matched cohorts with continuous enrollment during the quarter. Results. Herpes zoster patients generally had greater use of inpatient, emergency room and outpatient services, and pain medications than matched controls (P < .05). The incremental costs of HZ during the first postindex quarter were $3056, $2649, $13 332, $2549, and $3108 for HIV, SOT, BMSCT, cancer in adults aged 18-64 years, and cancer in older adults, respectively (each P < .05). The incremental costs of HZ during the second quarter were only significant for adults aged 18-64 years with cancer ($1748, P < .05). The national incremental costs of HZ were projected to be $298 million annually across the 5 IC groups. Conclusions. The healthcare cost associated with HZ among patients with studied IC conditions was sizable and occurred mainly during the first 90 days after diagnosis.


PURPOSE: Investigate whether characteristics of geographic areas are associated with condomless sex and injection-related risk behavior among racial/ethnic groups of people who inject drugs (PWID) in the United States. METHODS: PWID were recruited from 19 metropolitan statistical areas for 2009 National HIV Behavioral Surveillance. Administrative data described ZIP codes, counties, and metropolitan statistical areas where PWID lived. Multilevel models, stratified by racial/ethnic groups, were used to assess relationships of place-based characteristics to condomless sex and injection-related risk behavior (sharing injection equipment). RESULTS: Among black PWID, living in the South (vs. Northeast) was associated with injection-related risk behavior (adjusted odds ratio [AOR] = 2.24, 95% confidence interval [CI] = 1.21-4.17; P = .011), and living in counties with higher percentages of unaffordable rental housing was associated with condomless sex (AOR = 1.02, 95% CI = 1.00-1.04; P = .046). Among white PWID, living in ZIP codes with greater access to drug treatment was negatively associated with condomless sex (AOR = 0.93, 95% CI = 0.88-1.00; P = .038). CONCLUSIONS: Policies that increase access to affordable housing and drug treatment may make environments more conducive to safe sexual behaviors among black and white PWID. Future research designed to longitudinally explore the association between residence in the south and injection-related risk behavior might identify specific place-based features that sustain patterns of injection-related risk behavior.


There is an increasing amount of data indicating that primary hypertension (PH) is not only a hemodynamic phenomenon but also a complex syndrome involving abnormal fat tissue distribution, over-activity of the sympathetic nervous system (SNS), metabolic abnormalities, and activation of the immune system. In children, PH usually presents with a typical phenotype of disturbed body composition, accelerated biological maturity, and subtle immunological and metabolic abnormalities. This stage of the disease is potentially reversible. However, long-lasting over-activity of the SNS and immuno-metabolic alterations usually lead to an irreversible stage of cardiovascular disease. We describe an intermediate phenotype of children with PH, showing that PH is associated with accelerated development, i.e., early premature aging of the immune, metabolic, and vascular systems. The associations and determinants of hypertensive organ damage, the principles of treatment, and the possibility of rejuvenation of the cardiovascular system are discussed.

**PURPOSE OF REVIEW:** This article describes the potential contribution of immune activation in the pathogenesis of HIV-associated cardiovascular disease (CVD) - a leading cause of morbidity and mortality among HIV-positive persons with access to antiretroviral therapy (ART). **RECENT FINDINGS:** We review recent literature that suggests abnormalities in both adaptive and innate immunity contribute to CVD risk among persons with HIV infection. In particular, potentially atherogenic T-cell mechanisms include persistent high-level T-cell activation (and associated proinflammatory mechanisms), as well as the presence of copathogens (e.g., cytomegalovirus) providing an ongoing stimulus for cytotoxic T-cell responses. More recent data have then emphasized the potential impact of monocyte-/macrophage-mediated inflammation and injury within atherosclerotic lesions. The abnormality driving innate immune activation may not fully reverse with antiretroviral therapy, highlighting the need for interventions that target inflammation as a CVD prevention strategy. **SUMMARY:** Premature CVD among persons with HIV infection is due, in part, to persistent abnormalities in immune activation and systemic inflammation despite viral suppression. Prevention strategies for persons with HIV infection include those that target traditional CVD risk factors, as well as newer candidate treatments with potential immunomodulatory benefits.


**BACKGROUND AND OBJECTIVE:** The objective of this study was to analyze the deaths caused by non-AIDS diseases in a cohort of HIV-infected patients treated between 1998 and 2011. **PATIENTS AND METHODS:** Information on the causes of death was collected retrospectively, and then classified according to the deaths code (CoDe) algorithm. Patient characteristics and causes of death were compared for two periods: 1998-2004 and 2005-2011. **RESULTS:** A total of 159 out of the 1070 patients cared for in study period died, 56 (35%) due to AIDS events and 86 (54%) due to non-AIDS events (NAEs); in 17 (11%) the cause of death could not be determined. Overall, the main causes of death were infections (32%), cancer (17%), and unnatural deaths (17%). There was lower mortality from AIDS-related conditions during the second period (18.5% vs 47%; P<.001) and higher mortality from NAEs (68% vs 45%; P=.006). There was a very sharp increase in non-AIDS-defining cancers (18.5% vs 2.1%, p=001), and increased deaths from cardiovascular disease (9.2% vs 2.1%, P=.06). Patients who died in the second period were older, and had a better immunological and virological status at cohort entry and before death. They received antiretroviral therapy (ART) more often and were more often virologically suppressed before death (61.5% vs 24%; P=.001). **CONCLUSIONS:** Non-AIDS-defining cancers, unnatural deaths, and cardiovascular diseases are now major causes of death in patients with HIV. In recent years the majority of deceased patients are on ART and with virological suppression.


**BACKGROUND:** Increased antiretroviral therapy uptake in sub-Saharan Africa has resulted in improved survival of the infected. Opportunistic infections are declining as leading causes of morbidity and mortality. Though comprehensive data are lacking, concern has been raised about the rapid emergence of non-communicable diseases (NCDs) in the African HIV care setting. We therefore set out to characterise the NCD/HIV burden among adults living and ageing with HIV infection in Zimbabwe. **METHODS:** We conducted a cross-sectional study among patients receiving care in a public sector facility. We reviewed patient records and determined the prevalence of comorbid and multi-morbid NCDs. Associations with patient characteristics were evaluated using univariate and multi-variate logistic regression modelling. Significance testing was done using 2-sided p values and 95 % confidence intervals calculated. **RESULTS:** We recruited 1033 participants. 31 % were men. Significant gender differences included: older median age, more advanced disease at baseline, and greater use of stavudine and protease inhibitor containing regimens in men compared to women. The prevalence of comorbidity and multi-morbidity were, respectively, 15.3 % (95 % CI 13.3-17.7 %) and 4.5 % (95 % CI 3.4-6.0 %). Women had higher rates than men of both co-morbidity and multi-morbid ity: 21.8 vs. 14.9 %; p = 0.010 and 5.3 vs. 2.9 %; p = 0.025 respectively. The commonly observed individual NCDs were hypertension [10.2 %; (95 % CI 8.4-12.2 %)], asthma [4.3 % (95 % CI 3.1-5.8 %)], type 2 diabetes mellitus [2.1 % (95 % CI 1.3-3.2 %)], cancer [1.8 % (95 % CI 1.1-2.8 %)], and congestive cardiac failure [1.5 % (95 % CI 0.9-2.5 %)]. After adjusting for confounding, only age categories 45-<55 years (AOR 2.25; 95 % CI 1.37-3.69) and >55 years (AOR 5.42; 95 % CI 3.17-9.26), and female gender (AOR 2.12; 95 % CI 1.45-3.11) remained significantly and strongly associated with comorbidity risk. **CONCLUSIONS:** We found a substantial burden of comorbid non-communicable diseases among HIV infected patients in a high HIV and low-income setting. Integrating non-communicable diseases care, including active screening, with HIV care is recommended.

**BACKGROUND:** HIV-related neuropathic pain (HIV-NeP) is common; however, the burden of HIV-NeP is not well-understood. **METHODS:** The cross-sectional study aimed to characterize the HIV-NeP burden. A total of 103 patients with HIV-NeP recruited during routine office visits completed a questionnaire to assess patient-reported outcomes, including pain severity, health status, sleep, mood, and lost productivity. Physicians completed a 6-month retrospective chart review. **RESULTS:** The sample was predominantly male and not employed for pay. A majority (75.7%) of patients experienced moderate or severe pain. Pain interference, general health, physical health, and depression were worse among patients with more severe pain (all Ps < .006). Most (87.4%) patients were prescribed at least 1 medication for NeP. HIV-related neuropathic pain was associated with 36.1% work impairment. Adjusted annualized costs increased with increasing pain severity (P < .0001). **CONCLUSION:** The impact of HIV-NeP on health status, physical function, and depression increases with severity, resulting in substantial clinical and economic burden.


**OBJECTIVE:** Younger persons with COPD report worse health-related quality of life (HRQL) than do older individuals. The factors explaining these differences remain unclear. The objective of this article was to explore factors associated with age-related differences in HRQL in COPD. **METHODS:** Cross-sectional analysis of participants with COPD, any Global Initiative for Chronic Obstructive Lung Disease grade of airflow limitation, and >/= 50 years old in two cohorts: the Genetic Epidemiology of COPD (COPDGene) study and the Subpopulations and Intermediate Outcome Measures in COPD Study (SPIROMICS). We compared St. George’s Respiratory Questionnaire (SGRQ) scores by age group: middle-aged (age, 50-64) vs older (age, 65-80) adults. We used multivariate linear modeling to test associations of age with HRQL, adjusting for demographic and clinical characteristics and comorbidities. **RESULTS:** Among 4,097 participants in the COPDGene study (2,170 middle-aged and 1,927 older adults) SGRQ total scores were higher (worse) among middle-aged (mean difference, -4.2 points; 95% CI, -5.7 to -2.6; P < .001) than older adults. Age had a statistically significant interaction with dyspnea (P < .001). Greater dyspnea severity (modified Medical Research Council >/= 2, compared with 0-1) had a stronger association with SGRQ score among middle-aged (beta, 24.6; 95% CI, 23.2-25.9) than older-adult (beta, 21.0; 95% CI, 19.6-22.3) participants. In analyses using SGRQ as outcome in 1,522 participants in SPIROMICS (598 middle-aged and 924 older adults), we found similar associations, confirming that for the same severity of dyspnea there is a stronger association with HRQL among younger individuals. **CONCLUSIONS:** Age-related differences in HRQL may be explained by a higher impact of dyspnea among younger subjects with COPD. **TRIAL REGISTRY:** ClinicalTrials.gov; No.: NCT00608764 and No.: NCT01969344; URL: www.clinicaltrials.gov.


Pulmonary arterial hypertension (PAH) is a chronic, life threatening illness that affects primarily women. The purpose of this study was to describe the prevalence of PAH symptoms and to determine whether there are differences in symptom severity and HRQOL in PAH symptoms among young, middle, and older adults with PAH. A cross-sectional design was utilized. For all the age groups, shortness of breath (SOB) on exertion and fatigue were the two most prevalent symptoms. SOB on exertion had the highest symptom severity scores followed by fatigue for all groups. Symptom severity was significantly different among the groups for palpitations, abdominal swelling and nausea. For components of HRQOL, physical function was worsened with age. All groups had diminished general health, role physical and vitality levels. There are some differences in symptom prevalence, symptom severity and HRQOL among young, middle and older adults. Awareness of these differences is important for healthcare providers to know and assess overtime. Palliative care should be an integral part of caring for patients with PAH.


Metabolism disorders, as well as body shape abnormalities, have been associated with the introduction of antiretroviral therapy. The objective of this study was to compare the diagnostic ability of adiposity indices and to discuss criteria for the
classification of lipodystrophy and sarcopenia (SP) in HIV-positive individuals. Anthropometric measurements were determined in 268 individuals of both genders, also submitted to the dual-energy X-ray absorptiometry exam. The adiposity indices calculated were body mass index, body mass index adjusted for fat mass (BMIfat), body adiposity index, body adiposity Index for the Fels Longitudinal Study sample, and The Clinica Universidad de Navarra body adiposity estimator. The presence of lipodystrophy was evaluated using the fat mass ratio (FMR). SP was classified using the appendicular lean mass/height² ratio. The subjects were divided into 3 groups: HIV+LIPO+ (n = 41), HIV+LIPO- (n = 65), and control (C, HIV-negative individuals; n = 162). Among the adiposity indices assessed, BMIfat showed the strongest correlation with total body fat (in percent) for men (r = 0.87, p < 0.001) and women (r = 0.92, p < 0.001). The frequency of SP was 44.8% and 41.7% in HIV+LIPO+, 27.8% and 20.7% in HIV+LIPO- and 63.3% and 45.45% in C, for men and women, respectively. The cutoff point suggested for the diagnosis of lipodystrophy according to the FMR was 1.14. The adiposity indices, particularly the BMIfat, have strong correlation with body fat determined by dual-energy X-ray absorptiometry in HIV-positive patients. The implementation of FMR is recommended for more standardized estimates of the frequency of lipodystrophy.

Millar, B. M., et al. (2016). "The Impact of Comorbidities, Depression, and Substance Use Problems on Quality of Life Among Older Adults Living With HIV." AIDS Behav.

Older adults living with HIV (OALWH) comprise a growing population with a range of complex and interconnecting medical and psychosocial needs. Based on the biopsychosocial model with its emphasis on a holistic approach to various aspects of people's lives, the current study explored associations between physical health, psychological health, substance use, and overall quality of life. Drawing on data from 114 substance-using OALWH (aged 50 or older), we employed linear regression to show associations between the number of current comorbid health conditions on quality of life, over and above depression, substance use problems, and demographic characteristics (age, race/ethnicity, gender, sexual orientation, education, and relationship status). In both bivariate and multivariable contexts, the number of comorbid conditions was associated with reduced quality of life. Depression and substance use were also negatively associated with quality of life. These findings indicate that clinical and supportive care for OALWH, particularly when related to mental health and substance use, should also include an integrated focus on the comparatively high number of current comorbid conditions that often accompany, and potentially complicate, HIV treatment and quality of life.


Cryptococcal meningitis is commonly seen in patients with very low CD4, indicating WHO stage IV disease in HIV. On the other hand, Herpes zoster is seen in HIV patients with a higher CD4 count indicating a stage II disease. Data regarding cryptococcal and Herpes zoster co-infection in patients with HIV is scarce in literature. We report a case series of HIV positive patients with cryptococcal and Herpes zoster co-infection and discuss the challenges in their management. As per the authors knowledge there has been no previous reports of the same in medical literature in English language.


OBJECTIVES: A large portion of anogenital cancers is caused by high-risk human papillomavirus (hrHPV) infections, which are especially common in HIV-infected men. We aimed to compare the incidence and clearance of anal and penile hrHPV infection between HIV-infected and HIV-negative MSM. DESIGN: Analyses of longitudinal data from a prospective cohort study. METHODS: MSM aged 18 years or older were recruited in Amsterdam, the Netherlands, and followed-up semi-annually for 24 months. At each visit, participants completed risk-factor questionnaires. Anal and penile self-samples were tested for HPV DNA using the SPF10-PCR DEIA/LiPA25 system. Effects on incidence and clearance rates were quantified via Poisson regression, using generalized estimating equations to correct for multiple hrHPV types. RESULTS: Seven hundred and fifty MSM with a median age of 40 years (interquartile 35-48) were included in the analyses, of whom 302 (40%) were HIV-infected. The incidence rates of hrHPV were significantly higher in HIV-infected compared with HIV-negative MSM [adjusted incidence rate ratio (aIRR) 1.6; 95% confidence interval (CI) 1.3-2.1 for anal and aIRR 1.4; 95%CI 1.0-2.1 for penile infection]. The clearance rate of hrHPV was significantly lower for anal [adjusted clearance rate ratio (aCRR) 0.7; 95%CI 0.6-0.9], but not for penile infection [aCRR 1.3; 95%CI
HIV-AGE References 2016 by Karpiak Havlik


BACKGROUND: Antiviral therapy has altered the prognosis of patients with human immunodeficiency virus (HIV)-associated non-Hodgkin lymphoma (NHL), but patterns of lymphoma-directed therapy in the community are unknown. METHODS: The authors analyzed the National Cancer Data Base records of 10,769 patients who were diagnosed with HIV-associated lymphoma from 2004 through 2012. Changes in clinical characteristics and chemotherapy delivery over time were evaluated. Factors that were associated with not receiving chemotherapy were studied using multivariable logistic regression, reporting odds ratios (ORs) with 95% confidence intervals (CIs). RESULTS: The proportion of black or Hispanic patients with HIV-associated NHL increased from 41% in 2004 to 55% in 2012 (P < .0001). Chemotherapy was received by 81% of patients with diffuse large B-cell lymphoma, 90% of those with Burkitt lymphoma, 61% of those with primary effusion lymphoma (PEL), and 35% of those with primary central nervous system lymphomas (PCNSL). Between 2004 and 2012, this proportion increased only for patients with PCNSL (P < .00001). Chemotherapy was less likely to be received by patients who were older, black, or without private insurance. It was delivered more frequently in hospitals designated as academic (OR for nonreceipt, 0.68; 95% CI, 0.51-0.92) or in hospitals that had >/=3 HIV-positive cases per year (OR, 0.71; 95% CI, 0.58-0.86). Survival improved in patients with diffuse large B-cell lymphoma (P = .007), Burkitt lymphoma (P = .0002), and PCNSL (P = .019), but not in those with PEL (P = .94). Receipt of chemotherapy in patients with PEL was not associated with better survival. CONCLUSIONS: Disparities in chemotherapy delivery need attention, because a majority of HIV-positive patients with NHL in the United States are now black or Hispanic. Higher volume centers were associated with an increased likelihood of chemotherapy administration. Survival gains in patients with PCNSL parallel an increase in chemotherapy use, supporting its role in therapy. [See Editorial on pages 000-000, this issue.] Cancer 2016. (c) 2016 American Cancer Society. Cancer 2016;122:2689-2697. (c) 2016 American Cancer Society.


Background: Carotid intima-media thickness (cIMT) has been used as an early marker of atherosclerotic disease in the general population. Recently its role among HIV-infected patients has been questioned. To date, no Brazilian study has compared cIMT in respect to HIV status. Methods: We compared data from 535 patients actively followed in a prospective cohort in Rio de Janeiro (HIV group); 88 HIV-negative individuals who were nominated by
patients (friend controls–FCs); and 10,943 participants of the ELSA-Brasil study. Linear regression models were used to study associations of the 3 groups and several covariables with cIMT. Propensity scores weighting (PSW) were also employed to balance data. Results: Median thickness in mm (IQR) were 0.54 (0.49,0.62); 0.58 (0.52,0.68); and 0.57 (0.49,0.70), HIV, FCs and ELSA-Brasil groups, respectively (p-value<0.001). The best linear model chosen did not include the group variables, after adjusting for all the variables chosen, showing no difference of cIMT across groups. Similar results were obtained with PSW. Several traditional CVD risk factors were also significantly associated with cIMT: female gender, higher education and higher HDL were negatively associated while risk factors were older age, current/former smoker, AMI/stroke family history, CVD history, hypertension, DM, higher BMI and total cholesterol. Conclusions: We show for the first time in a middle-income setting that cIMT, is not different in HIV-infected patients in Rio de Janeiro compared with 2 different groups of non-HIV-infected individuals. Traditional CVD risk factors are associated with this outcome. Our results point out that high standards of care and prevention for CVD risk factors should always be sought both in the HIV-infected and non-infected populations to prevent CVD-related events.


BACKGROUND: The Johns Hopkins Hospital Emergency Department (JHHED) has served as an observational window on the HIV epidemic in a socioeconomically depressed, urban population. We previously reported that HIV incidence among JHHED patients is decreasing and that prevalence has declined from 11.4% in 2003-5.6% in 2013. OBJECTIVES: This study sought to observe temporal trends in hepatitis C virus (HCV) and herpes simplex virus type 2 (HSV-2) seroprevalence, which are surrogate markers for parenteral and sexual risk behavior, respectively. STUDY DESIGN: Identity unlinked-serosurveys were conducted over 6-8 weeks in the adult JHHED in 2003, 2007, and 2013. Excess sera from 10,274 patients, previously tested for HIV, were assayed for HSV-2 and HCV antibodies. RESULTS: Overall HCV seroprevalence declined steadily from 22.0% in 2003-13.8% in 2013 (Ptrend<0.01), and was significant by all gender and race strata. Overall HSV-2 prevalence declined from 55.3% in 2003-50.0% in 2013 (Ptrend<0.01), but was non-significant after adjustment for demographics. Among HIV+ individuals<45years of age, there was a significant decrease in the proportion of individuals with HCV co-infection [without HSV-2] (Ptrend=0.02) from 2003 to 2013, however, there was an increase in individuals with HSV-2 co-infection [without HCV] (Ptrend<0.01). DISCUSSION: Little change in age-specific HSV-2 prevalence suggests the decrease in HIV prevalence was likely not associated with changes in sexual risk behavior. In addition to clinical interventions, strategies to address sexual health disparities and continued parenteral harm-reduction efforts are needed to further drive the decline in HIV.


The number of HIV-positive people aged >/=50 years is rising each year. We measured the prevalence of non-infectious illnesses and their risk factors and described healthcare use in this UK population. A cross-sectional, observational study was conducted at an outpatient HIV specialist clinic in south east England. Patients age >/=50 years were invited to complete questionnaires measuring demographics, non-infectious illnesses, medication use, lifestyle and healthcare utilisation. The response rate was 67%. Of 299 participants, 84% reported >/=1 comorbid condition and 61% reported >/=2 (multimorbidity). Most commonly reported were high cholesterol, sexual dysfunction, hypertension and depression. In multivariate analyses, age, number of years HIV-positive and duration of antiretroviral therapy remained significant predictors of comorbidity when controlling for lifestyle factors (exercise, smoking and use of recreational drugs and alcohol). Use of non-HIV healthcare services was associated with increasing comorbidity, a longer duration of HIV and recreational drug use. The majority of HIV-patients aged >/=50 years reported multiple comorbidities and this was associated with polypharmacy and increased use of non-HIV services. Further research examining the quality, safety and patient experience of healthcare is needed to inform development of services to optimally meet the needs of older HIV-positive patients.Pinto Neto, L. F., et al. (2016). "Human immunodeficiency virus infection and its association with sarcopenia." Braz J Infect Dis 20(1): 99-102.

Presarcopenia and sarcopenia were evaluated in HIV-infected individuals and in healthy elderly controls according to the consensus definitions of the European Working Group on Sarcopenia in Older People. Bioelectrical impedance, a hydraulic hand dynamometer, and gait speed were used to evaluate muscle mass, muscle strength, and physical performance, respectively. Adjusted and unadjusted binary logistic regression predicted the risk of sarcopenia. Predictor contribution was assessed by the Wald test. Significance was established at p</=0.05. The HIV-infected group consisted of 33 patients on treatment (42.4% women; mean age 59+/−7 years; mean BMI 25+/−6kg/m(2); viral load undetectable in 30 cases). The HIV-uninfected group consisted of 60 individuals (71.7% women; mean age 70+/−7 years; mean BMI 28+/−6kg/m(2)). Of the controls, 4 (6.7%) individuals had
presarcopenia and 4 (6.7%) sarcopenia compared to 4 (12.1%) and 8 (24.2%), respectively, in the HIV-infected group. The HIV-infected patients had a 4.95 higher risk (95% CI: 1.34-18.23) for sarcopenia compared to the controls. It should be pointed out that the control group was on average 10 years older. This risk increased further (RR=5.20; 95% CI: 1.40-19.20) after adjusting for age and BMI. HIV-infected patients were shown to be at a greater risk of sarcopenia, an indicator of frailty, even following adjustment for age and BMI.


INTRODUCTION: The emergence of combined antiretroviral therapy (cART) and improvements in the management of opportunistic infections have altered the HIV epidemic over the last 30 years. We aimed to assess changes to the biology and outcomes of HIV-associated lymphomas over this period at the national center for HIV oncology in the United Kingdom. METHODS: Clinical characteristics at lymphoma diagnosis have been prospectively collected since 1986, along with details of lymphoma treatment and outcomes. The clinical features and outcomes were compared between 3 decades: pre-cART decade (1986-1995), early-cART decade (1996-2005), and late-cART decade (2006-2015). RESULTS: A total of 615 patients with HIV-associated lymphoma were included in the study: 158 patients in the pre-cART era, 200 patients in the early-cART era, and 257 patients in the late-cART era. In more recent decades, patients were older (P < 0.0001) and had higher CD4 cell counts (P < 0.0001) at lymphoma diagnosis. Over time, there has also been a shift in lymphoma histological subtypes, with an increase in lymphoma subtypes associated with moderate immunosuppression. The overall survival for patients with HIV-associated lymphoma has dramatically improved over the 3 decades (P < 0.0001). CONCLUSION: Over the last 30 years, the clinical demographic of HIV-associated lymphomas has evolved, and the outcomes have improved.


Individuals with HIV infection are living substantially longer on antiretroviral therapy, but hospitalization rates continue to be relatively high. We do not know how overall or diagnosis-specific hospitalization rates compare between HIV-infected and uninfected individuals or what conditions may drive hospitalization trends. Hospitalization rates among United States Veterans were calculated and stratified by HIV serostatus and principal diagnosis disease category. Because alcohol-related diagnoses (ARD) appeared to have a disproportional effect, we further stratified our calculations by ARD history. A multivariable Cox proportional hazards model was fitted to assess the relative risk of hospitalization controlling for demographic and other comorbidity variables. From 1997 to 2011, 46,428 HIV-infected and 93,997 uninfected patients were followed for 1,497,536 person-years. Overall hospitalization rates decreased among HIV-infected and uninfected patients. However, cardiovascular and renal insufficiency admissions increased for all groups while gastrointestinal and liver, endocrine, neurologic, and non-AIDS cancer admissions increased among those with an alcohol-related diagnosis. After multivariable adjustment, HIV-infected individuals with an ARD had the highest risk of hospitalization (hazard ratio 3.24, 95 % CI 3.00, 3.49) compared to those free of HIV infection and without an ARD. Still, HIV alone also conferred increased risk (HR 2.08, 95 % CI 2.04, 2.13). While decreasing overall, risk of all-cause hospitalization remains higher among HIV-infected than uninfected individuals and is strongly influenced by the presence of an ARD.


BACKGROUND: Prior studies have described racial disparities in the quality of care for persons with HIV infection, but it is unknown if these disparities extend to common comorbid conditions. To inform implementation of interventions to reduce disparities in HIV care, we examined racial variation in a set of quality measures for common comorbid conditions among Veterans in care for HIV in the United States. METHOD: The cohort included 23,974 Veterans in care for HIV in 2013 (53.4% black; 46.6% white). Measures extracted from electronic health record and administrative data were receipt of combination...
antiretroviral therapy (cART), HIV viral control (serum RNA < 200 copies/ml among those on cART), hypertension control (blood pressure < 140/90 mm Hg among those with hypertension), diabetes control (hemoglobin A1C < 9% among those with diabetes), lipid monitoring, guideline-concordant antidepressant prescribing, and initiation and engagement in substance use disorder (SUD) treatment. Black persons were less likely than their white counterparts to receive cART (90.2% vs. 93.2%, p<.001), and experience viral control (84.6% vs. 91.3%, p<.001), hypertension control (61.9% vs. 68.3%, p<.001), diabetes control (85.5% vs. 89.5%, p<.001), and lipid monitoring (81.5% vs. 85.2%, p<.001). Initiation and engagement in SUD treatment were similar among blacks and whites. Differences remained after adjusting for age, comorbidity, retention in HIV care, and a measure of neighborhood social disadvantage created from census data. SIGNIFICANCE: Implementation of interventions to reduce racial disparities in HIV care should comprehensively address and monitor processes and outcomes of care for key comorbidities.


OBJECTIVE: Premature atherosclerosis has been observed among HIV-infected individuals with high cardiovascular risk using one-dimensional ultrasound carotid intima-media thickness. We evaluated the assessment of HIV-infected individuals with low traditional cardiovascular disease risk using cardiovascular magnetic resonance, which allows three-dimensional assessment of the carotid artery wall. METHODS: Carotid cardiovascular magnetic resonance was performed in 33 HIV-infected individuals (cases) (19 male, 14 female), and 35 HIV-negative controls (20 male, 15 female). Exclusion criteria included smoking, hypertension, hyperlipidemia (total cholesterol/HDL ratio > 5) or family history of premature atherosclerosis. Cases were stable on combination antiretroviral therapy with plasma HIV-1 RNA <50 copies per milliliter. Using computer modeling, the arterial wall, lumen, and total vessel volumes were calculated for a 4-cm length of each carotid artery centered on the bifurcation. The wall/outer-wall ratio (W/OW), an index of vascular thickening, was compared between the groups. RESULTS: Cases had a median CD4 cell count of 690 cells per microliter. Mean (+/-SD) age and 10-year Framingham coronary risk scores were similar for cases and controls (45.2 +/- 9.7 years versus 46.9 +/- 11.6 years and 3.97% +/- 3.5%, respectively). W/OW was significantly increased in cases compared with controls (36.7% versus 32.5%, P < 0.0001); this was more marked in HIV-infected females. HIV status was significantly associated with increased W/OW after adjusting for age (P < 0.0001). No significant association between antiretroviral type and W/OW was found-W/OW lowered comparing abacavir to zidovudine (P = 0.038), but statistical model fits poorly. CONCLUSIONS: In a cohort of treated HIV-infected individuals with low measurable cardiovascular risk, we have observed evidence of premature subclinical atherosclerosis.


BACKGROUND: While the association between renal impairment and cardiovascular disease (CVD) is well established in the general population, the association remains poorly understood in human immunodeficiency virus (HIV)-positive individuals. METHODS: Individuals with >/=2 estimated glomerular filtration rate (eGFR) measurements after 1 February 2004 were followed until CVD, death, last visit plus 6 months, or 1 February 2015. CVD was defined as the occurrence of centrally validated myocardial infarction, stroke, invasive cardiovascular procedures, or sudden cardiac death. RESULTS: During a median follow-up duration of 8.0 years (interquartile range, 5.4-8.9 years) 1357 of 35 357 individuals developed CVD (incidence rate, 5.2 cases/1000 person-years [95% confidence interval [CI], 5.0-5.5]). Confirmed baseline eGFR and CVD were closely related with 1.8% of individuals (95% CI, 1.6%-2.0%) with an eGFR > 90 mL/minute/1.73 m(2) estimated to develop CVD at 5 years, increasing to 21.1% (95% CI, 10.0%-26.2%) with an eGFR </= 30 mL/minute/1.73 m(2) The strong univariate relationship between low current eGFR and CVD was primarily explained by increasing age in adjusted analyses, although all eGFRs </= 80 mL/minute/1.73 m(2) remained associated with 30%-40% increased CVD rates, and particularly high CVD rates among individuals with an eGFR </= 30 mL/minute/1.73 m(2) (incidence rate ratio, 3.08 [95% CI, 2.04-4.65]). CONCLUSIONS: Among HIV-positive individuals in a large contemporary cohort, a strong relation between confirmed impaired eGFR and CVD was observed. This finding highlights the need for renal preventive measures and intensified monitoring for emerging CVD, particularly in older individuals with continuously low eGFRs.


BACKGROUND: After adjustment for cardiovascular risk factors and despite higher mortality, those with human immunodeficiency virus (HIV+) have a greater risk of acute myocardial infarction (AMI) than uninfected individuals. METHODS: We included HIV+ individuals who started combination antiretroviral therapy (cART) in the Veterans Aging Cohort Study (VACS)
from 1996 to 2012. We fit multivariable proportional hazards models for baseline, time-updated and cumulative measures of HIV-1 RNA, CD4 counts, and the VACS Index. We used the trapezoidal rule to build the following cumulative measures: viremia copy-years, CD4-years, and VACS Index score-years, captured 180 days after cART initiation until AMI, death, last clinic visit, or 30 September 2012. The primary outcomes were incident AMI (Medicaid, Medicare, and Veterans Affairs International Classification of Diseases-9 codes) and death. RESULTS: A total of 8168 HIV+ individuals (53 861 person-years) were analyzed with 196 incident AMIs and 1710 deaths. Controlling for known cardiovascular risk factors, 6 of the 9 metrics predicted AMI and all metrics predicted mortality. Time-updated VACS Index had the lowest Akaike information criterion among all models for both outcomes. A time-updated VACS Index score of 55+ was associated with a hazard ratio (HR) of 3.31 (95% confidence interval [CI], 2.11-5.20) for AMI and a HR of 31.77 (95% CI, 26.17-38.57) for mortality. CONCLUSIONS: Time-updated VACS Index provided better AMI and mortality prediction than CD4 count and HIV-1 RNA, suggesting that current health determines risk more accurately than prior history and that risk assessment can be improved by biomarkers of organ injury.


In the modern antiretroviral therapy (ART) era, motivated people living with human immunodeficiency virus (HIV) who have access to therapy are expected to maintain viral suppression indefinitely and to receive treatment for decades. Hence, the current clinical scenario has dramatically shifted since the early 1980s, from treatment and prevention of opportunistic infections and palliative care to a new scenario in which most HIV specialists focus on HIV primary care, ie, the follow up of stable patients, surveillance of long-term toxicities, and screening and prevention of age-related conditions. The median age of HIV-infected adults on ART is progressively increasing. By 2030, 3 of every 4 patients are expected to be aged 50 years or older in many countries, more than 80% will have at least 1 age-related disease, and approximately one third will have at least 3 age-related diseases. Contemporary care of HIV-infected patients is evolving, and questions about how we might monitor and perhaps even treat HIV-infected adults have emerged. Through key published works, this review briefly describes the most prevalent comorbidities and age-associated conditions and highlights the differential features in the HIV-infected population. We also discuss the most critical aspects to be considered in the care of patients with HIV for the management and prevention of age-associated disease.


Major depressive disorder is often comorbid with diabetes and associated with worse glycemic control. Exercise improves glycemic control and depression, and thus could be a parsimonious intervention for patients with comorbid diabetes and major depression. Because patients with diabetes and comorbid depression are often sedentary and lack motivation to exercise, we developed a group exercise intervention that integrates strategies from behavioral activation therapy for depression to increase motivation for and enjoyment of exercise. We conducted a 6-month pilot randomized controlled trial to test the feasibility of the behavioral activation exercise intervention (EX) for women with diabetes and depression. Of the 715 individuals who contacted us about the study, 29 participants were randomized to the EX condition or an enhanced usual care condition (EUC), which represents 4.1% of participants who initially contacted us. Inclusion criteria made recruitment challenging and limits the feasibility of recruiting women with diabetes and depression for a larger trial of the intervention. Retention was 96.5% and 86.2% at 3 and 6months. Participants reported high treatment acceptability; use of behavioral activation strategies and exercise class attendance was acceptable. No condition differences were observed for glycemic control, depressive symptoms, and physical activity, though depressive symptoms and self-reported physical activity improved over time. Compared to participants in the EUC condition, participants in the EX condition reported greater exercise enjoyment and no increase in avoidance behavior over time. Using behavioral activation strategies to increase exercise is feasible in a group exercise setting. However, whether these strategies can be delivered in a less intensive manner to a broader population of sedentary adults, for greater initiation and maintenance of physical activity, deserves further study.


OBJECTIVES: HIV-positive people have increased risk of infection-related malignancies (IRMs) and infection-unrelated malignancies (IURMs). The aim of the study was to determine the impact of aging on future IRM and IURM incidence. METHODS: People enrolled in EuroSIDA and followed from the latest of the first visit or 1 January 2001 until the last visit or death were included in the study. Poisson regression was used to investigate the impact of aging on the incidence of IRMs and IURMs,
adjusting for demographic, clinical and laboratory confounders. Linear exponential smoothing models forecasted future incidence. RESULTS: A total of 15,648 people contributed 95,033 person-years of follow-up, of whom 610 developed 643 malignancies [IRMs: 388 (60%); IURMs: 255 (40%)]. After adjustment, a higher IRM incidence was associated with a lower CD4 count [adjusted incidence rate ratio (aIRR) CD4 count < 200 cells/μL: 3.77; 95% confidence interval (CI) 2.59, 5.51; compared with >/= 500 cells/μL], independent of age, while a CD4 count < 200 cells/μL was associated with IURMs in people aged < 50 years only (aIRR: 2.51; 95% CI 1.40-4.54). Smoking was associated with IURMs (aIRR: 1.75; 95% CI 1.23, 2.49) compared with never smokers in people aged >/= 50 years only, and not with IRMs. The incidences of both IURMs and IRMs increased with older age. It was projected that the incidence of IRMs would decrease by 29% over a 5-year period from 3.1 (95% CI 1.5-5.9) per 1000 person-years in 2011, whereas the IURM incidence would increase by 44% from 4.1 (95% CI 2.2-7.2) per 1000 person-years over the same period. CONCLUSIONS: Demographic and HIV-related risk factors for IURMs (aging and smoking) and IRMs (immunodeficiency and ongoing viral replication) differ markedly and the contribution from IURMs relative to IRMs will continue to increase as a result of aging of the HIV-infected population, high smoking and lung cancer prevalence and a low prevalence of untreated HIV infection. These findings suggest the need for targeted preventive measures and evaluation of the cost-benefit of screening for IURMs in HIV-infected populations.


BACKGROUND: It is unclear whether immunosuppression leads to younger ages at cancer diagnosis among people living with human immunodeficiency virus (PLWH). A previous study found that most cancers are not diagnosed at a younger age in people with AIDS, with the exception of anal and lung cancers. This study extends prior work to include all PLWH and examines associations between AIDS, CD4 count, and age at cancer diagnosis. METHODS: We compared the median age at cancer diagnosis between PLWH in the North American AIDS Cohort Collaboration on Research and Design and the general population using data from the Surveillance, Epidemiology and End Results Program. We used statistical weights to adjust for population differences. We also compared median age at cancer diagnosis by AIDS status and CD4 count. RESULTS: After adjusting for population differences, younger ages at diagnosis (P < .05) were observed for PLWH compared with the general population for lung (difference in medians = 4 years), anal (difference = 4), oral cavity/pharynx (difference = 2), and kidney cancers (difference = 2) and myeloma (difference = 4). Among PLWH, having an AIDS-defining event was associated with a younger age at myeloma diagnosis (difference = 4; P = .01), and CD4 count <200 cells/μL (vs >/=500) was associated with a younger age at lung cancer diagnosis (difference = 4; P = .006). CONCLUSIONS: Among PLWH, most cancers are not diagnosed at younger ages. However, this study strengthens evidence that lung cancer, anal cancer, and myeloma are diagnosed at modestly younger ages, and also shows younger ages at diagnosis of oral cavity/pharynx and kidney cancers, possibly reflecting accelerated cancer progression, etiologic heterogeneity, or risk factor exposure in PLWH.


HIV infection is associated with arterial stiffness, but no studies have assessed this relationship in sub-Saharan Africa. We enrolled 205 participants over 40 years old in Uganda: 105 on antiretroviral therapy for a median of 7 years, and a random sample of 100 age and sex-matched HIV-uninfected controls from the clinic catchment area. The prevalence of arterial stiffness (ankle brachial index > 1.2) was 33%, 18%, 19% and 2% in HIV+ men, HIV- men, HIV+ women, and HIV- women. In multivariable models adjusted for cardiovascular risk factors, HIV+ individuals had over double the prevalence of arterial stiffness (adjusted prevalence ratio 2.86, 95% confidence interval 1.41-5.79, P = 0.003).


Pulmonary malignancies are a major source of morbidity and mortality in HIV-infected persons. Non-AIDS-defining lung cancers (mostly non-small cell lung cancers) are now a leading cause of cancer death among HIV-infected persons. HIV-associated factors appear to affect the risk of lung cancer and may adversely impact cancer treatment and outcomes. HIV infection also may modify the potential harms and benefits of lung cancer screening with computed tomography. AIDS-defining lung malignancies include pulmonary Kaposi sarcoma and pulmonary lymphoma, both of which are less prevalent with widespread adoption of antiretroviral therapy.

Viral suppression of human immunodeficiency virus (HIV) with combination antiviral therapy (cART) has led to increasing longevity but has not enabled a complete return to health among aging HIV-infected individuals (HIV+). Viral coinfections are prevalent in the HIV+ host and are implicated in cancer, liver disease, and accelerated aging. We must move beyond a simplistic notion of HIV becoming a "chronic controllable illness" and develop an understanding of how viral suppression alters the natural history of HIV infection, especially at the intersection of HIV with other common viral coinfections in the context of an altered, aging immune system.

BACKGROUND: In resource-limited settings, routine monitoring of renal function during antiretroviral therapy (ART) has not been recommended. However, concerns for tenofovir disoproxil fumarate (TDF)-related nephrotoxicity persist with increased use. METHODS: We investigated serum creatinine (S-Cr) monitoring rates before and during ART and the incidence and prevalence of renal dysfunction after starting TDF by using data from a regional cohort of HIV-infected individuals in the Asia-Pacific. Time to renal dysfunction was defined as time from TDF initiation to the decline in estimated glomerular filtration rate (eGFR) to <60 ml/min/1.73m2 with >30% reduction from baseline using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation or the decision to stop TDF for reported TDF-nephrotoxicity. Predictors of S-Cr monitoring rates were assessed by Poisson regression and risk factors for developing renal dysfunction were assessed by Cox regression. RESULTS: Among 2,425 patients who received TDF, S-Cr monitoring rates increased from 1.01 to 1.84 per person per year after starting TDF (incidence rate ratio 1.68, 95%CI 1.62-1.74, p <0.001). Renal dysfunction on TDF occurred in 103 patients over 5,368 person-years of TDF use (4.2%; incidence 1.75 per 100 person-years). Risk factors for developing renal dysfunction included older age (>50 vs. </=30, hazard ratio [HR] 5.39, 95%CI 2.52-11.50, p <0.001; and using PI-based regimen (HR 1.93, 95%CI 1.22-3.07, p = 0.005). Having an eGFR prior to TDF (pre-TDF eGFR) of >/=60 ml/min/1.73m2 showed a protective effect (HR 0.38, 95%CI, 0.17-0.85, p = 0.018). CONCLUSIONS: Renal dysfunction on commencing TDF use was not common, however, older age, lower baseline eGFR and PI-based ART were associated with higher risk of renal dysfunction during TDF use in adult HIV-infected individuals in the Asia-Pacific region.

Non-Hodgkin lymphomas are highly increased in incidence in individuals infected with HIV, and this continues to be the case in spite of highly effective combined antiretroviral therapy (cART). New evidence has demonstrated that while successful virtual recovery of CD4 counts and elimination of HIV from peripheral blood can be achieved with cART, viral replication can still occur in lymphoid tissues. In addition, recent studies have suggested that adipose tissue provides an additional reservoir for HIV-infected macrophages and T lymphocytes even in the context of successful cART therapy. In this review article, we discuss possible mechanisms leading to the development of lymphoma in the cART era.
and discovering lipodystrophy, the unknown and the unanticipated of the surgical intervention itself, and finally the unknown and the unanticipated of postsurgical complications and experiences within outpatient and inpatient medical settings.


BACKGROUND: In the past years many inflammatory markers have been studied in association with clinically manifest cardiovascular disease (CVD) and carotid intima-media thickness (CIMT) in HIV-infected patients, to obtain insights in the increased cardiovascular risk observed in HIV infection. This systematic review provides an oversight of the current knowledge. METHODS: A search was performed in PubMed, Embase and Cochrane in July 2014, identifying all articles from 1996 onwards addressing the relation between inflammatory markers and CVD or CIMT in HIV-positive adults. Two authors, using predefined criteria, independently conducted the selection of articles, critical appraisal and extraction of the data. Analysis was focused on the immune markers that were most frequently assessed. The review protocol was registered in the PROSPERO database at 11 July 2014 (registration number CRD42014010516). This review was performed according to the PRISMA guideline. FINDINGS: Forty articles were selected; eight addressing cardiovascular disease (CVD) and thirty-two addressing CIMT. C-reactive protein (CRP), interleukin-6 (IL-6) and d-dimer were assessed most frequently in relation to the occurrence of CVD; in four out of eight studies. All three markers were positively related to CVD in three out of four studies. Studies addressing CIMT were too heterogeneous with respect to patient populations, inflammatory markers, CIMT measurement protocols and statistical methods to allow for a formal meta-analysis to obtain summary statistics. CRP, IL-6 and soluble vascular cell adhesion molecule (sVCAM-1) were the most studied markers in relation to CIMT. None of the inflammatory markers showed an association with CIMT. INTERPRETATION: This review showed a relation between some inflammatory markers and CVD, however, no consistent relation is observed for CIMT. Statistical approaches that yields effect estimates and standardized CIMT protocols should be chosen. Further research should focus on prospective studies and a selected set of inflammatory markers.


BACKGROUND: Examine interactive relations of race and poverty status with cardiovascular disease (CVD) risk factors in a socioeconomically diverse sample of urban-dwelling African American (AA) and White adults. METHODS: Participants were 2,270 AAs and Whites (57% AA; 57% female; ages 30-64 years) who completed the first wave of the Healthy Aging in Neighborhoods of Diversity across the Life Span (HANDLS) study. CVD risk factors assessed included body mass index (BMI), waist circumference (WC), total cholesterol (TC), high- and low-density lipoprotein cholesterol (HDL-C, LDL-C), triglycerides (TG), glycated hemoglobin (HbA1c), high-sensitivity C-reactive protein (CRP), and systolic, diastolic, and pulse pressure (SBP, DBP, PP). Interactive and independent relations of race, poverty status, and sex were examined for each outcome via ordinary least squares regression adjusted for age, education, literacy, substance use, depressive symptoms, perceived health care barriers, medical co-morbidities, and medications. RESULTS: Significant interactions of race and poverty status (p’s < .05) indicated that AAs living in poverty had lower BMI and WC and higher HDL-C than non-poverty AAs, whereas Whites living in poverty had higher BMI and WC and lower HDL-C than non-poverty Whites. Main effects of race revealed that AAs had higher levels of HbA1c, SBP, and PP, and Whites had higher levels of TC, LDL-C and TG (p’s < .05). CONCLUSION: Poverty status moderated race differences for BMI, WC, and HDL-C, conveying increased risk among Whites living in poverty, but reduced risk in their AA counterparts. Race differences for six additional risk factors withstood extensive statistical adjustments including SES indicators.


Anal health and anal cancer are rarely addressed in HIV primary care. We sought to understand factors that impeded or promoted addressing anal health in HIV primary care from providers’ perspectives. In this exploratory study, HIV primary care providers from the Mid-South region of the United States participated in brief individual interviews. We analyzed transcribed data to identify barriers and facilitators to addressing anal health. Our study sample included five physicians and four nurse practitioners. The data revealed a number of barriers such as perception of patient embarrassment, provider embarrassment, external issues such as time constraints, demand of other priorities, lack of anal complaints, lack of resources, and gender discordance. Facilitators included awareness, advantageous circumstances, and the patient-provider relationship. Anal health
education should be prioritized for HIV primary care providers. Preventive health visits should be considered to mitigate time constraints, demands for other priorities, and unequal gender opportunities.


AIMS: To determine the prevalence of diabetes mellitus among pulmonary tuberculosis patients and the difference of clinical characteristics and outcomes between pulmonary tuberculosis patients with and without diabetes mellitus in an aging population in Shanghai, China. METHODS: This is a retrospective population-based study. 201 newly diagnosed pulmonary tuberculosis patients in Changning District, Shanghai during 2007-2008 were included. Clinical characteristics and outcomes were collected. Determination of diabetes mellitus was based on the medical records before pulmonary tuberculosis was diagnosed. RESULTS: The prevalence of diabetes mellitus among pulmonary tuberculosis patients was 19.9% (40/201). Pulmonary tuberculosis patients with diabetes mellitus were more likely to be old (>/=50, OR=5.23, 95% CI=2.07-13.25), to have pulmonary cavities (OR=3.02, 95% CI=1.31-6.98), to be sputum smear positive (OR=2.90, 95% CI=1.12-7.51), and to have extension of anti-tuberculosis treatment duration (OR=2.68, 95% CI 1.17-6.14). Besides, they had a higher 2nd month sputum smear positive proportion (OR=2.97, 95% CI 1.22-7.22) and a higher 5-year recurrence rate (OR=5.87, 95% CI 1.26-27.40). CONCLUSIONS: High prevalence, severe clinical characteristics and poor outcomes of pulmonary tuberculosis patients with diabetes mellitus highlight the necessity of early bi-directional screening and co-management of these two diseases in Shanghai, China.


OBJECTIVE: HIV-infected people and elderly people have higher cancer risk, but the combined effects of aging and HIV are not well described. We aimed to evaluate the magnitude of cancer risk in the HIV-infected elderly population. DESIGN: We conducted a case-cohort study including a 5% sample of U.S. Medicare enrollees and all cancer cases aged at least 65 in linked cancer registries. METHODS: HIV was identified through Medicare claims. Among the HIV-infected, absolute cancer risk was calculated accounting for the competing risk of death. Associations between HIV and cancer were estimated with weighted Cox regression adjusting for demographic characteristics. RESULTS: Among 469 954 people in the 5% sample, 0.08% had an HIV diagnosis. Overall, 825 776 cancer cases were identified in cancer registries. Over 5 years, 10.1% of the HIV-infected elderly developed cancer, the most common diagnoses comprising lung (5-year cumulative incidence=2.2%), prostate (2.7%, among men), and colorectal cancer (0.9%), and non-Hodgkin lymphoma (0.8%). HIV was strongly associated with incidence of Kaposi sarcoma [adjusted hazard ratio (aHR)=94.4, 95% confidence interval (95%CI)=54.6-163], anal cancer (aHR=34.2, 95%CI=23.9-49.0) and Hodgkin lymphoma (aHR=6.3, 95%CI=2.8-14.3). HIV was also associated with incidence of liver cancer, non-Hodgkin lymphoma and lung cancer (aHR=3.4, 2.6, and 1.6, respectively). CONCLUSION: In the elderly, HIV infection is associated with higher risk for many cancers, although some associations were weaker than expected, perhaps reflecting effects of non-HIV pathways on cancer development. Due to the effects of HIV and aging, the HIV-infected elderly have a sizeable absolute risk, highlighting a need for cancer prevention.


BACKGROUND: FRAX is a validated, computer-based clinical fracture risk calculator that estimates the 10-year risk of major osteoporotic (clinical spine, forearm, hip, or shoulder) fracture, and hip fracture alone. It is widely used for decision making in fracture prevention, but it may underestimated the risk in HIV-infected individuals. Some experts recommend considering HIV as a cause of secondary osteoporosis when calculating FRAX in HIV-infected individuals. METHODS: From the Veterans Aging Cohort Study Virtual Cohort, we included 24,451 HIV-infected and uninfected men aged 50-70 years with complete data in the year 2000 to approximate all but 2 factors (ie, history of secondary osteoporosis and parental hip fracture) for modified-FRAX calculation without bone density and 10-year observational data for incident fragility fracture. The accuracy of the modified-FRAX calculation was compared by the observed/estimated (O/E) ratios of fracture by HIV status. RESULTS: The accuracy of modified-FRAX was less for HIV-infected [O/E = 1.62, 95% confidence interval (CI) 1.45 to 1.81] than uninfected men (O/E = 1.29, 95% CI: 1.19 to 1.40), but improved when HIV was included as a cause of secondary osteoporosis (O/E = 1.20, 95% CI: 1.08 to 1.34). However, only 3%-6% of men with incident fractures were correctly identified by the modified-FRAX using accepted FRAX thresholds for pharmacologic therapy. CONCLUSIONS: Modified-FRAX underestimated the fracture rates more in older HIV-infected than in otherwise similar uninfected men. The accuracy improved when HIV was included as a cause of secondary osteoporosis, but it still

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performed poorly for case finding. Further studies are necessary to determine how to use FRAX or define an HIV-specific index to risk stratify for screening and treatment in older HIV-infected individuals.


BACKGROUND AND AIMS: The predominant distribution of the antiaging Klotho protein in both the kidneys and brain may point to its essential role in protecting against dysfunction of the kidney-brain axis during the aging process. Our previous study showed that the downregulation of Klotho was involved in aging-related cognitive impairment in aged senescence-accelerated mouse prone-8 (SAMP8) mice. The present study investigated the potential role of Klotho in aging-associated inflammation and renal injury. METHODS: Age- and gender-matched groups of SAMP8 mice and their corresponding normal control senescence-accelerated mouse resistant-1 (SAMR1) were used to investigate the potential role of Klotho in aging-associated inflammation and renal injury. RESULTS: Compared with aged SAMR1 controls, early-stage chronic kidney disease (CKD), which is associated with an increase in the urinary albumin-to-creatinine ratio, inflammatory cell infiltration, glomerulosclerosis, and tubulointerstitial fibrosis, was observed in aged SAMP8 mice. Furthermore, the aging-related loss of Klotho-induced activation of the retinoic acid-inducible gene 1/nuclear factor-kappaB (RIG-I/NF-kappaB) signaling pathway and subsequent production of the proinflammatory mediators tumor necrosis factor alpha, interleukin-6, and inducible nitric oxide synthase in the kidneys of aged SAMP8 mice compared with SAMR1 controls. CONCLUSIONS: The present results suggest that aging-related inflammation and the development of early-stage CKD are likely associated with the downregulation of Klotho and induction of the RIG-I/NF-kappaB signaling pathway in 12-month-old SAMP8 mice. Moreover, aged SAMP8 mice with cognitive deficits and renal damage may be a potential mouse model for investigating the kidney-brain axis in the aging process.


HIV/AIDS causes severe dysfunction of the immune system through CD4+ T cell depletion, leading to dysregulation of both the adaptive and innate immune arms. A primary target for viral infection is the gastrointestinal tract, which is a reservoir of CD4+ T cells. In addition to being a major immune hub, the human gastrointestinal tract harbors trillions of commensal microorganisms, the microbiota, which have recently been shown to play critical roles in health. Alterations in the composition and function of microbiota have been implicated in a variety of 'multi-factorial' disorders, including infectious, autoimmune, metabolic, and neoplastic disorders. It is widely accepted that, in addition to its direct role in altering the gastrointestinal CD4+ T cell compartment, HIV infection is characterized by gut microbiota compositional and functional changes. Herein, we review such alterations and discuss their potential local and systemic effects on the HIV-positive host, as well as potential roles of novel microbiota-targeting treatments in modulating HIV progression and associated adverse systemic manifestations.


BACKGROUND: Non-AIDS-defining cancers (non-ADCs) have become the leading non-AIDS-related cause of death among people with HIV/AIDS. We aimed to quantify the excess risk of cancer-related deaths among Italian people with AIDS (PWA), as compared with people without AIDS (non-PWA). METHODS: A nationwide, population-based, retrospective cohort study was carried out among 5285 Italian PWA, aged 15-74 years, diagnosed between 2006 and 2011. Date of death and multiple-cause-of-death data were retrieved up to December 2011. Excess mortality, as compared with non-PWA, was estimated using sex- and age-standardized mortality ratios (SMRs) and the corresponding 95% confidence intervals (CIs). RESULTS: Among 1229 deceased PWA, 10.3% reported non-ADCs in the death certificate, including lung (3.1%), and liver (1.4%), cancers. A 7.3-fold (95% CI: 6.1 to 8.7) excess mortality was observed for all non-ADCs combined. Statistically significant SMRs emerged for specific non-ADCs, ie, anus (5 deaths, SMR = 227.6, 95% CI: 73.9 to 531.0), Hodgkin lymphoma (12 deaths, SMR = 122.0, 95% CI: 63.0 to 213.0), unspecified uterus (4 deaths, SMR = 52.5, 95% CI: 14.3 to 134.5), liver (17 deaths, SMR = 13.2, 95% CI: 7.7 to 21.1), skin melanoma (4 deaths, SMR = 10.9, 95% CI: 3.0 to 27.8), lung (38 deaths, SMR = 8.0, 95% CI: 5.7 to 11.0), head and neck (9 deaths, SMR = 7.8, 95% CI: 3.6 to 14.9), leukemia (5 deaths, SMR = 7.6, 95% CI: 2.4 to 17.7), and colon-rectum (10 deaths, SMR = 5.4, 95% CI: 2.6 to 10.0). SMRs for non-ADCs were particularly elevated among PWA infected through injecting drug use. CONCLUSION: This population-based study documented extremely elevated risks of death for non-ADCs among PWA. These findings stress the need of preventive interventions for both virus-related and non-virus-related cancers among HIV-infected individuals.
BACKGROUND: Persistent inflammation and immune activation has been hypothesized to contribute to increased prevalence of subclinical atherosclerosis and cardiovascular disease (CVD) risk in patients with chronic HIV infection. In this study, we examined the correlation of peripheral monocyte subsets and soluble biomarkers of inflammation to coronary artery calcium (CAC) progression, as measured by cardiac computed tomography scan. METHODS: We conducted a longitudinal analysis utilizing baseline data of 78 participants with HIV infection on stable antiretroviral therapy (ART) in the Hawaii Aging with HIV-Cardiovascular study who had available baseline monocyte subset analysis as well as CAC measurement at baseline and at 2-year follow up. Monocyte phenotypes were assessed from cryopreserved blood by flow cytometry and plasma was assayed for soluble biomarkers using antibody-coated beads in a high sensitivity Milliplex Luminex platform. Change in CAC over 2 years was analyzed as the primary outcome variable. RESULTS: Of all monocyte subsets and biomarkers tested, higher non-classical monocyte percentage (rho = 0.259, p = 0.022), interleukin (IL)-6 (rho = 0.311, p = 0.012), and monocyte chemoattractant protein (MCP)-1 (rho = 0.524, p = <0.001) were significantly correlated to higher 2-year CAC progression in unadjusted Spearman’s correlation. Non-classical monocyte percentage (rho = 0.247, p = 0.039), and MCP-1 (rho = 0.487, p = <0.001), remained significantly correlated to 2-year CAC progression, while IL-6 was not (rho = 0.209, p = 0.120) after adjustment for age, hypertension, diabetes mellitus, total/HDL cholesterol ratio, smoking history, and BMI. CONCLUSION: The percentage of non-classical monocytes and plasma MCP-1 levels were independently associated with CAC progression and may be related to the progression of atherosclerosis and increased CVD risk associated with chronic HIV infection on stable ART.

OBJECTIVE: Chronic obstructive pulmonary disease (COPD) prevalence is increasing among aging HIV-infected individuals. We determined the association between COPD and self-reported measures of frailty [adapted frailty-related phenotype (aFRP)] and physical limitation, and a clinical biomarker of physiologic frailty [Veterans Aging Cohort Study (VACS) Index] in HIV-infected compared with uninfected individuals. DESIGN: Cross-sectional study of VACS participants between 2002 and 2012. METHODS: Prefrail/aFRP was obtained from self-reported surveys. Prefrail was defined as 1-2 domains of physical shrinking, exhaustion, slowness and low physical activity; aFRP was defined as at least 3 domains. Physical limitation scale was determined from 12 self-reported survey items assessing limitations performing physical activities. VACS index includes age and laboratory measurements. We used regression models to test for associations between COPD and outcomes in models stratified by HIV status. RESULTS: The sample included 3538 HIV-infected and 3606 uninfected participants; 67 and 63% were black (P = 0.0003), 97 and 92% were men (P < 0.0001) and 4 and 5% had COPD (P = 0.2). In unadjusted analyses, COPD was associated with all three outcomes (P < 0.0001). In adjusted analyses, COPD was associated with increased prefail and aFRP in HIV-infected and uninfected participants (P <= 0.01 for all comparisons). COPD was associated with physical limitation in both groups (P < 0.0001). There was an interaction between COPD and physical limitation by HIV status with increased physical limitation among HIV-infected participants (P = 0.04). COPD was not associated with VACS index. CONCLUSION: COPD was strongly associated with aFRP and physical limitations. COPD management may mediate frailty through functional limitations rather than physiologic biomarkers, especially in HIV-infected individuals.


PURPOSE: To explore primary care providers' HIV prevention practices for older adults. Primary care providers' perceptions and awareness were explored to understand factors that affect their provision of HIV prevention materials and HIV screening for older adults. DESIGN AND METHOD: Data were collected through 24 semistructured interviews with primary care providers (i.e., physicians, physician assistants, and nurse practitioners) who see patients older than 50 years. RESULTS: Results reveal facilitators and barriers of HIV prevention for older adults among primary care providers and understanding of providers' HIV prevention practices and behaviors. Individual, patient, institutional, and societal factors influenced HIV prevention practices among participants, for example, provider training and work experience, lack of time, discomfort in discussing HIV/AIDS with older adults, stigma, and ageism were contributing factors. Furthermore, factors specific to primary and secondary HIV prevention were identified, for instance, the presence of sexually transmitted infections influenced providers' secondary prevention practices. IMPLICATIONS: HIV disease, while preventable, is increasing among older adults. These findings inform future research and interventions aimed at increasing HIV prevention practices in primary care settings for patients older than 50.


The purpose of this research was to explore primary care providers' willingness and ability to increase HIV prevention efforts among older adults and to gain recommendations for improving HIV prevention in primary care settings. Data were collected through 24 semistructured interviews with primary care providers. The results of the study reveal that the majority of providers find it necessary to increase HIV prevention efforts in primary care settings and are willing to do so; however, they cannot do so without assistance. Providers suggested strategies to increase HIV prevention in primary care, for instance, expanding the use of electronic reminders to include HIV prevention and increasing collaboration among providers of different specialties. As a result of the interviews, additional recommendations for increasing HIV prevention have been identified. These findings will aid in improving the quality of care provided to individuals older than 50 in primary care settings.


Background Advances in the treatment of HIV infection have enabled better control of the disease, allowing patients to enjoy a longer life expectancy. However, the ageing of patients leads to an increased prevalence of cardiovascular disease.
Various studies have found that pharmaceutical care results in better control of cardiovascular risk factors. Objective To measure the impact of pharmaceutical care on cardiovascular risk in patients older than 50 years receiving combination antiretroviral therapy. Setting Outpatient pharmacy service of a tertiary hospital, Spain. Methods A pre/post-intervention quasi-experimental clinical study was conducted in which health education and pharmacist interventions to reduce cardiovascular risk factors were carried out in a single patient cohort using the Dader method of pharmacotherapy, with a 12-month follow-up period per patient. Patients included were older than 50 years, with moderate/elevated cardiovascular risk. Data were obtained from patient clinical histories, dispensing records and patient interviews, and were subjected to statistical analysis. Main outcome measure Cardiovascular risk estimated by SCORE and REGICOR equations. Results Forty-two patients completed the study. Of these, 93 % were men, with an average age of 57 years and 15 years since diagnosis of HIV. A reduction was observed in the mean values (baseline vs. 12 months) of the following cardiovascular risk factors: systolic blood pressure (P = 0.009), diastolic blood pressure (P = 0.010), total cholesterol (P = 0.006), low-density lipoprotein cholesterol (LDL-c; P = 0.039), triglycerides (P = 0.010) and total cholesterol/high-density lipoprotein cholesterol (HDL-c; P < 0.001). An increase in HDL-c (P = 0.037) was also observed. The average cardiovascular risk estimated by the SCORE instrument was reduced from 7.6 % at the beginning of the study to 6.4 % after 12 months (P = 0.039). The risk estimate according to REGICOR also decreased (P = 0.002). Over the 12-month period, 6.3 +/- 3.4 interventions were carried out per patient. Quantitative ineffectiveness was the most prevalent negative outcome associated with medication throughout the study, and noncompliance was the most frequent cause. Interventions on health education were the most common, followed by interventions on improving adherence. Conclusion Pharmaceutical care, delivered as a combination of health education and pharmacotherapy follow-up to outpatients at a tertiary hospital, had a positive impact on cardiovascular risk in patients older than 50 years receiving combination antiretroviral therapy.


Hand-grip strength is strongly correlated with measures of muscle mass and can be taken to predict morbidity and mortality. The aim of this study was to investigate the relationship between hand-grip strength and other markers associated with immune ageing, such as Cytomegalovirus (CMV) infection, leukocyte telomere length and serum levels of inflammatory and anti-inflammatory markers in the elderly. We have assessed grip strength with the Smedley Dynamometer in younger (22-37 years) and older (60-85 years) men and women in a sample of people living in Berlin (the BASE-II study). Serum cytokine levels were determined by flow-cytometry, CMV serostatus via ELISA and leukocyte telomere length by quantitative PCR. IL-1beta levels tended to be negatively associated with grip strength, but we did not find a significant association with IL-6 levels. CMV-seropositivity was not associated with higher levels of IL-1beta, IL-6 or TNF, nor with weaker grip strength in men or women at any age. A putative general measure of organismal ageing, overall leukocyte telomere length, was also found not to be associated with lower grip strength in the elderly. Hand-grip strength remains an important biomarker independent of CMV infection or shorter telomere lengths, and poorly reflected in peripheral pro-inflammatory cytokine levels, all of which have been associated in some studies with frailty and mortality.


INTRODUCTION: Elderly people with multiple chronic conditions, or multimorbidity, are at risk of developing poor mental health. These seniors often remain in their homes with support from home care assistants (HCAs). Mental health promotion by HCAs needs to be studied further because they may be among the first to observe changes in clients' mental health status. AIM: To describe HCAs' perspectives on detecting mental health problems and promoting mental health among homebound seniors with multimorbidity. METHODS: We applied a descriptive qualitative study design using semi-structured interviews. Content analyses were performed on five focus group interviews conducted in 2014 with 26 HCAs. RESULTS: Most HCAs stated that they were experienced in caring for clients with mental health problems such as anxiety, depression, sleep problems, and high alcohol consumption. The HCAs mentioned as causes, or risk factors, multiple chronic conditions, feelings of loneliness, and social isolation. The findings reveal that continuity of care and seniors' own thoughts and perceptions were essential to detecting mental health problems. Observation, collaboration, and social support emerged as important means of detecting mental health problems and promoting mental health. CONCLUSION: The HCAs had knowledge of risk factors, but they seemed insecure about which health professionals had the primary responsibility for mental health. They also seemed to have detected early signs of mental health problems, even though good personal knowledge of the client and continuity in home visits were crucial to do so. When it came to mental health promotion, the suggestions related to the aim of ending social isolation, decreasing feelings of loneliness, and increasing physical activity. The results indicate that the HCAs seemed dependent on supervision by district nurses.
and on care managers’ decisions to support the needed care, to schedule assignments related to the detection of mental health problems, and to promote mental health.


BACKGROUND: Biological similarities are noted between aging and HIV infection. Middle-aged adults with HIV infection may present as elderly due to accelerated aging or having more severe aging phenotypes occurring at younger ages. OBJECTIVES: We explored age-adjusted prevalence of frailty, a geriatric condition, among HIV+ and at risk HIV- women. DESIGN: Cross-sectional. SETTING: The Women's Interagency HIV Study (WIHS). PARTICIPANTS: 2028 middle-aged (average age 39 years) female participants (1449 HIV+; 579 HIV-). MEASUREMENTS: The Fried Frailty Index (FFI), HIV status variables, and constellations of variables representing Demographic/health behaviors and Aging-related chronic diseases. Associations between the FFI and other variables were estimated, followed by stepwise regression models. RESULTS: Overall frailty prevalence was 15.2% (HIV+, 17%; HIV-, 10%). A multivariable model suggested that HIV infection with CD4 count<200; age>40 years; current or former smoking; income </=$12,000; moderate vs low fibrinogen-4 (FIB-4) levels; and moderate vs high estimated glomerular filtration rate (eGFR) were positively associated with frailty. Low or moderate drinking was protective. CONCLUSIONS: Frailty is a multidimensional aging phenotype observed in mid-life among women with HIV infection. Prevalence of frailty in this sample of HIV-infected women exceeds that for usual elderly populations. This highlights the need for geriatricians and gerontologists to interact with younger ‘at risk’ populations, and assists in the formulation of best recommendations for frailty interventions to prevent early aging, excess morbidities and early death.


BACKGROUND: Comorbidity and multimorbidity are common in older people. Here we used a novel analytic approach called Association Rules together with network analysis to evaluate multimorbidity (two or more disorders) and comorbidity in old age. METHODS: A population-based cross-sectional study was undertaken where 17 morbidities were analyzed using network analysis, cluster analysis, and Association Rules methodology. A comorbidity interestingness score was developed to quantify the richness and variability of comorbidities associated with an index condition. The participants were community-dwelling men aged 70 years or older from the Concord Health and Ageing in Men Project, Sydney, Australia, with complete data (n = 1,464). RESULTS: The vast majority (75%) of participants had multimorbidity. Several morbidity clusters were apparent (vascular cluster, metabolic cluster, neurodegenerative cluster, mental health and other cluster, and a musculoskeletal and other cluster). Association Rules revealed unexpected comorbidities with high lift and confidence linked to index diseases. Anxiety and heart failure had the highest comorbidity interestingness scores while obesity, hearing impairment, and arthritis had the lowest (zero) scores. We also performed Association Rules analysis for the geriatric syndromes of frailty and falls to determine their association with multimorbidity. Frailty had a very complex and rich set of frequent and interesting comorbidities, while there were no frequent and interesting sets associated with falls. CONCLUSIONS: Old age is characterized by a complex pattern of multimorbidity and comorbidity. Single disease definitions do not account for the prevalence and complexity of multimorbidity in older people and a new lexicon may be needed to underpin research and health care interventions for older people.


There is growing evidence of a relationship between inflammation and psychiatric illness. In particular, the cytokine Interleukin-6 (IL-6) has been linked to stress-related disorders such as depression and anxiety. Here we discuss evidence from preclinical and clinical studies examining the role of IL-6 in mood disorders. We focus on the functional role of peripheral and central release of IL-6 on the development of stress susceptibility and depression-associated behavior. By examining the contribution of both peripheral and central IL-6 to manifestations of stress-related symptomatology, we hope to broaden the way the field thinks about diagnosing and treating mood disorders.

The objectives of this study, presented as part of a plenary session at WW7 in Hyderabad, India were to review (i) the epidemiology and current clinical issues of HIV infection with regard to HIV and older populations and (ii) models for increased morbidity and mortality in older HIV-positive individuals with implications for clinical care. HIV infection for those in treatment has become a complex chronic disease in which end-organ injury and resulting morbidity, functional decline, and mortality do not have a single etiology but reflect cumulative loss of organ system reserve from multiple interacting sources leading to functional decline, organ system failure, and death. Emerging guidelines and recommendations suggest a need for increased awareness and treatment of the multifaceted needs of the aging HIV-infected patient.


OBJECTIVES: To perform geriatric assessments in older HIV-infected adults in San Francisco and examine the association with age and the Veterans Aging Cohort Study (VACS) index scores. METHODS: A cross-sectional study was conducted from 2012 to 2014 among HIV-infected patients >/=50 years at 2 San Francisco-based HIV clinics. We evaluated 4 health domains: (1) physical health and function (activities of daily living), instrumental activities of daily living (IADL), falls, gait speed, (2) social support (physical and perceived support, loneliness), (3) mental health (depression, anxiety, posttraumatic stress disorder) and cognition, and (4) behavioral and general health (antiretroviral adherence and quality of life). Contingency table and rank-sum analyses examined associations between these domains with age and VACS index scores. RESULTS: Three hundred fifty-nine patients completed assessments (median age 57; 85% male; 57% white; 72% higher school education). On functional assessment, 39% reported dependence with >/=1 IADL, and 40% reported falls in the previous year. Fifty-eight percent experienced loneliness, 60% the lowest levels of perceived social support, 55% depression, and 12% posttraumatic stress disorder. Forty percent had possible mild cognitive impairment. Thirty percent reported poor or fair quality of life. Older age was associated with lower CD4 counts, balance problems, slower gait, lower anxiety, poorer general health, and higher antiretroviral adherence. VACS Index score was associated with dependence in >/=1 IADL and antiretroviral adherence. CONCLUSION: In a large sample of older HIV-infected adults, multiple significant aging-related conditions were identified. Integrating geriatric assessment tools into HIV/AIDS clinical care may help target interventions to optimize clinical care and quality of life for older HIV-infected individuals.


BACKGROUND: Chronic HIV disease is associated with neurocognitive impairment and age-related conditions such as frailty. OBJECTIVE: To determine whether regional brain volumetric changes correlate with frailty parameters in older (>/>= 40 years) HIV+ patients on stable combination antiretroviral therapy. METHOD: Thirty-five HIV-infected participants in the Hawaii Aging with HIV Cohort - Cardiovascular Disease study underwent T1-weighted brain magnetic resonance imaging, frailty assessment and neuropsychological testing. Five physical frailty traits were assessed: low physical activity; exhaustion; unintentional weight loss; weak hand grip strength; slow walking speed. Linear regression quantified cross-sectional relationships of 12 brain regions to walking times and hand grip strength. RESULTS: Participants were 50.6 +/- 6.8 years old and 77% had undetectable plasma viral load. One subject was frail (possessing >/= 3 frailty traits); 23% were pre-frail (1-2 frailty traits) and had worse computer composite learning and memory Z-scores than did non-frail individuals (p=0.06). Pre-frail or frail subjects had reduced hand grip strength relative to the non-frail group (p=0.001). Longer walking times (slower gait) related independently to lower volumes of cerebellar white matter (p<0.001, beta=-0.6) and subcortical gray matter (p<0.05, beta=-0.30). Reduced thalamus volume was linked to weaker grip strength (p<0.05, beta=0.4). Caudate volume was negatively associated with grip strength (p<0.01, beta=-0.5). CONCLUSION: Volumetric changes in cerebellar white matter and subcortical gray matter, brain regions involved in motor control and cognition, may be connected to frailty development in well-controlled HIV. Gait speed is particularly sensitive to white matter alterations and should be investigated as a predictor of frailty and brain atrophy in chronically infected patients.


BACKGROUND: Frailty is an age-related syndrome of decreased physiological reserve and resistance to stressors, associated with increased morbidity and mortality in the general elderly population. An increased prevalence of frailty has been reported amongst HIV-infected individuals. METHODS: Fried frailty phenotype was systematically assessed in predominantly virologically suppressed HIV type 1 (HIV-1)-infected and otherwise comparable HIV-uninfected participants aged at least 45 at
Objective: We compared aortic stiffness between HIV-infected and HIV-uninfected individuals and examined the determinants of vascular aging during HIV infection. Methods: Aortic stiffness using carotid-femoral pulse wave velocity (cf-PWV) was evaluated cross-sectionally between HIV-infected individuals and uninfected controls frequency-matched for age, sex, and longitudinally in a subgroup of HIV-infected individuals. Determinants of elevated cf-PWV levels were assessed using logistic regression. Changes in cf-PWV levels during follow-up (mixed-effect linear regression) and risk factors for achieving cf-PWV below (Group 1) or above the median (Group 2) at last follow-up visit were evaluated only in HIV-infected individuals.
RESULTS: A total of 133 HIV-infected and 135 HIV-uninfected individuals (mean age: 47.7 +/- 8.9 years, 91% men) were enrolled. Median cf-PWV at baseline was similar between HIV-infected individuals and controls (7.5 m/s [interquartile range = 6.6-8.4] vs. 7.5 m/s [interquartile range = 6.6-8.4], respectively; P = 0.64). In multivariable analysis, only mean arterial pressure showed significant association with elevated cf-PWV in the overall population (P = 0.036). In HIV-infected individuals, elevated cf-PWV was associated with current smoking (P = 0.042), and nadir CD4 T-cell count less than 200 cells/mul (P = 0.048). Ninety-one HIV-infected individuals were followed for a mean 7.6 +/- 2.0 years. cf-PWV progression was associated with age (P = 0.018), mean arterial pressure (P = 0.020), and nadir CD4 T-cell count (P = 0.005). Patients from Group 2 had higher baseline waist circumference, pulse pressure, and nadir CD4 T-cell count less than 200 cells/mul. CONCLUSION: We observed no difference in aortic stiffness between HIV-infected and controls. Moreover, aortic stiffness aging was independently associated with past severe immunodeficiency, along with other traditional risk factors. Our results call for early antiretroviral initiation


Metabolism disorders, as well as body shape abnormalities, have been associated with the introduction of antiretroviral therapy. The objective of this study was to compare the diagnostic ability of adiposity indices and to discuss criteria for the classification of lipodystrophy and sarcopenia (SP) in HIV-positive individuals. Anthropometric measurements were determined in 268 individuals of both genders, also submitted to the dual-energy X-ray absorptiometry exam. The adiposity indices calculated were body mass index, body mass index adjusted for fat mass (BMIfat), body adiposity index, body adiposity index for the Fels Longitudinal Study sample, and The Clinica Universidad de Navarra body adiposity estimator. The presence of lipodystrophy was evaluated using the fat mass ratio (FMR). SP was classified using the appendicular lean mass/height2 ratio. The subjects were divided into 3 groups: HIV+LIPO+ (n = 41), HIV+LIPO- (n = 65), and control (C, HIV-negative individuals; n = 162). Among the adiposity indices assessed, BMIfat showed the strongest correlation with total body fat (in percent) for men (r = 0.87, p < 0.001) and women (r = 0.92, p < 0.001). The frequency of SP was 44.8% and 41.7% in HIV+LIPO+, 27.8% and 20.7% in HIV+LIPO- and 63.3% and 45.45% in C, for men and women, respectively. The cutoff point suggested for the diagnosis of lipodystrophy according to the FMR was 1.14. The adiposity indices, particularly the BMIfat, have strong correlation with body fat determined by dual-energy X-ray absorptiometry in HIV-positive patients. The implementation of FMR is recommended for more standardized estimates of the frequency of lipodystrophy.


Frailty is a critical aging-related syndrome marked by diminished physiologic reserve and heightened vulnerability to stressors, predisposing to major adverse clinical outcomes, including hospitalization, institutionalization, disability, and death in the general population of older adults. As the proportion of older adults living with HIV increases in the era of antiretroviral therapy, frailty is increasingly recognized to be of significant clinical and public health relevance to the HIV-infected population. This article reviews current knowledge on the epidemiology and biology of frailty and its potential role as a target for reducing disparities in outcomes in HIV; conceptual frameworks and current approaches to frailty measurement; existing data on frailty interventions; and important areas for future research focus necessary to develop and advance effective strategies to prevent or ameliorate frailty and its marked adverse consequences among people living with HIV.


OBJECTIVE: The burden of cancer among persons living with HIV/AIDS (PLWHA) is substantial and increasing. We assessed the prevalence of modifiable cancer risk factors among adult PLWHA in Western high-income countries since 2000. DESIGN: Meta-analysis. METHODS: We searched PubMed to identify articles published in 2011-2013 reporting prevalence of smoking, alcohol consumption, overweight/obesity, and infection with human papillomavirus (HPV), hepatitis C virus (HCV) and hepatitis B virus (HBV) among PLWHA. We conducted random effects meta-analyses of prevalence for each risk factor, including estimation of overall, sex-specific, and HIV-transmission-group-specific prevalence. We compared prevalence in PLWHA with published prevalence estimates in US adults. RESULTS: The meta-analysis included 113 publications. Overall summary prevalence
estimates were current smoking, 54% [95% confidence interval (CI) 49-59%] versus 20-23% in US adults; cervical high-risk HPV infection, 46% (95% CI 34-58%) versus 29% in US females; oral high-risk HPV infection, 16% (95% CI 10-23%) versus 4% in US adults; anal high-risk HPV infection (men who have sex with men), 68% (95% CI 57-79%), with no comparison estimate available; chronic HCV infection, 26% (95% CI 21-30%) versus 0.9% in US adults; and HBV infection, 5% (95% CI 4-5%) versus 0.3% in US adults. Overweight/obesity prevalence (53%; 95% CI 46-59%) was below that of US adults (68%). Meta-analysis of alcohol consumption prevalence was impeded by varying assessment methods. Overall, we observed considerable study heterogeneity in prevalence estimates. CONCLUSION: Prevalence of smoking and oncogenic virus infections continues to be extraordinarily high among PLWHA, indicating a vital need for risk factor reduction efforts.


OBJECTIVE: Utilizing the Veterans Aging Cohort Study, the largest HIV cohort in North America, we conducted one of the few comprehensive comparisons of cancer incidence time trends in HIV-infected (HIV+) versus uninfected persons during the antiretroviral therapy (ART) era. DESIGN: Prospective cohort study. METHODS: We followed 44 787 HIV+ and 96 852 demographically matched uninfected persons during 1997-2012. We calculated age-, sex-, and race/ethnicity-standardized incidence rates and incidence rate ratios (IRR, HIV+ versus uninfected) over four calendar periods with incidence rate and IRR period trend P values for cancer groupings and specific cancer types. RESULTS: We observed 3714 incident cancer diagnoses in HIV+ and 5760 in uninfected persons. The HIV+ all-cancer crude incidence rate increased between 1997-2000 and 2009-2012 (P trend = 0.0019). However, after standardization, we observed highly significant HIV+ incidence rate declines for all cancer (25% decline; P trend <0.0001), AIDS-defining cancers (55% decline; P trend <0.0001), nonAIDS-defining cancers (NADC; 15% decline; P trend = 0.0003), and nonvirus-related NADC (20% decline; P trend <0.0001); significant IRR declines for all cancer (from 2.0 to 1.6; P trend <0.0001), AIDS-defining cancers (from 19 to 5.5; P trend <0.0001), and nonvirus-related NADC (from 1.4 to 1.2; P trend = 0.049); and borderline significant IRR declines for NADC (from 1.6 to 1.4; P trend = 0.078) and virus-related NADC (from 4.9 to 3.5; P trend = 0.071). CONCLUSION: Improved HIV care resulting in improved immune function most likely contributed to the HIV+ incidence rate and the IRR declines. Further promotion of early and sustained ART, improved ART regimens, reduction of traditional cancer risk factor (e.g. smoking) prevalence, and evidence-based screening could contribute to future cancer incidence declines among HIV+ persons.


INTRODUCTION: With ageing comes increased vulnerability such that older adults' ability to recover from acute illnesses, fall-related injuries and other stresses related to the physical ageing processes declines. This increased vulnerability, also known as frailty, is common in older adults and associated with increased healthcare service use and adverse health outcomes. Currently, there is no overview of available interventions to prevent or reduce the level of frailty (as defined by study's authors) which will help healthcare providers in community settings caring for older adults. We will address this gap by reviewing interventions and international policies that are designed to prevent or reduce the level of frailty in community-dwelling older adults. METHODS AND ANALYSIS: We will conduct a scoping review using the updated guidelines of Arksey and O'Malley to systematically search the peer-reviewed journal articles to identify interventions that aimed to prevent or reduce the level of frailty. We will search grey literature for international policies. The 6-stage scoping review model involves: (1) identifying the research question; (2) identifying relevant studies; (3) selecting studies; (4) charting the data; (5) collating, summarising and reporting the results and (6) consulting with key stakeholders. ETHICS AND DISSEMINATION: Our scoping review will use robust methodology to search for available interventions focused on preventing or reducing the level of frailty in community-dwelling older adults. We will consult with stakeholders to find out whether they find the frailty interventions/policies useful and to identify the barriers and facilitators to their implementation in Canada. We will disseminate our findings to relevant stakeholders at local, national and international levels by presenting at relevant meetings and publishing the findings. Our review will identify gaps in research and provide healthcare providers and policymakers with an overview of interventions that can be implemented to prevent or postpone frailty.


Frailty was introduced to explain why people of the same age have varying degrees of risk. The deficit accumulation approach shows that as people age, they accumulate health deficits, and that more deficits confer greater risk. Frailty results because not everyone of the same age has the same number of deficits. This is readily quantified using a frailty index, which has
been translated to preclinical models. The frailty index grades risk without requiring special instrumentation. It allows a central clinical challenge to be addressed, which is that with age, diseases rarely travel alone.


OBJECTIVE: Grip strength predicts functional decline and death, and is regarded as a biomarker of biological aging. The primary objective of this manuscript was to assess differences in the rate of decline in grip strength in persons aging with and without HIV. DESIGN: Grip strength was assessed in 1552 (716 HIV+ and 836 HIV-) men aged at least 50 years participating in the Multicenter AIDS Cohort Study between 2007 and 2014. METHODS: Grip strength decline was modeled longitudinally, adjusting for serostatus, demographics, comorbidities, and conditions. In HIV-specific models, coefficients were included for cumulative viral load and history of AIDS. RESULTS: Grip strength at the age of 50 years averaged 37.9 and 38.2 kg for HIV+ and HIV- men, respectively (P = 0.70). In fully adjusted models, grip strength declined 0.33 kg/year in HIV- men (P < 0.001) and 0.42 kg/year in HIV+ men (P = 0.01). In HIV-stratified models, higher cumulative viral load indicated greater strength decline (-0.884 kg for 3.1-4.0 log10 copies-years/ml and -1.077 kg for ≥4.1 log10 copies-years/ml) relative to men with consistently low viral load (<3.0 log10 copies-years/ml). Adjusted Cox proportional hazard models revealed a 70% greater risk of clinically weak grip strength in HIV+ men (adjusted hazard ratio 1.70; 95% confidence interval, 1.22-2.40). CONCLUSION: Grip strength decline is accelerated in HIV-infected men, which may contribute to decreased life expectancy and lower quality of life with aging. Greater cumulative viral load exposure appears to be an important driver of this decline and underscores the importance of early initiation of therapy.


OBJECTIVE: HIV-infected older adults (HOA) are at risk of functional decline. Interventions promoting physical activity that can attenuate functional decline and are easily translated into the HOA community are of high priority. We conducted a randomized, controlled clinical trial to evaluate whether a physical activity counseling intervention based on self-determination theory (SDT) improves physical function, autonomous motivation, depression and the quality of life (QOL) in HOA. METHOD: In total, 67 community-dwelling HOA with mild-to-moderate functional limitations were randomized to 1 of 2 groups: a physical activity counseling group or the usual care control group. We used SDT to guide the development of the experimental intervention. Outcome measures that were collected at baseline and final study visits included a battery of physical function tests, levels of physical activity, autonomous motivation, depression, and QOL. RESULTS: The study participants were similar in their demographic and clinical characteristics in both the treatment and control groups. Overall physical performance, gait speed, measures of endurance and strength, and levels of physical activity improved in the treatment group compared to the control group (p < .05). Measures of autonomous regulation such as identified regulation, and measures of depression and QOL improved significantly in the treatment group compared with the control group (p < .05). Across the groups, improvement in intrinsic regulation and QOL correlated with an improvement in physical function (p < .05). CONCLUSION: Our findings suggest that a physical activity counseling program grounded in SDT can improve physical function, autonomous motivation, depression, and QOL in HOA with functional limitations. (PsycINFO Database Record


Retention in early HIV care has been associated with virologic suppression and improved survival, but remains understudied in Brazil. We estimated retention in early HIV care for the period 2000-2013, and identified socio-demographic and clinical factors associated with good retention in an urban cohort from Rio de Janeiro, Brazil. Antiretroviral therapy-naïve, HIV-infected persons ≥18 years old linked to care between 2000 and 2011 were included. Retention in the first 2 years post-linkage (i.e. early care) was defined by the proportion of 6-month intervals with ≥1 HIV laboratory result. 'Good' retention was defined as ≥1 HIV laboratory result recorded in at least three intervals. Overall, 80 % of participants met criteria for good retention and retention significantly improved over the study period. Older age, higher education level and early antiretroviral therapy initiation were associated with good retention. Efforts to improve retention in early care in this population should target younger and less-educated HIV-infected persons. (English).


OBJECTIVES: Our aim was to explore readiness to engage in exercise among people living with HIV and multimorbidity. DESIGN: We conducted a descriptive qualitative study using face-to-face semistructured interviews with adults living with HIV. SETTING: We recruited adults (18 years or older) who self-identified as living with HIV and 2 or more additional health-related conditions from a specialty hospital in Toronto, Canada. PARTICIPANTS: 14 participants with a median age of 50 years and median number of 9 concurrent health-related conditions participated in the study. The majority of participants were men (64%) with an undetectable viral load (71%). OUTCOME MEASURES: We asked participants to describe their readiness to engage in exercise and explored how contextual factors influenced their readiness. We analysed interview transcripts using thematic analysis. RESULTS: We developed a framework to describe readiness to engage in exercise and the interplay of factors and their influence on readiness among adults with HIV and multimorbidity. Readiness was described as a diverse, dynamic and fluctuating spectrum ranging from not thinking about exercise to routinely engaging in daily exercise. Readiness was influenced by the complex and episodic nature of HIV and multimorbidity comprised of physical impairments, mental health challenges and uncertainty from HIV and concurrent health conditions. This key factor created a context within which 4 additional subfactors (social supports, perceptions and beliefs, past experience with exercise, and accessibility) may further hinder or facilitate an individual’s position along the spectrum of readiness to exercise. CONCLUSIONS: Readiness to engage in exercise among people living with HIV is a dynamic and fluctuating construct that may be influenced by the episodic nature of HIV and multimorbidity and 4 subfactors. Strategies to facilitate readiness to exercise should consider the interplay of these factors in order to enhance physical activity and subsequently improve health outcomes of people with HIV and multimorbidity.


PURPOSE: We compared all-cause and human immunodeficiency virus (HIV) mortality in a population-based, HIV-infected cohort. METHODS: Using records of people diagnosed with HIV during 2000-2009 from the Florida Enhanced HIV-acquired immunodeficiency syndrome (AIDS) Reporting System, we conducted a proportional hazards analysis for all-cause mortality and a competing risk analysis for HIV mortality through 2011 controlling for individual-level factors, neighborhood poverty, and rural-urban status and stratifying by concurrent AIDS status (AIDS within 3 months of HIV diagnosis). RESULTS: Of 59,880 HIV-infected people, 32.2% had concurrent AIDS and 19.3% died. Adjusting for period of diagnosis, age group, sex, country of birth, HIV transmission mode, area-level poverty, and rural-urban status, non-Hispanic black (NHB) and Hispanic people had an elevated adjusted hazards ratio (aHR) for HIV mortality relative to non-Hispanic whites (NHB concurrent AIDS: aHR 1.34, 95% confidence interval [CI], 1.23-1.47; NHB without concurrent AIDS: aHR 1.41, 95% CI 1.26-1.57; Hispanic concurrent AIDS: aHR 1.18, 95% CI 1.05-1.32; Hispanic without concurrent AIDS: aHR 1.18, 95% CI 1.03-1.36). CONCLUSIONS: Considering competing causes of death, NHB and Hispanic people had a higher risk of HIV mortality even among those without concurrent AIDS, indicating a need to identify and address barriers to HIV care in these populations.


Approximately 1.2 million people in the United States live with HIV infection. Medical advancements have increased the life expectancy and this cohort is aging. HIV-positive individuals have a high incidence of frailty (~20%) characterized by depression and sedentary behavior. Exercise would be healthy, but due to the frail status of many HIV-positive individuals, conventional exercise is too taxing. The aim of this study was to evaluate the effectiveness and acceptability of a novel game-based training program (exergame) in ameliorating some aspects of frailty in HIV-infected individuals. Ten older people living with HIV were enrolled in an exergame intervention. Patients performed balance exercises such as weight shifting, ankle reaching, and obstacle crossing. Real-time visual/audio lower-extremity joint motion feedback was provided using wearable sensors to assist feedback and encourage subjects to accurately execute each exercise task. Patients trained twice a week for 45 min for 6 weeks. Changes in balance, gait, psychosocial parameters and quality of life parameters were assessed at the beginning, midterm and at conclusion of the training program. Ten patients completed the study and their results analyzed. The mean age was 57.2 +/- 9.2 years. The participants showed a significant reduction in center of mass sway (78.2%, p = .045) during the semitandem balance stance with eyes closed and showed a significant increase in gait speed during a dual task motor-cognitive
assessment (9.3%, p = .048) with an increase in stride velocity of over 0.1 m/sec. A significant reduction in reported pain occurred (43.5%, p = .041). Preliminary results of this exergame intervention show promise in improving balance and mobility while requiring older people living with HIV to be more active. The exergame can be continued at home and may have long term as well as short-term benefits for ameliorating frailty associated with HIV infection.


PURPOSE OF REVIEW: Skeletal fractures are more common in HIV, and impact the medical, functional and economic status of frequently vulnerable patients. Identifying asymptomatic patients with low bone mineral density (BMD)/osteoporosis requiring intervention can be expected to reduce fracture risk and complications. Clinical tools are available to determine fracture risk in the general population and are being evaluated in HIV patients. The FRAX calculator, incorporating demographics and risk factors for osteoporosis, with or without BMD results, has been investigated most often in HIV patients. RECENT FINDINGS: The few published studies that have calculated the 10-year FRAX risk for both major osteoporosis and hip fractures without BMD generally show limited precision in predicting the presence of osteoporosis severe enough to initiate treatment. It remains uncertain whether using HIV as a secondary risk factor and adding dual X-ray absorptiometry (DXA)-BMD information improves case-finding compared with using DXA results only. Not incorporating risks relevant to aging HIV patients such as antiretroviral exposure, hepatitis C virus coinfection and history of falls is other potential limitation. SUMMARY: Accurate screening tools using clinical risk factors alone to determine fracture risk in HIV are not yet available. Further research and validation studies are necessary.
D. Cognition – Brain Changes

Adam, P. (2016). Study to test ways to improve cognitive functioning of older adults with HIV.

University of Alabama at Birmingham School of Nursing Professor David Vance, Ph.D., has received a five-year, $2.86 million R01 grant from the National Institute of Mental Health for a study to determine whether quality of life of middle-aged and older adults with HIV can be improved by enhancing cognitive functioning through speed of processing training...


Mental health problems continue to be a significant comorbidity for people with HIV infection, even in the era of effective antiretroviral therapy. Here, we report on the changes in the mental health diagnoses based on clinical case reports amongst people with HIV referred to a specialist psychological medicine department over a 24-year period, which include the relative increase in depressive and anxiety disorders, often of a chronic nature, together with a decline in acute mental health syndromes, mania, and organic brain disorders. In addition, new challenges, like the presence of HIV and Hepatitis C co-infection, and the new problems created by recreational drugs, confirm the need for mental health services to be closely involved with the general medical services. A substantial proportion of people with HIV referred to specialist services suffer complex difficulties, which often require the collaboration of both psychiatrists and psychologists to deal effectively with their difficulties.


BACKGROUND: HIV-associated neurocognitive disorder (HAND) can occur in patients without prior AIDS defining illness and can be debilitating. This study aimed to evaluate the difference in the patterns of intrinsic brain activity between patients with or without HAND for deepening our understanding of HAND. METHODS: We evaluated 24 HIV-infected individuals, 12 with previously diagnosed HAND and 12 previously diagnosed without HAND, and 11 seronegative individuals. These individuals then underwent repeat NP testing and a functional brain MRI scan. For functional MRI analysis, seed-based analysis with bilateral precuneus cortex seed was applied. RESULTS: Among the 12 individuals with previously diagnosed HAND, 3 showed improvement of their neurocognitive function and 1 was excluded for worsening liver disease. Among the 12 patients who previously had normal neurocognitive function, 2 showed neurocognitive impairment. Overall, the HAND group, who had impaired cognitive function at the time of MRI scan, showed significant decrease of resting status functional connectivity between bilateral precuneus and prefrontal cortex (PFC) compared with nonHAND group, those who had normal neurocognitive function (Corrected P<0.05). The functional connectivity with the right inferior frontal operculum and right superior frontal gyrus was positively correlated with memory and learning ability. CONCLUSIONS: This cross-sectional study found a significant difference in fMRI patterns between patients with and without HAND. Decreased functional connectivity between precuneus and PFC could be possible functional substrate for cognitive dysfunction in HIV patients, which should be characterized in a longitudinal study.


There is a rising prevalence of older HIV+ adults who are at risk of deficits in higher order neurocognitive functions and associated problems in everyday functioning. The current study applied multiprocess theory to examine the effects of HIV and aging on measures of laboratory-based, naturalistic, and self-perceived symptoms of prospective memory (PM). Participants included 125 Younger (48 with HIV, age = 32 +/- 4.6 years) and 189 Older (112 with HIV, age = 56 +/- 4.9 years) adults. Controlling for global neurocognitive functioning, mood, and other demographics, older age and HIV had independent effects on long-delay time-based PM in the laboratory, whereas on a naturalistic PM task older HIV- adults performed better than older HIV+ adults and younger persons. In line with the naturalistic findings, older age, but not HIV, was associated with a relative sparing of self-perceived PM failures in daily life across longer delay self-cued intervals. Findings suggest that, even in relatively younger aging cohorts, the effects of HIV and older age on PM can vary across PM delay intervals by the strategic demands of the retrieval cue type, are expressed
differently in the laboratory and in daily life, and are independent of other higher order neurocognitive functions (e.g., retrospective memory).


OBJECTIVE: Here we tested the effect of combined antiretroviral therapy (cART) on deviant electroencephalographic (EEG) source activity in treatment-naive HIV individuals. METHODS: Resting state eyes-closed EEG data were recorded before and after 5 months of cART in 48 male HIV subjects, who were naive at the study start. The EEG data were also recorded in 59 age- and sex-matched healthy subjects as a control group. Frequency bands of interest included delta, theta, alpha1, alpha2 and alpha3, based on alpha frequency peak specific to each individual. They also included beta1 (13-20 Hz) and beta2 (20-30 Hz). Low-resolution brain electromagnetic tomography (LORETA) estimated EEG cortical source activity in frontal, central, temporal, parietal, and occipital regions. RESULTS: Before the therapy, the HIV group showed greater parietal delta source activity and lower spatially diffuse alpha source activity compared to the control group. Thus, the ratio of parietal delta and alpha3 source activity served as an EEG marker. The z-score showed a statistically deviant EEG marker (EEG +) in 50% of the HIV individuals before therapy (p < 0.05). After 5 months of cART, delta source activity decreased, and alpha3 source activity increased in the HIV subjects with EEG + (about 50% of them showed a normalized EEG marker). CONCLUSIONS: This procedure detected a deviant EEG marker before therapy and its post-therapy normalization in naive HIV single individuals. SIGNIFICANCE: The parietal delta/alpha3 EEG marker may be used to monitor cART effects on brain function in such individuals.


INTRODUCTION: While HIV-associated neurocognitive impairment remains common despite the widespread use of combined antiretroviral therapy (cART), there have been relatively few studies investigating the trajectories of neurocognitive change in longitudinal NeuroAIDS studies. OBJECTIVE: To estimate the magnitude and pattern of neurocognitive change over the first 3 years of follow-up using Group-Based Trajectory Analysis (GBTA) applied to participants in the longitudinal arm of the CHARTER cohort. METHOD: The study population consisted of 701 CHARTER participants who underwent neuropsychological (NP) testing on at least 2 occasions. Raw test scores on 15 NP measures were modeled using GBTA. Each trajectory was categorized as stable, improved or declined, according to two different criteria for change (whether the magnitude of the estimated change at 36 months differed >/= 0.5 standard deviations from baseline value or changed by > the standard error of measurement estimated at times 1 and 2). Individuals who declined on one or more NP measures were categorized as decliners. RESULTS: Overall, 111 individuals (15.8%) declined on at least one NP test over 36 months, with the vast majority showing decline on a single NP test (93/111-83.8%). The posterior probability of group assignment was high in most participants (71%) after only 2 sessions, and in the overwhelming majority of those with 3+ sessions. Heterogeneity of trajectories was the norm rather than the exception. Individuals who declined had, on average, worse baseline NP performance on every test, were older, had a longer duration of HIV infection and more follow-up sessions. CONCLUSION: The present study identified heterogeneous trajectories over 3 years across 15 NP raw test scores using GBTA. Cognitive decline was observed in only a small subset of this study cohort. Decliners had demographics and HIV characteristics that have been previously associated with cognitive decline, suggesting clinical validity for the method.


Up to 50% of people living with HIV have some neurocognitive impairment. We examined associations of sleep and fatigue with self-reported cognitive problems in 268 adults living with HIV. Multivariate regression was used to examine associations between cognitive problems, self-reported sleep quality, actigraphy-measured total sleep time and wake after sleep onset, and fatigue severity. Poorer self-reported sleep quality (p < .001), short or long total sleep time (<7 or >8 vs. 7-8 hours, p = .015), and greater fatigue (p < .001) were associated with lower self-reported cognitive function scores after controlling for demographic and clinical characteristics. However, objective measure of wake after sleep onset was unrelated to self-reported cognitive function scores. Findings suggest that assessing and treating poor sleep and complaints about fatigue would be areas for intervention that could have a greater impact on improving cognition function than interventions that target only cognitive problems.
OBJECTIVE: To compare cerebral vasoreactivity, a measure of cerebrovascular endothelial function, between treated, virally suppressed HIV-infected individuals and HIV-uninfected controls and to evaluate the effect of HIV-specific factors on cerebral vasoreactivity. METHODS: Cross-sectional study of 65 antiretroviral therapy-treated, virally suppressed HIV-infected individuals and 28 HIV-uninfected controls. Participants underwent noninvasive assessment of cerebral vasoreactivity using transcranial Doppler ultrasound and inhaled carbon dioxide (CO2). We used mixed effects multivariable linear regression to determine the association of HIV infection and HIV-specific factors with cerebral vasoreactivity. RESULTS: Mean age was 57.2 years for HIV-infected participants and 53.5 years for HIV-uninfected controls. Most participants (95%) were men. Twenty-six per cent of HIV-infected participants were nonwhite compared to 32% of controls. Among HIV-infected participants, mean CD4 cell count was 596 cells/μl, and mean duration of viral suppression was 7.8 years. Cerebral vasoreactivity in response to hypercapnia (cerebral VR\textsubscript{hyper}) was lower in HIV-infected individuals compared to uninfected controls (3.23 versus 3.81%, P = 0.010). After adjusting for demographic and vascular risk factors, HIV infection was independently associated with lower cerebral vasoreactivity (-0.86%, 95% CI -1.30 to -0.42%, P < 0.001). We did not find a statistically significant effect of recent or nadir CD4 cell count on cerebral vasoreactivity. There was a trend...
OBJECTIVE: The fractal dimension of retinal arteries and veins is a measure of the complexity of the vascular tree. We hypothesized that retinal fractal dimension would be associated with brain volume and white matter integrity in HIV-infected women. DESIGN: Nested case-control within longitudinal cohort study. METHODS: Women were recruited from the Brooklyn site of the Women’s Interagency HIV study (WIHS); 34 HIV-infected and 21 HIV-uninfected women with analyzable MRIs and retinal photographs were included. Fractal dimension was determined using the SIVA software program on skeletonized retinal images. The relationship between predictors (retinal vascular measures) and outcomes (quantitative MRI measures) were analyzed with linear regression models. All models included age, intracranial volume, and both arterial and venous fractal dimension. Some models were adjusted for blood pressure, race/ethnicity, and HIV-infection. RESULTS: The women were 45.6 +/- 7.3 years of age. Higher arterial dimension was associated with larger cortical volumes, but higher venous dimension was associated with smaller cortical volumes. In fully adjusted models, venous dimension was significantly associated with fractional anisotropy (standardized beta = -0.41, p = 0.009) and total gray matter volume (beta = -0.24, p = 0.03), and arterial dimension with mean diffusivity (beta = -0.33, p = 0.04) and fractional anisotropy (beta = 0.34, p = 0.03). HIV-infection was not associated with any retinal or MRI measure. CONCLUSIONS: The medications used to treat HIV have reduced the severity of cognitive deficits; yet, nearly half of adults with HIV still exhibit some degree of cognitive deficits, referred to as HIV-associated neurocognitive disorder or HAND. These cognitive deficits interfere with everyday functioning such as emotional regulation, medication adherence, instrumental activities of daily living, and even driving a vehicle. As adults are expected to live a normal lifespan, the process of aging in this clinical population may exacerbate such cognitive deficits. Therefore, it is important to understand the neurobiological mechanisms of HIV on cognitive reserve and develop interventions that are either neuroprotective or compensate for such cognitive deficits. Within the context of cognitive reserve, this article delivers a state of the science perspective on the causes of HAND and provides possible interventions for addressing such cognitive deficits. Suggestions for future research are also provided.


Alzheimer’s disease (AD) is a progressive neurodegenerative disease that targets memory and cognition, and is the most common form of dementia among the elderly. Although AD itself has been extensively studied, very little is known about early-stage preclinical events and/or mechanisms that may underlie AD pathogenesis. Since the majority of AD cases are sporadic in nature, advancing age remains the greatest known risk factor for AD. However, additional environmental and epigenetic factors are thought to accompany increasing age to play a significant role in the pathogenesis of AD. Postoperative cognitive delirium (POD) is a behavioral syndrome that primarily occurs in elderly patients following a surgical procedure or injury and is characterized by disruptions in cognition. Individuals that experience POD are at an increased risk for developing dementia and AD compared to normal aging individuals. One way in which cognitive function is affected in cases of POD is through activation of the inflammatory cascade following surgery or injury. There is compelling evidence that immune challenges (surgery and/or injury) associated with POD trigger the release of pro-inflammatory cytokines into both the periphery and central nervous system. Thus, it is possible that cognitive impairments following an inflammatory episode may lead to more severe forms of dementia and AD pathogenesis. Here we will discuss the inflammation associated with POD, and highlight the advantages of using POD as a model to study inflammation-evoked cognitive impairment. We will explore the possibility that advancing age and immune challenges may provide mechanistic evidence correlating early life POD with AD. We will review and propose neural mechanisms by which cognitive impairments occur in cases of POD, and discuss how POD may augment the onset of AD.


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We evaluated the impact of latent toxoplasmosis (LT) on neurocognitive (NC) and neurobehavioural functioning in young adults with and without chronic HIV infection, using a standardised NC test battery, self-reported Beck Depression Inventory, Frontal System Behavior Scale, MINI-International Neuropsychiatric Interview and risk-assessment battery. 194 young adults (median age 24 years, 48.2% males) with chronic HIV infection (HIV+) since childhood and 51 HIV seronegative (HIV-) participants were included. HIV+ individuals had good current immunological status (median CD4: 479 cells/mul) despite a low CD4 nadir (median: 93 cells/mul). LT (positive anti-Toxoplasma IgG antibodies) was present in one third of participants. The impairment rates in the HIV- with and without Toxo were not significantly different (p=0.17). However, we observed a trend towards higher NFL was seen in the NCI group (p = 0.06). CONCLUSIONS: Mild HAND was associated with increased intrathecal immune activation, and the correlation between neopterin and NFL found in NCI subjects indicates an association between neurocognitive impairment, CNS inflammation and neuronal damage. Together these findings suggest that NCI despite ART may represent an active pathological process within the CNS that needs further characterization in prospective studies.


OBJECTIVE: Although milder forms of HIV-associated neurocognitive disorder (HAND) remain prevalent, a correlation to neuronal injury has not been established in patients on antiretroviral therapy (ART). We examined the relationship between mild HAND and CSF neurofilament light protein (NFL), a biomarker of neuronal injury; and CSF neopterin, a biomarker of CNS immunoactivation, in virally suppressed patients on antiretroviral therapy (ART). DESIGN AND METHODS: We selected 99 subjects on suppressive ART followed longitudinally from the CNS HIV Anti-Retroviral Therapy Effects Research (CHARTER) study. Based on standardized comprehensive neurocognitive performance (NP) testing, subjects were classified as neurocognitively normal (NCN; n = 29) or impaired (NCI; n = 70). The NCI group included subjects with asymptomatic (ANI; n = 37) or mild (MND; n = 33) HAND. CSF biomarkers were analyzed on two occasions. RESULTS: Geometric mean CSF neopterin was 25% higher in the NCI group (p = 0.04) and NFL and neopterin were significantly correlated within the NCI group (r = 0.30; p<0.001) but not in the NCN group (r = -0.13; p = 0.3). Additionally, a trend towards higher NFL was seen in the NCI group (p = 0.06). CONCLUSIONS: Mild HAND was associated with increased intrathecal immune activation, and the correlation between neopterin and NFL found in NCI subjects indicates an association between neurocognitive impairment, CNS inflammation and neuronal damage. Together these findings suggest that NCI despite ART may represent an active pathological process within the CNS that needs further characterization in prospective studies.


Research assessing whether major depressive disorders (MDD) impacts neurocognitive functions in HIV+ persons has yielded inconsistent results. However, none have considered the role of MDD remission, chronicity, and stability on treatment. Ninety-five HIV+ adults clinically stable on combined antiretroviral treatment completed a psychiatric interview, a depression scale, a neuropsychological, daily living, and cognitive complaints assessments at baseline and 18 months. Participants were screened for current (within 12 months of study entry) alcohol and/or substance use disorder. History of alcohol and/or substance abuse disorder prior to the 12 months entry screen and MDD treatments were recorded. Participants were grouped into two psychiatric nomenclatures: (1) lifetime: no MD episode (MDE), single MDE life-event treated and fully remitted, chronic MDD treated and stable, chronic MDD treated and unstable, and baseline untreated MDE; (2) recent: last 2 years MDE (yes or no). We found that lifetime and recent psychiatric history were more strongly associated with decreased in independence in daily living and cognitive complaints than with baseline neuropsychological performance. However, lack of full remission, instability on treatment in chronic MDD, and severity of symptoms in current MDE were factors in whether MDD impacted baseline neuropsychological performance. Depressive symptoms improved at follow-up in those with baseline moderate-severe symptoms, and MDD was not associated with neurocognitive change at 18 months. A history of alcohol and/or substance abuse disorder was significantly more frequent in those with treated and unstable chronic MDD but it was not associated with neuropsychological performance. MDD recurrence, chronicity profiles, and associated comorbidities are keys factors to understand any potential impact on neurocognitive abilities in HIV infection. More comprehensive consideration of these complex effects could serve at constructively updating the HAND diagnostic criteria.

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groups. HIV participants with lower Toxoplasma antibody concentration had worse NC performance, with higher GDS values (p=0.03) and worse learning (p=0.002), memory (p=0.006), speed of information processing (p=0.01) T scores. Latent Toxoplasmosis may contribute to NC impairment in young adults, including those with and without chronic HIV infection.


OBJECTIVE: To determine the prevalence of HIV-associated neurocognitive disorders (HAND) in HIV-infected participants who initiated combination antiretroviral therapy (cART) during primary infection. DESIGN: Cross-sectional observational study. METHODS: HIV-infected men without neuropsychiatric confounds who had initiated CART during primary infection were administered a neuropsychological battery as well as questionnaires evaluating depression and quality of life. Eligibility was determined by a medical examination with history and review of records. RESULTS: Twenty-six primarily non-Hispanic white (73%), male (100%) participants were enrolled and underwent neuropsychological assessment. Mean age was 43 (28-71) years, with a median of 17 years of education (13-24). Median current and nadir CD4 T-cell counts were 828 (506-1411) and 359 (150-621) cells/mul. All participants had plasma HIV-1 RNA less than 50 copies/ml. Median duration of CART prior to enrolment was 5.7 years (2.2-9.9). Median global deficit score was 0.17 (0.00-0.60). Only one (4%) participant was impaired. CONCLUSION: Rates of HAND in this cohort of HIV-infected men without comorbid conditions who initiated early CART are low. Our findings suggest a possible neuroprotective benefit of early cART and an important contribution of comorbidities to observed HAND prevalence.


HIV-associated neurocognitive disorders (HAND) still occur in approximately 50% of HIV patients, and therapies to combat HAND progression are urgently needed. HIV proteins are released from infected cells and cause neuronal damage, possibly through mitochondrial abnormalities. Altered mitochondrial fission and fusion is implicated in several neurodegenerative disorders. Here, we hypothesized that mitochondrial fission/fusion may be dysregulated in neurons during HAND. We have identified decreased mitochondrial fission protein (dynamin 1-like; DNM1L) in frontal cortex tissues of HAND donors, along with enlarged and elongated mitochondria localized to the soma of damaged neurons. Similar pathology was observed in the brains of GFAP-gp120 tg mice. In vitro, recombinant gp120 decreased total and active DNM1L levels, reduced the level of Mitotracker staining, and increased extracellular acidification rate (ECAR) in primary neurons. DNM1L knockdown enhanced the effects of gp120 as measured by reduced Mitotracker signal in the treated cells. Interestingly, overexpression of DNM1L increased the level of Mitotracker staining in primary rat neurons and reduced neuroinflammation and neurodegeneration in the GFAP-gp120-tg mice. These data suggest that mitochondrial biogenesis dynamics are shifted towards mitochondrial fusion in brains of HAND patients and this may be due to gp120-induced reduction in DNM1L activity. Promoting mitochondrial fission during HIV infection of the CNS may restore mitochondrial biogenesis and prevent neurodegeneration.


HIV infection has become a chronic illness when successfully treated with combined antiretroviral therapy (cART). The long-term health prognosis of aging with controlled HIV infection and HIV-associated neurocognitive disorder (HAND) remains unclear. In this review, we propose that, almost 20 years after the introduction of CART, a change in research focus is needed, with a greater emphasis on chronicity effects driving our research strategy. We argue that pre-emptive documentation of episodes of mild neurocognitive dysfunction is needed to determine their long-term prognosis. This strategy would also seek to optimally represent the entire HAND spectrum in therapeutic trials to assess positive and/or negative treatment effects on brain functions. In the first part of the paper, to improve the standard implementation of the Frascati HAND diagnostic criteria, we provide a brief review of relevant quantitative neuropsychological concepts to clarify their appropriate application for a non-neuropsychological audience working in HIV research and wanting to conduct randomized clinical trials on brain functions. The second part comprises a review of various antiretroviral drug classes and individual agents with respect to their effects on HAND, while also addressing the question of when CART should be initiated to potentially reduce HAND incidence. In each section, we use recent observational studies and randomized controlled trials to illustrate our perspective while also providing relevant statistical comments. We conclude with a discussion of the neuroimaging methods that could be combined with neuropsychological approaches to enhance the validity of HIV neurology (neuroHIV) treatment effect studies.
Many HIV-positive individuals manifest symptoms indicative of central nervous system injury. Frequently, those symptoms include cognitive impairment in domains supported by cortical and/or subcortical processing (e.g., executive functioning). The present study investigated one aspect of executive functioning, namely, organisational strategy (i.e., the strategy a person uses when attempting to complete a complex task efficiently). The Rey Complex Figure Test was administered to a group of HIV-positive individuals (n = 63) and a matched group of HIV-negative individuals (n = 63). Organisational strategy in completing the task was measured using the Rey Complex Figure Organizational Strategy Score system, which is a quantitative capture of the quality of the approach taken to the task. There were no significant between-group differences in Rey Complex Figure Organizational Strategy Scores, but within the HIV-positive group, increased level of overall cognitive impairment was associated with increasingly poor organisational strategy. These findings suggest that assessment of organisational strategy (and, more generally, assessment of executive functioning) in completing complex tasks may be a valuable component of neuropsychological batteries that attempt to describe the degree of cognitive impairment (and, by implication, the extent of functional impairment) experienced by people living with HIV.


OBJECTIVES: Studies of HIV-associated brain atrophy often focus on a priori brain regions of interest, which can introduce bias. A data-driven, minimally biased approach was used to analyze changes in brain volumetrics associated with HIV and their relationship to aging, viral factors, combination antiretroviral therapy (cART), and gender, and smoking. DESIGN: A cross-sectional study of 51 HIV-uninfected (HIV-) and 146 HIV-infected (HIV+) participants. METHODS: Structural MRI of participants was analyzed using principal component analysis (PCA) to reduce dimensionality and determine topographies of volumetric changes. Neuropsychological (NP) assessment was examined using global and domain-specific scores. The effects of HIV disease factors (e.g., viral load, CD4, etc.) on brain volumes and neuropsychological were investigated using penalized regression (LASSO). RESULTS: Veterans with MetS demonstrated poorer performance on tasks of executive function (response inhibition and cognitive set shifting) and immediate verbal memory regardless of PTSD status. There was an interaction between MetS and PTSD on delayed verbal memory, suggesting that the negative impact of MetS on verbal memory was only significant for veterans not classified as having PTSD. IMPLICATIONS: This is the first study to examine the impact of comorbid PTSD and MetS on cognition. The results suggest that MetS is associated with poorer verbal learning and executive functioning independent of PTSD. We discuss the necessity of monitoring cerebrovascular risk factors and providing early behavioral and/or pharmaceutical interventions to lessen the risk of cognitive decline in older age.


PURPOSE OF THE STUDY: With the influx of veterans entering older adulthood, it is increasingly important to understand risk factors for cognitive decline. Posttraumatic stress disorder (PTSD) and the metabolic syndrome (MetS) are highly prevalent in older veterans. Although both increase risk for cognitive decline and often co-occur, it is unclear how they may interact to negatively impact cognition. The aim of this cross-sectional study was to investigate associations among PTSD, MetS, and cognitive function in older veterans. We hypothesized that co-occurring PTSD and MetS would be associated with worse cognitive performance than seen in either illness alone. DESIGN AND METHODS: Participants completed cognitive testing to assess processing speed, verbal memory, and executive function. Data from 204 male veterans aged 55-89 were analyzed with the use of hierarchical multiple regression models. RESULTS: Veterans with MetS demonstrated poorer performance on tasks of executive function (response inhibition and cognitive set shifting) and immediate verbal memory regardless of PTSD status. There was an interaction between MetS and PTSD on delayed verbal memory, suggesting that the negative impact of MetS on verbal memory was only significant for veterans not classified as having PTSD. IMPLICATIONS: This is the first study to examine the impact of comorbid PTSD and MetS on cognition. The results suggest that MetS is associated with poorer verbal learning and executive functioning independent of PTSD. We discuss the necessity of monitoring cerebrovascular risk factors and providing early behavioral and/or pharmaceutical interventions to lessen the risk of cognitive decline in older age.

Individuals infected with HIV are living longer due to effective treatment with combination antiretroviral therapy (cART). Despite these advances, HIV-associated neurocognitive disorders (HAND) remain prevalent. In this study, we analyzed resting state functional connectivity (rs-fc) data from HIV-infected and matched HIV-uninfected adults aged 60 years and older to determine associations between HIV status, neuropsychological performance, and clinical variables. HIV-infected participants with detectable plasma HIV RNA exhibited decreased rs-fc within the salience (SAL) network compared to HIV-infected participants with suppressed plasma HIV RNA. We did not identify differences in rs-fc within HIV-infected individuals by HAND status. Our analysis identifies focal deficits in the SAL network that may be mitigated with suppression of plasma virus. However, these findings suggest that rs-fc may not be sensitive as a marker of HAND among individuals with suppressed plasma viral loads.


OBJECTIVE: To test the hypothesis that brain arteries from HIV+ cases have a greater degree of inflammation than brain arteries from HIV- cases, and that inflammation is associated with brain arterial remodeling. DESIGN: Case-control study, cross-sectional. METHODS: Brain arteries from 162 autopsy cases (84 with HIV) were systematically analyzed for thickness of the intima, media, and adventitia, and atherosclerosis and dolichoectasia. Inflammation was assessed with CD68 immunohistochemistry, and measured with a semiquantitative score reflecting the number and location (i.e., arterial layer) of activated macrophages infiltrating the arterial wall. Latent varicella zoster virus (VZV) was assessed with anti-VZV gene 63 product immunohistochemistry. Demographic and clinical variables were available in all cases, and longitudinal data about CD4 cell counts were available among cases with HIV. Multilevel generalized linear models were used to test the association between inflammation and HIV. RESULTS: Arteries from HIV+ cases had a higher inflammation score (B = 0.36, P = 0.05) compared with arteries from HIV- cases, although the association was attenuated after controlling for demographic variables, vascular risk factors, and latent VZV (B = 0.20, P = 0.18). Although intimal inflammation was similar in cases with and without HIV, adventitial inflammation was associated with HIV. Intimal inflammation was associated with intracranial atherosclerosis independent of HIV status, but adventitial inflammation was associated with HIV-associated dolichoectasia in arteries with a thin media. CONCLUSIONS: Adventitial inflammation is associated with HIV and dolichoectasia independent of intracranial atherosclerosis. This suggests that differential inflammatory responses may play a role in intracranial atherosclerosis and dolichoectasia.


Henry, B. L. and D. J. Moore (2016). "Preliminary Findings Describing Participant Experience With iSTEP, an mHealth Intervention to Increase Physical Activity and Improve Neurocognitive Function in People Living With HIV." J Assoc Nurses AIDS Care 27(4): 495-511.

We assessed the feasibility and acceptability of using text messages to monitor and encourage physical activity in the first 21 participants enrolled in an ongoing randomized controlled trial evaluating a 16-week Short Message Service/Multimedia Message Service (SMS/MMS) intervention (iSTEP) designed to increase moderate physical activity and improve neurocognition in persons with HIV-associated neurocognitive disorders (HAND; iSTEP, n = 11; control group, n = 10). Data were collected during the intervention and from interviews conducted at the 16-week postintervention visits. Text message response rates for both iSTEP and control participants were high (89% and 85%, respectively). Pedometer self-monitoring, step count goals, and milestone achievement texts were reported to facilitate physical activity. All iSTEP participants (100%) and 70% of control participants indicated that they would recommend the study to other people living with HIV. The results indicate that it is feasible to administer an SMS/MMS physical activity intervention to persons with HAND.


The increased prevalence of HIV among adults >50 years underscores the importance of improving our understanding of mechanisms causing HIV-associated neurocognitive disorders (HAND). Identifying novel and noninvasive diagnostic predictors of HAND prior to clinical manifestation is critical to ultimately identifying means of preventing progression to symptomatic HAND. Here, using a task-switching paradigm, in which subjects were cued (unpredictably) to perform a face-gender or a word-semantic task on superimposed face and word images, we examined the behavioral and neural profile of impaired cognitive control in older HIV+...
Functional magnetic resonance imaging (fMRI) and behavioral data were acquired while subjects were performing the face-gender or word-semantic task. We found that, despite comparable performance in standard neuropsychology tests that are designed to probe executive deficits, HIV-infected participants were significantly slower than uninfected controls in adapting to change in task demand, and the behavioral impairments can be quantitatively related to difference in fMRI signal at the dorsal anterior cingulate cortex (ACC). Due to the limited sample size of this hypothesis-generating study, we should take caution with these findings and future studies with a large and better matched sample size are needed. However, these rather novel findings in this study have a few important implications: first, the prevalence of cognitive impairments in HIV+ older adults might be even higher than previously proposed; second, ACC (in particularly its dorsal region) might be one of the key regions underlying cognitive impairments (in particularly executive functions) in HIV; and third, it might be beneficial to adopt paradigms developed and validated in cognitive neuroscience to study HAND, as these techniques might be more sensitive to some aspects of HIV-associated neurocognitive impairments than standard neuropsychology tests.


BACKGROUND: Over the past three decades, the clinical presentation of HIV infection of the Central Nervous System (CNS) has evolved. Prior to wide spread use of effective antiretroviral therapy (ART), more than a third of infected individuals exhibited a range of neurocognitive and motor deficits that frequently progressed to severe dementia and paralysis. However, the use of ART has significantly decreased the prevalence of severe forms of HIV-1 associated neurocognitive disorders (HAND). Studies of neurocognitive dysfunction have reported variable prevalence, ranging from 21% to 77.6%, defined primarily by mild to moderate neurocognitive impairment. HIV-associated chronic inflammation and associated neurotoxicity of long term ART, as well as the aging of the HIV-infected population, likely influence the pathogenesis of HAND. Despite significant research efforts directed towards a better understanding of the mechanisms underlying HIV neuropathogenesis, definitive causal pathophysiology of HAND and thus effective prevention or treatment remain elusive. Furthermore, HIV therapeutic research now includes efforts to effect a cure, by eliminating or silencing HIV within infected cells, which must include efforts to target the latently infected cells within the CNS.

CONCLUSION: Prevention and treatment of the neurological complications of HIV, and eradication of persistent virus from the CNS compartment are major priorities for the HIV-CNS research. Here we give an overview of the progress of research on HIV-CNS disease, define new challenges and research areas, and highlight domestic and global priorities.


Screening for HIV-associated neurocognitive disorders (HAND) is important to improve clinical outcomes. We compared the diagnostic sensitivity and specificity of the mini-mental state examination, International HIV dementia scale (IHDS), Montreal cognitive assessment, Simioni symptom questionnaire and cognitive assessment tool- rapid version (CAT-rapid) to a gold standard neuropsychological battery. Antiretroviral-experienced participants from Cape Town, South Africa, and Baltimore, USA, were recruited. The sensitivity and specificity of the five tools, as well as those of the combined IHDS and CAT-rapid, were established using 2 x 2 contingency tables and ROC analysis. More than a third (65165) had symptomatic HAND. In detecting HIV-D, the CAT-Rapid had good sensitivity (94 %) and weak specificity (52 %) (cut-point <10), while the IHDS showed fair sensitivity (68 %) and good specificity (86 %) (cut-point <10). The combined IHDS and CAT-rapid showed excellent sensitivity and specificity for HIV-D at a cut-off score of <16 (out of 20; 89 and 82 %). No tool was adequate in screening for any HAND. The combination IHDS and CAT-rapid tool appears to be a good screener for HIV-D but is only fairly sensitive and poorly specific in screening for any HAND. Screening for milder forms of HAND continues to be a clinical challenge.


Cross-sectional relationships were examined between regional brain volumes and mitochondrial DNA (mtDNA) 8-hydroxy-2-deoxyguanosine (8-oxo-dG) in peripheral blood mononuclear cells (PBMCs) of 47 HIV patients [mean age 51years; 81% with HIV RNA <50copies/mL on combination antiretroviral therapy. The gene-specific DNA damage and repair assay measured mtDNA 8-oxo-dG break frequency. Magnetic resonance imaging was performed at 3T. Higher mtDNA 8-oxo-dG was associated with lateral ventricular enlargement and with decreased volumes of hippocampus, pallidum, and total subcortical gray matter, suggesting the involvement of systemic mitochondrial-specific oxidative stress in chronic HIV-related structural brain changes and cognitive difficulties. Clarification of the mechanism may provide potential therapeutic targets.
As the threat of Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS) persists to rise, effective drug treatments are required to treat the infected people. Even though combination antiretroviral therapy (cART) provides stable viral suppression, it is not devoid of undesirable side effects, especially in persons undergoing long-term treatment. The present therapy finds its limitations in the emergence of multidrug resistance and accordingly finding new drugs and novel targets is the need of the hour to treat the infected persons and further to attack HIV reservoirs in the body like brain, lymph nodes to achieve the ultimate goal of complete eradication of HIV and AIDS. Natural products such as plant-originated compounds and plant extracts have enormous potential to become drug leads with anti-HIV and neuroprotective activity. Accordingly, many research groups are exploring the biodiversity of the plant kingdom to find new and better anti-HIV drugs with novel mechanisms of action and for HIV-associated neurocognitive disorders (HAND). The basic challenge that still persists is to develop viral replication-targeted therapy using novel anti-HIV compounds with new mode of action, accepted toxicity and less resistance profile. Against this backdrop, the World Health Organization (WHO) suggested the need to evaluate ethno-medicines for the management of HIV/AIDS. Consequently, there is no need to evaluate traditional medicine, particularly medicinal plants and other natural products that may yield effective and affordable therapeutic agents. Although there are a good number of reports on traditional uses of plants to treat various diseases, knowledge of herbal remedies used to manage HIV/AIDS and HAND are scanty, vague and not well documented. In this review, plant substances showing a promising action that is anti-HIV and HAND will be explored along with what they interact. Since some plant substances are also known to modulate several cellular factors which are also involved in the replication of HIV and hence their role as potential candidates will be discussed. HIV/AIDS being an exceptional epidemic, demands an exceptional approach and that forms very much focus for the current review.

HIV infection leads to age-related conditions in relatively young persons. HIV-associated neurocognitive disorders (HAND) are considered among the most prevalent of these conditions. To study the mechanisms underlying this disorder, researchers need an accurate method for measuring biological aging. Here, we apply a recently developed measure of biological aging, based on DNA methylation, to the study of biological aging in HIV+ brains. Retrospective analysis of tissue bank specimens and pre-mortem data was carried out. Fifty-eight HIV+ adults underwent a medical and neurocognitive evaluation within 1 year of death. DNA was obtained from occipital cortex and analyzed with the Illumina Infinium Human Methylation 450K platform. Biological age determined via the epigenetic clock was contrasted with chronological age to obtain a measure of age acceleration, which was then compared between those with HAND and neurocognitively normal individuals. The HAND and neurocognitively normal groups did not differ with regard to demographic, histologic, neuropathologic, or virologic variables. HAND was associated with accelerated aging relative to neurocognitively normal individuals, with average relative acceleration of 3.5 years. Age acceleration did not correlate with pre-mortem neurocognitive functioning or HAND severity. This is the first study to demonstrate that the epigenetic age of occipital cortex samples is associated with HAND status in HIV+ individuals pre-mortem. While these results suggest that the increased risk of a neurocognitive disorder due to HIV might be mediated by an epigenetic aging mechanism, future studies will be needed to validate the findings and dissect causal relationships and downstream effects.


HIV infection has been transformed in less than 30 years from a typically fatal condition to a chronic disease patients can live with for decades. That longevity has HIV specialists scrambling to figure out how the virus affects the aging brain and how they will differentiate between the start of Alzheimer’s disease and cognitive issues associated with HIV infection...


BACKGROUND: The Veterans Aging Cohort Study (VACS) Index, a composite marker of disease severity among human immunodeficiency virus (HIV)-infected persons, has been associated with concurrent risk for neurocognitive impairment (NCI). The present study examined whether the VACS Index predicts longitudinal neurocognitive change. METHODS: Participants included 655 HIV-infected persons followed for up to 6 years in cohort studies at the University of California, San Diego, HIV Neurobehavioral Research Program (mean age at baseline, 42.5 years; 83% male; 60% white; AIDS in 67%; median current CD4(+) T-cell count, 346/μL; 61% receiving antiretroviral therapy). The VACS Index was calculated through standard methods. Participants completed a comprehensive neurocognitive battery. Neurocognitive status was plotted over time using demographically and practice-adjusted global and domain T scores. NCI was defined by global deficit scores derived from T scores. RESULTS: Baseline VACS Index scores were not predictive of changes in global T scores during the follow-up period (P = .14). However, in time-dependent analyses adjusting for covariates, higher VACS Index scores were significantly associated with worse global and domain neurocognitive performance (Ps < .01), as well as increased risk for developing NCI in a subgroup of persons who were neurocognitively normal at baseline (hazard ratio [HR], 1.17; P < .001). We categorized VACS Index scores by quartiles and found that the upper-quartile group was significantly more likely to develop NCI than the lower quartile (HR, 2.16; P < .01) and middle groups (HR, 1.76; P < .01). CONCLUSIONS: Changes in VACS Index scores correspond to changes in neurocognitive function. HIV-infected persons with high VACS Index scores are at increased risk for decline and incident NCI. The VACS Index shows promise as a tool for identifying HIV-infected persons at risk for NCI.


The Veterans Aging Cohort Study (VACS) Index was developed as a risk index for health outcomes in HIV, and it has been consistently associated with mortality. It shows a significant, yet relatively weak, association with neurocognitive impairment, and little is known about its utility among ethnic/racial minority groups. We examined whether the association between the VACS Index and neurocognition differed by ethnic/racial group. Participants included 674 HIV-infected individuals (369 non-Hispanic whites, 111 non-Hispanic blacks, and 194 Hispanics). Neurocognitive function was assessed via a comprehensive battery. Scaled scores for each neurocognitive test were averaged to calculate domain and global neurocognitive scores. Models adjusting
for demographics and HIV disease characteristics not included in the VACS Index showed that higher VACS Index scores (indicating poorer health) were significantly associated with worse global neurocognition among non-Hispanic whites. This association was comparable in non-Hispanic blacks, but nonsignificant among Hispanics (with similar results for English and Spanish speaking). We obtained comparable findings in analyses adjusting for other covariates (psychiatric and medical comorbidities and lifestyle factors). Analyses of individual neurocognitive domains showed similar results in learning and delayed recall. For other domains, there was an effect of the VACS Index and no significant interactions with race/ethnicity. Different components of the VACS Index were associated with global neurocognition by race/ethnicity. In conclusion, the association between the VACS Index and neurocognitive function differs by ethnic/racial group. Identifying key indicators of HIV-associated neurocognitive impairment by ethnic/racial group might play an important role in furthering our understanding of the biomarkers of neuroAIDS.


BACKGROUND: Chronic HIV infection commonly affects both cognition and mental health, even with excellent systemic viral control. The causes of compromised brain health are likely to be a multi-factorial combination of HIV-related biological factors, co-morbidities such as aging and cerebrovascular disease, and the erosion of coping skills, physical health, and social supports resulting from the strains of living with a chronic illness. METHODS/DESIGN: This study aims to provide a better understanding of the relationship between cognitive complaints, depression, and objectively measured cognitive impairment in HIV, and of the key factors, whether biological or personal, which relate to these presentations and to their evolution over time. Characterization of this heterogeneity will permit more focused pathophysiological studies, and allow more targeted interventions. The project makes extensive use of Web-based research and health care delivery tools, aiming to provide cost-effective, "clinic ready" tools to improve brain health in HIV. This project has two overarching aims, reflecting our dual goals of understanding and improving brain health in HIV, focusing on cognitive impairment, its contributors and consequences. The objectives are to contribute evidence for the validity of a brief brain health assessment, to estimate the extent to which HIV-related cognition-relevant clinical factors and patient-centered outcomes inter-relate and evolve over time, allowing identification of the mechanisms underpinning longitudinal change in brain health and to contribute evidence for the feasibility, effectiveness potential, acceptability, and underlying mechanisms of promising interventions for optimizing brain health. We adopt a cohort multiple randomized control trials design. A total of 900 participants will be characterized prospectively over a 27-month period to answer questions about the evolution of outcomes of interest. All participants will be offered basic brain health self-management information. Sub-groups will participate in pilot studies of specific, more intensive interventions to provide pragmatic evidence for feasibility, effectiveness, and comparative effectiveness. DISCUSSION: This work will provide needed estimates of the burden, heterogeneity, evolution, and mechanisms underlying compromised brain health in HIV, and test a range of promising non-pharmacological interventions. This is an on-going study; the trials nested within this cohort that are currently recruiting participants were registered on 7 October 2015 (Clinicaltrials.gov NCT02571504 and NCT02571595).


Progress in treatments has led to HIV+ patients getting older. Age and HIV are risk factors for neurocognitive impairment (NCI). We explored the role of cognitive reserve (CR) on cognition in a group of virologically suppressed older HIV+ people. We performed a multicenter study, consecutively enrolling asymptomatic HIV+ subjects >/=60 years old during routine outpatient visits. A comprehensive neuropsychological battery was administered. Raw test scores were adjusted based on Italian normative data and transformed into z-scores; NCI was defined according to Frascati criteria. All participants underwent the Brief Intelligence Test (TIB) and the Cognitive Reserve Index (CRI) questionnaire as proxies for CR. Relationships between TIB, CRI, and NCI were investigated by logistic or linear regression analyses. Sixty patients (85 % males, median age 66, median education 12, 10 % HCV co-infected, 25 % with past acquired immunodeficiency syndrome (AIDS)-defining events, median CD4 cells count 581 cells/μL, median nadir CD4 cells count 109 cells/μL) were enrolled. Twenty-four patients (40 %) showed Asymptomatic Neurocognitive Impairment. At logistic regression analysis, only CRI (OR 0.94; 95 % CI 0.91-0.97; P = 0.001) and TIB (OR 0.80; 95 % CI 0.71-0.90; P < 0.001) were associated with a lower risk of NCI. Higher CRI and TIB were significantly correlated with a better performance (composite z-score) both globally and at individual cognitive domains. Our findings highlight the role of CR over clinical variables in maintaining cognitive integrity in a virologically suppressed older HIV-infected population. A lifestyle characterized by experiences of mental stimulation may help to cope aging and HIV-related neurodegeneration.
BACKGROUND: Dyslipidemia and apolipoprotein E4 (APOE 4) allele are risk factors for age-related cognitive decline, but how these risks are modified by human immunodeficiency virus (HIV) infection is unclear. METHODS: In a longitudinal nested study from the Multicenter AIDS Cohort Study, 273 HIV type 1-infected (HIV(+)) men aged 50-65 years with baseline HIV RNA <400 copies/mL and on continuous antiretroviral therapy (ART) in >/=95% of follow-up visits were matched by sociodemographic variables to 516 HIV-uninfected (HIV(-)) controls. The association between lipid markers (total cholesterol, low-density lipoprotein cholesterol [LDL-C], high-density lipoprotein cholesterol [HDL-C], and triglycerides), APOE genotype, and cognitive decline in HIV infection was examined using mixed-effects models. RESULTS: The median baseline age of participants was 51, 81% were white, and 89% had education >12 years. HIV(+)* men had similar baseline total cholesterol and LDL-C, but lower HDL-C and higher triglycerides than controls (P < .001). Higher total cholesterol and LDL-C were associated with faster rates of cognitive decline (P < .01), whereas higher HDL-C attenuated decline (P = .02) in HIV(+)* men. In HIV(+)* men with elevated cholesterol, statin use was associated with a slower estimated rate of decline (P = .02). APOE 4 genotype accelerated cognitive decline in HIV(+)* but not HIV(-)* men (P = .01), with trajectories diverging from HIV(-) epsilon4 carriers after age 50. Total cholesterol levels did not modify the association of 4 genotype with decline (P = .9). CONCLUSIONS: Elevated cholesterol and APOE 4 genotype are independent risk factors for cognitive decline in ART-adherent HIV(+)* men aged >50 years. Treatment of dyslipidemia may be an effective strategy to reduce cognitive decline in older HIV(+)* individuals.


High rates of cognitive impairment persist in human immunodeficiency virus (HIV) infection, despite improved health outcomes and reduced mortality through widespread use of antiretroviral therapy (ART). Heavy alcohol use and cigarette smoking are potential contributors to neurocognitive impairment in people living with HIV (PLWH), yet few studies have examined their influence concurrently. Here we investigated the effects of self-reported alcohol use and smoking on learning, memory, processing speed, verbal fluency, and executive function in 124 HIV-positive men who have sex with men [age (mean +/- SD) = 42.8 +/- 10.4 years], engaged with medical care. All participants were heavy drinkers. Duration of HIV infection averaged 9.9 +/- 7.6 years, and 92.7% were on a stable ART regimen. Participants completed a neuropsychological battery and assessment of past 30-day substance use. Average number of drinks per drinking day (DPDD) was 5.6 +/- 3.5, and 33.1% of participants were daily smokers. Rates of neurocognitive impairment were the highest in learning (50.8%), executive function (41.9%), and memory (38.0%). Multiple regression models tested DPDD and smoking status as predictors of neurocognitive performance, controlling for age and premorbid intelligence. Smoking was significantly, negatively related to verbal learning (p = .046) and processing speed (p = .001). DPDD was a significant predictor of learning (p = .047) in a model that accounted for the interaction of DPDD and smoking status. As expected, premorbid intelligence significantly predicted all neurocognitive scores (ps < .01), and older age was associated with slower processing speed (ps < .01). In conclusion, smoking appears to be associated with neurocognitive functioning deficits in PLWH beyond the effects of heavy drinking, aging, and premorbid intelligence. Smoking cessation interventions have the potential to be an important target for improving functional outcomes in heavy drinking PLWH.


BACKGROUND: In spite of treatment advances, HIV infection is associated with cognitive deficits. This is even more important as many persons with HIV infection age and experience age-related cognitive impairments. Both computer-based cognitive training and transcranial direct current stimulation (tDCS) have shown promise as interventions to improve cognitive function. In this study, we investigate the acceptability and efficacy of cognitive training with and without tDCS in older persons with HIV.

PATIENTS AND METHODS: In this single-blind randomized study, participants were 14 individuals of whom 11 completed study procedures (mean age =51.5 years; nine men and two women) with HIV-related mild neurocognitive disorder. Participants completed a battery of neuropsychological and self-report measures and then six 20-minute cognitive training sessions while receiving either active or sham anodal tDCS over the left dorsolateral prefrontal cortex. After training, participants completed the same measures. Success of the blind and participant reactions were assessed during a final interview. Assessments were completed by an assessor blind to treatment assignment. Pre- and post-training changes were evaluated via analysis of covariance yielding estimates of effect size. RESULTS: All participants believed that they had been assigned to active treatment; none of the 11 believed that the intervention had improved their cognitive functioning. Both participants who felt the intervention was ineffective were assigned to the sham condition. None of the planned tested interactions of time with treatment was significant, but 12 of 13 favored tDCS (P=0.08). All participants indicated that they would participate in similar...
studies in the future. CONCLUSION: Results show that both cognitive training via computer game playing and tDCS were well accepted by older persons with HIV infection. Results are suggestive that tDCS may improve cognitive function in persons with HIV infection. Further study of tDCS as an intervention for HIV-related cognitive dysfunction is warranted.


Infrastructure for conducting neurological research in resource-limited settings (RLS) is limited. The lack of neurological and neuropsychological (NP) assessment and normative data needed for clinical interpretation impedes research and clinical care. Here, we report on ACTG 5271, which provided neurological training of clinical site personnel and collected neurocognitive normative comparison data in diverse settings. At ten sites in seven RLS countries, we provided training for NP assessments. We collected normative comparison data on HIV- participants from Brazil (n = 240), India (n = 480), Malawi (n = 481), Peru (n = 239), South Africa (480), Thailand (n = 240), and Zimbabwe (n = 240). Participants had a negative HIV test within 30 days before standardized NP exams were administered at baseline and 770 at 6 months. Participants were enrolled in eight strata, gender (female and male), education (<10 and >=10 years), and age (<35 and >=35 years). Of 2400 enrolled, 770 completed the 6-month follow-up. As expected, significant between-country differences were evident in all the neurocognitive test scores (p < 0.0001). There was variation between the age, gender, and education strata on the neurocognitive tests. Age and education were important variables for all tests; older participants had poorer performance, and those with higher education had better performance. Women had better performance on verbal learning/memory and speed of processing tests, while men performed better on motor tests. This study provides the necessary neurocognitive normative data needed to build infrastructure for future neurological and neurocognitive studies in diverse RLS. These normative data are a much-needed resource for both clinicians and researchers.


The potential role of gender in the occurrence of HIV-related neurocognitive impairment (NCI) and associations with markers of HIV-related immune activity has not been previously examined. In this study 149 antiretroviral-naive seropositive subjects in Nigeria (SP, 92 women and 57 men) and 58 seronegative (SN, 38 women and 20 men) were administered neuropsychological testing that assessed 7 ability domains. From the neuropsychological test scores was calculated a global deficit score (GDS), a measure of overall NCI. Percentages of circulating monocytes and plasma HIV RNA, soluble CD163 and soluble CD14 levels were also assessed. HIV SP women were found to be younger, more educated and had higher CD4+ T cell counts and borderline higher viral load measures than SP men. On the neuropsychological testing, SP women were more impaired in speed of information processing and verbal fluency and had a higher mean GDS than SN women. Compared to SP men, SP women were also more impaired in speed of information processing and verbal fluency as well as on tests of learning and memory. Numbers of circulating monocytes and plasma sCD14 and sCD163 levels were significantly higher for all SP versus all SN individuals and were also higher for SP women and for SP men versus their SN counterparts. Among SP women, soluble CD14 levels were slightly higher than for SP men, and SP women had higher viral load measurements and were more likely to have detectable virus than SP men. Higher sCD14 levels among SP women correlated with more severe global impairment, and higher viral load measurements correlated with higher monocyte numbers and sCD14 and sCD14 levels, associations that were not observed for SP men. These studies suggest that the risk of developing NCI differ for HIV infected women and men in Nigeria and, for women, may be linked to effects from higher plasma levels of HIV driving activation of circulating monocytes.


OBJECTIVE: The study aims to determine whether cystatin C is associated with HIV disease and HIV-associated neurocognitive impairment (NCI). METHODS: Participants included 124 (HIV+ n = 77; HIV- n = 47) older adults (age >=50 years) examined at the UCSD HIV Neurobehavioral Research Program. Cystatin C, a biomarker of kidney functioning that has been linked to poor health outcomes, was measured in blood. Participants completed a comprehensive neurocognitive assessment that was used to define both global and domain NCI. RESULTS: The HIV+ group had significantly higher cystatin C concentrations than the HIV- group (d=0.79 p<0.001). Among HIV+ participants, those with NCI had higher cystatin C concentrations than those without NCI (d=0.42, p=0.055), particularly among participants taking tenofovir (d=0.78, p=0.004). A receiver-operator characteristic curve identified that cystatin C levels >=0.75 mg/L were associated with NCI in the HIV+ group. Using this binary variable and including relevant covariates, multivariate modeling confirmed that NCI was associated with higher cystatin C levels (OR = 3.0; p = 0.03).
CONCLUSIONS: Our results confirm that HIV+ older adults have higher cystatin C than HIV- older adults and further identify that cystatin C may be associated with NCI in this population, particularly if they use tenofovir. This blood biomarker may be a useful clinical tool to identify older HIV+ persons at greater risk for cognitive decline.


OBJECTIVE: To evaluate the frequency of HIV-associated neurocognitive disorder (HAND) in HIV+ individuals and determine whether the frequency of HAND changed over 4 years of follow-up. METHODS: The Multicenter AIDS Cohort Study (MACS) is a prospective study of gay/bisexual men. Beginning in 2007, all MACS participants received a full neuropsychological test battery and functional assessments every 2 years to allow for HAND classification. RESULTS: The frequency of HAND for the 364 HIV+ individuals seen in 2007-2008 was 33% and for the 197 HIV+ individuals seen at all time periods during the 2007-2008, 2009-2010, and 2011-2012 periods were 25%, 25%, and 31%, respectively. The overall frequency of HAND increased from 2009-2010 to 2011-2012 (p = 0.048). Over the 4-year study, 77% of the 197 HIV+ individuals remained at their same stage, with 13% showing deterioration and 10% showing improvement in HAND stage. Hypercholesterolemia was associated with HAND progression. A diagnosis of asymptomatic neurocognitive impairment was associated with a 2-fold increased risk of symptomatic HAND compared to a diagnosis of normal cognition. CONCLUSION: HAND remains common in HIV+ individuals. However, for the majority of HIV+ individuals on combination antiretroviral therapy with systemic virologic suppression, the diagnosis of HAND is not a progressive condition over 4 years of follow-up. Future studies should evaluate longitudinal changes in HAND and specific neurocognitive domains over a longer time period.


BACKGROUND: Pharmacokinetics (PK) and pharmacodynamics of efavirenz and its 8-hydroxy metabolite (8-OH-efavirenz) have not been robustly evaluated in older HIV-infected persons. OBJECTIVES: We investigated relationships between neuropsychological (NP) performance and efavirenz and 8-OH-efavirenz PK in HIV-infected individuals >50 years of age. METHODS: A cross-sectional study of HIV-infected adults on an efavirenz-containing regimen. The 12 and 18 h post-dose plasma efavirenz and 8-OH-efavirenz were quantified. CYP2B6 polymorphisms were investigated. Participants underwent neuropsychological tests; surveys were used for depression, sleep quality and anxiety. We investigated potential correlations of efavirenz and 8-OH-efavirenz plasma concentrations with NP performance, sleep, depression, anxiety and CYP2B6 polymorphisms. RESULTS: Thirty participants (24 men and 6 women) with mean age 57 years (range 50-68). Plasma efavirenz concentrations did not correlate with NP performance; however, higher plasma 8-OH-efavirenz correlated with better learning (P = 0.002), language (P = 0.002) and total NP z-scores (P = 0.003). No correlation was seen for efavirenz or 8-OH-efavirenz with sleep, anxiety or depression. Median 12 and 18 h efavirenz plasma concentrations were 1967 ng/mL (IQR 1476-2394) and 1676 ng/mL (IQR 1120-2062), respectively. Median 12 and 18 h 8-OH-efavirenz plasma concentrations were 378 ng/mL (IQR 223-589) and 384 ng/mL (IQR 216-621), respectively. CYP2B6 G516T was associated with significantly higher plasma efavirenz at 12 and 18 h (P = 0.02) but not worse NP function. CONCLUSIONS: Better neurocognitive functioning was associated with higher 8-OH-efavirenz but not efavirenz plasma concentrations. No correlation was observed with sleep or depression. These findings point to a need for greater understanding of the metabolic profile of efavirenz and 8-OH-efavirenz in plasma and the CNS and relationships with antiviral effect and neurotoxicity.


OBJECTIVE: The spectrum of risk factors for HIV-associated cognitive impairment is likely very broad and includes not only HIV/antiretroviral therapy-specific factors but also other comorbid conditions. The purpose of this current study was to explore possible determinants for decreased cognitive performance. DESIGN AND METHODS: Neuropsychological assessment was
performed on 103 HIV-1-infected men with suppressed viraemia on combination antiretroviral therapy for at least 12 months and 74 HIV-uninfected highly similar male controls, all aged at least 45 years. Cognitive impairment and cognitive performance were determined by multivariate normative comparison (MNC). Determinants of decreased cognitive performance and cognitive impairment were investigated by linear and logistic regression analysis, respectively. RESULTS: Cognitive impairment as diagnosed by MNC was found in 17% of HIV-infected men. Determinants for decreased cognitive performance by MNC as a continuous variable included cannabis use, history of prior cardiovascular disease, impaired renal function, diabetes mellitus type 2, having an above normal waist-to-hip ratio, presence of depressive symptoms, and lower nadir CD4(+)* cell count. Determinants for cognitive impairment, as dichotomized by MNC, included cannabis use, prior cardiovascular disease, impaired renal function, and diabetes mellitus type 2. CONCLUSION: Decreased cognitive performance probably results from a multifactorial process, including not only HIV-associated factors, such as having experienced more severe immune deficiency, but also cardiovascular/metabolic factors, cannabis use, and depressive symptoms.


OBJECTIVE: Grip strength predicts functional decline and death, and is regarded as a biomarker of biological aging. The primary objective of this manuscript was to assess differences in the rate of decline in grip strength in persons aging with and without HIV. DESIGN: Grip strength was assessed in 1552 (716 HIV+ and 836 HIV-) men aged at least 50 years participating in the Multicenter AIDS Cohort Study between 2007 and 2014. METHODS: Grip strength decline was modeled longitudinally, adjusting for serostatus, demographics, comorbidities, and conditions. In HIV-specific models, coefficients were included for cumulative viral load and history of AIDS. RESULTS: Grip strength at the age of 50 years averaged 37.9 and 38.2 kg for HIV+ and HIV- men, respectively (P = 0.70). In fully adjusted models, grip strength declined 0.33 kg/year in HIV- men (P < 0.001) and 0.42 kg/year in HIV+ men (P = 0.01). In HIV-stratified models, higher cumulative viral load indicated greater strength decline (-0.884 kg for 3.1-4.0 log10 copies-years/ml and -1.077 kg for >/=4.1 log10 copies-years/ml) relative to men with consistently low viral load (</3.0 log10 copies-years/ml). Adjusted Cox proportional hazard models revealed a 70% greater risk of clinically weak grip strength in HIV+ men (adjusted hazard ratio 1.70; 95% confidence interval, 1.22-2.40). CONCLUSION: Grip strength decline is accelerated in HIV-infected men, which may contribute to decreased life expectancy and lower quality of life with aging. Greater cumulative viral load exposure appears to be an important driver of this decline and underscores the importance of early initiation of therapy.


BACKGROUND: Human immunodeficiency virus (HIV) infection and associated immune activation predict the risk of cardiovascular disease in resource-rich areas. Less is known about these relationships in sub-Saharan Africa. METHODS: Beginning in 2005, we enrolled subjects in southwestern Uganda into a cohort at the time of antiretroviral therapy (ART) initiation. Multiple immune activation measures were assessed before and 6 months after ART initiation. Beginning in 2013, participants aged >40 years underwent metabolic profiling, including measurement of hemoglobin A1c and lipid levels and carotid ultrasonography. We fit regression models to identify traditional and HIV-specific correlates of common carotid intima media thickness (CCIMT). RESULTS: A total of 105 participants completed carotid ultrasonography, with a median completion time of 7 years following ART initiation. Age, low-density lipoprotein cholesterol level, and pre-ART HIV load were correlated with CCIMT. No association was found between CCIMT and any pre-ART biomarkers of immune activation. However, in multivariable models adjusted for cardiovascular disease risk factors, lower absolute levels of soluble CD14 and interleukin 6 and greater declines in the CD14 level and kynurenine-tryptophan ratio after 6 months of ART predicted a lower CCIMT years later (P < .01). CONCLUSIONS: Persistent immune activation despite ART-mediated viral suppression predicts the future atherosclerotic burden among HIV-infected Ugandans. Future work should focus on clinical correlates of these relationships, to elucidate the long-term health priorities for HIV-infected people in the region.


BACKGROUND: Human immunodeficiency virus (HIV)-infected individuals are at high risk for ischemic stroke. To investigate the physiological basis for this risk, we used magnetic resonance imaging (MRI) to measure oxygen extraction fraction (OEF) and cerebral blood flow (CBF) in treatment-naive asymptomatic HIV-infected subjects and controls. METHODS: In treatment-naive asymptomatic HIV-infected subjects and age-, gender-, and race-matched controls, OEF was measured by MRI
asymmetric spin-echo echo-planar imaging sequences and CBF was measured by MRI pseudocontinuous arterial spin labeling. RESULTS: Twenty-six treatment-naive HIV-infected subjects and 27 age-, gender-, race-matched controls participated. Whole-brain, gray matter (GM), and white matter OEF were not different between the groups (all P > .70). Unexpectedly, HIV-infected subjects had significantly higher CBF in cortical GM (72.9 +/- 16.2 mL/100 g/min versus 63.9 +/- 9.9 mL/100 g/min; P = .01) but not in subcortical GM (P = .25). CONCLUSIONS: The observed increase in cortical GM CBF in treatment-naive HIV-infected subjects is unexpected, contrary to CBF decreases reported in HIV-infected subjects on treatment, and may represent an initial increase in metabolic activity due to an HIV-mediated inflammation.


OBJECTIVE: Cognitive impairment is highly prevalent in HIV-1-infected (HIV+) patients, despite adequate suppression of viral replication by combination antiretroviral therapy (cART). Cerebral white matter structure alterations are often associated with cognitive impairment and have commonly been reported in the natural course of HIV infection. However, the existence of these alterations in adequately treated HIV+ patients remains unknown, as well as its possible association with cognitive impairment. DESIGN: We used diffusion tensor imaging (DTI) to investigate whether white matter structure alterations exist in HIV+ patients with sustained suppressed viral replication on cART, and if such alterations are related to HIV-associated cognitive deficits. METHODS: We compared 100 aviraemic HIV+ men on cART with 70 HIV-uninfected, otherwise comparable men. Clinical and neuropsychological assessments were performed. From DTI data, white matter fractional anisotropy and mean diffusion were calculated. Subsequently, tract-based spatial statistics (TBSS) was performed, with and without masking out white matter lesions. RESULTS: HIV+ patients showed diffuse white matter structure alterations as compared with HIV-uninfected controls, observed as widespread decreased fractional anisotropy and an increased mean diffusion. These white matter structure alterations were associated with the number of years spent with a CD4 cell count below 500 cells/mul, but not with HIV-associated cognitive deficits. CONCLUSION: Cerebral white matter structure alterations are found in middle-aged HIV+ men with sustained suppression of viraemia on cART, and may result from periods with immune deficiency when viral toxicity and host-inflammatory responses were at their peak. These white matter structure alterations were not associated with the observed subtle HIV-associated cognitive deficits. VIDEO ABSTRACT:


BACKGROUND: Deficits in lexical retrieval, present in approximately 40% of HIV+ patients, are thought to reflect disruptions to frontal-striatal functions and may worsen with immunosuppression. Coupling frontal-striatal tasks such as lexical retrieval with functional neuroimaging may help delineate the pathophysiologic mechanisms underlying HIV-associated neurological dysfunction. OBJECTIVE: We examined whether HIV infection confers brain functional changes during lexical access and retrieval. It was expected that HIV+ individuals would demonstrate greater brain activity in frontal-subcortical regions despite minimal differences between groups on neuropsychological testing. Within the HIV+ sample, we examined associations between indices of immunosuppression (recent and nadir CD4+ count) and task-related signal change in frontostriatal structures. Method16 HIV+ participants and 12 HIV- controls underwent fMRI while engaged in phonemic/letter and semantic fluency tasks. Participants also completed standardized measures of verbal fluency RESULTS: HIV status groups performed similarly on phonemic and semantic fluency tasks prior to being scanned. fMRI results demonstrated activation differences during the phonemic fluency task as a function of HIV status, with HIV+ individuals demonstrating significantly greater activation in BG structures than HIV- individuals. There were no significant differences in frontal brain activation between HIV status groups during the phonemic fluency task, nor were there significant brain activation differences during the semantic fluency task. Within the HIV+ group, current CD4+ count, though not nadir, was positively correlated with increased activity in the inferior frontal gyrus and basal ganglia. CONCLUSION: During phonemic fluency performance, HIV+ patients recruit subcortical structures to a greater degree than HIV- controls despite similar task performances suggesting that fMRI may be sensitive to neurocompromise before overt cognitive declines can be detected. Among HIV+ individuals, reduced activity in the frontal-subcortical structures was associated with lower CD4+ count.
OBJECTIVES: While cognitive impairment is frequently reported in HIV-positive individuals and has historically been associated with poorer functional outcomes, the associations between cognitive impairment and patient-reported outcome measures (PROMs) in contemporary cohorts are unclear. METHODS: We tested cognitive function using a computerized battery (CogState) in 290 HIV-positive and 97 HIV-negative individuals aged >/= 50 years participating in the Pharmacokinetic and Clinical Observations in People Over Fifty (POPPY) study. Participants completed questionnaires detailing physical and mental health [Short Form Health Survey (SF-36)], cognitive function [European AIDS Clinical Society (EACS) questions], activities of daily living [Lawton Instrumental Activities of Daily Living (IADL)], depression [Patient Depression Questionnaire (PHQ-9) and Centres for Epidemiologic Studies Depression scale (CES-D)], falls and sexual desire. Cognitive impairment was defined using the Frascati criteria, global deficit score (GDS) and multivariate normative comparison (MNC). In the HIV-positive group, the classification performances of the different definitions of cognitive impairment and dichotomized questionnaire results were calculated. RESULTS: The prevalence of cognitive impairment in the HIV-positive group was 34.5% (GDS), 30.0% (Frascati) and 22.1% (MNC), with only 2% diagnosed with HIV-associated dementia. In general, the associations between cognitive impairment and PROMs were weak regardless of the definition used: mean c-statistics were 0.543 (GDS), 0.530 (MNC) and 0.519 (Frascati). Associations were similar using the global T-score to define cognitive impairment. Summary health scores (SF-36) were lower, but only significantly so for those with cognitive impairment identified using MNC, for both mental health (61.4 vs. 75.8; P = 0.03) and physical health (60.9 vs. 75.0; P = 0.03). CONCLUSIONS: The associations between cognitive impairment and PROMs were weak, possibly because impairment was mild and therefore largely asymptomatic. Further work is needed to elucidate the clinical implications of cognitive impairment in HIV disease.


Antiretroviral therapy has revolutionised the treatment for people living with HIV (PLWH). Where antiretroviral coverage is high, the treatment paradigm for HIV-disease is now one of managing the long-term consequences of the virus and its treatment rather than the consequences of untreated HIV-disease such as immunosuppression and opportunistic infections. One such long-term consequence is HIV-associated cognitive impairment which is reported to occur in up to 50 % of treated PLWH and has been associated with poorer outcomes. Given the ageing cohort and increased frequency of comorbidities, the prevalence of symptomatic cognitive impairment may increase with time. High quality evidence for management strategies including screening, diagnosis and treatment of HIV-associated cognitive impairment are lacking and in general guidelines are based on best clinical practice. In this article, we assessed recent guidelines concerning the management of HIV-associated cognitive impairment by performing a systematic review of the MEDLINE database using PubMed. We report that, in general, guidelines from around the world regarding the management of HIV-associated cognitive impairment are converging. Screening is generally not recommended in asymptomatic PLWH. Diagnosis of HIV-associated cognitive impairment should be made only after a comprehensive assessment and exclusion of other potential causes. Antiretroviral therapy forms the cornerstone of management of HIV-associated cognitive impairment and should be guided by plasma and cerebrospinal fluid (CSF) genotype(s).


OBJECTIVE: Because HIV impairs gut barriers to pathogens, HIV-infected adults may be vulnerable to minimal hepatic encephalopathy in the absence of cirrhosis. BACKGROUND: Cognitive disorders persist in up to one-half of people living with HIV despite access to combination antiretroviral therapy. Minimal hepatic encephalopathy occurs in cirrhotic patients with or without HIV infection and may be associated with inflammation. DESIGN/METHODS: A cross-sectional investigation of liver fibrosis severity using the aspartate aminotransferase to platelet ratio index (APRI) and neuropsychological testing performance among women from the Women’s Intergency HIV Study. A subset underwent liver transient elastography (FibroScan, n = 303). RESULTS: We evaluated 1479 women [mean (SD) age of 46 (9.3) years]: 770 (52%) only HIV infected, 73 (5%) only hepatitis C virus (HCV) infected, 235 (16%) HIV/HCV coinfected, and 401 (27%) uninfected. Of these, 1221 (83%) exhibited APRI </=0.5 (no or only mild fibrosis), 206 (14%) exhibited APRI >0.5 and </=1.5 (moderate fibrosis), and 52 (3%) exhibited APRI >1.5 (severe fibrosis). Having moderate or severe fibrosis (APRI >0.5) was associated with worse performance in learning, executive function, memory, psychomotor speed, fluency, and fine motor skills. In these models that adjusted for fibrosis, smaller associations were found for
HIV (learning and memory) and HCV (executive functioning and attention). The severity of fibrosis, measured by FibroScan, was associated with worse performance in attention, executive functioning, and fluency. CONCLUSIONS: Liver fibrosis had a contribution to cognitive performance independent of HCV and HIV; however, the pattern of neuropsychological deficit associated with fibrosis was not typical of minimal hepatic encephalopathy.


As individuals live longer with HIV, this "graying of the HIV epidemic" has introduced a new set of challenges including a growing number of age and inflammation-related diseases such as cardiovascular disease, type II diabetes, cancer, and dementia. The biological underpinnings of these complex and co-morbid diseases are not fully understood and become very difficult to disentangle in the context of HIV and aging. In the current review we examine the contributions and interactions of HIV, stress, and cognitive impairment and query the extent to which inflammation is the linchpin in these dynamic interactions. Given the inter-relatedness of stress, inflammatory mechanisms, HIV, and cognitive impairment, future work will either need to address multiple dimensions simultaneously or embrace the philosophy that breaking the aberrant cycle at any one point will subsequently remedy the other related systems and processes. Such a single-point intervention may be effective in early disease states, but after perpetuation of an aberrant cycle, adaptations in an attempt to internally resolve the issue will likely lead to the need for multifaceted interventions. Acknowledging that HIV, inflammation, and stress may interact with one another and collectively impact cognitive ability is an important step in fully understanding an individual’s complete clinical picture and moving towards personalized medicine.


OBJECTIVES: Deficits in cognitive function remain prevalent in HIV-infected individuals. The aim of this European multicentre study was to assess factors associated with cognitive function in antiretroviral therapy (ART)-naive HIV-infected subjects at the time of enrolment in the NEAT 001/Agence Nationale de Recherche sur le SIDA (ANRS) 143 study. METHODS: Prior to starting ART, seven cognitive tests exploring domains including episodic memory, verbal fluency, executive function and psychomotor speed were administered with scores standardized to z-score using the study population sample mean and standard deviation. The primary measure was overall z-score average (NPZ). We assessed associations between baseline factors and test results using multivariable regression models. RESULTS: Of 283 subjects with baseline cognitive assessments, 90% were male and 12% of black ethnicity. Median (interquartile range) age, years of education, years of known HIV infection, baseline CD4 count and baseline HIV RNA were 39 (31, 47) years, 13 (11, 17) years, 1 (0, 4) years, 344 (279, 410) cells/μL and 4.74 (4.28, 5.14) log10 HIV-1 RNA copies/mL, respectively. Forty per cent were current smokers. Factors significantly associated with poorer overall cognitive performance in multivariable models included older age, shorter duration of education, black ethnicity, lower height, and lower plasma HIV RNA. CONCLUSIONS: In this large, European-wide, ART-naive population with relatively preserved immunity and early HIV infection, cognitive function scores at the time of ART initiation were associated with demographic and HIV-disease factors.


Data from a cross-sectional study of a clinic-based sample of older people living with HIV (PLWH; n = 100) were used to examine associations between biomarkers of physical health and neurocognitive impairment (NCI). In this sample, anemia, chronic kidney disease (CKD) stages 4-5, and hypocalcemia were associated with impairment in executive functioning or processing speed. Furthermore, participants with anemia were more likely to have CD4+ T cell counts <200 cells/mm3 (chi2 [1] = 19.57, p < .001); hypocalcemia (chi2 [1] = 17.55, p < .001); and CKD 4-5 (chi2 [2] = 10.12, p = .006). Black and Hispanic participants were more likely to be anemic compared to other races and ethnicities (chi2 [3] = 12.76, p = .005). Common medical conditions (e.g., anemia, hypocalcemia, CKD) should be investigated as potential contributors to NCI in older PLWH. Additionally, laboratory testing in racial/ethnic minority PLWH may help inform NCI screening.

The adherence threshold for combination antiretroviral therapy (cART) has historically been set at 95% or greater. We examined whether different levels of cART adherence (>\(\geq\)95% [optimal adherence], 90-94%, 80-89%, and <80%) were associated with different clinical outcomes (emergency department visits [ED visits] and duration of hospital admission) in a sample of older (50-64 years) persons living with HIV (PLWH). Medicaid data from 29 US states (n = 5177) were used for this study. cART adherence was measured and data regarding relevant covariates, such as race, sex, age, urbanicity, and comorbidity were obtained. Descriptive statistics were conducted to characterize study participants. We conducted univariate and multivariable regression analyses to evaluate the association between cART adherence and ED visits and duration of hospital admission while adjusting for covariates (race, sex, age, urbanicity, and comorbidity). Approximately 32% of all participants (n = 5177) reported optimal cART adherence (>\(\geq\)95%). After adjusting for covariates, only participants who reported <80% adherence were more likely to have an ED visit (adjusted odds ratio = 1.34, 95% CI = 1.08-1.48, p < .0001) and a longer duration of hospital admission (regression coefficient = 1.24, 95% CI = 0.53-1.96, p = .0007) when compared to participants who reported >\(\geq\)95% adherence. There were no significant differences in likelihood of having an ED visit and longer duration of hospital admission between participants who reported >\(\geq\)95% adherence and participants who reported 90-94% adherence and 80-89% adherence. Significant differences by covariates were observed. Adverse clinical outcomes were associated with low cART adherence (<80%) among older PLWH, though they did not differ between optimal and moderate cART adherence (90-94% and 80-89%). Although optimal cART adherence is an important goal, clinical outcomes in older PLWH may not differ between moderate and optimal cART adherence.


Optimal adherence to combination antiretroviral therapy is essential to the health of older people living with HIV (PLWH), however, the literature on adherence and aging is limited. Using Medicaid data from 29 states (N = 5177), we explored correlates of optimal adherence among older PLWH. The prevalence of optimal adherence was low (32 %) in this study. Males were more adherent than females (APR = 1.11, 95% CI 1.02-1.21, P = 0.0127); persons with three or more co-morbidities (APR = 0.67, 95% CI 0.60-0.74, P < 0.001), two co-morbidities (APR = 0.86, 95% CI 0.75-0.98, P = 0.0319) and one co-morbidity (APR = 0.82, 95% CI 0.73-0.92, P = 0.0008) were less adherent than those without any co-morbidity; and residents of rural areas (APR = 0.90, 95% CI 0.63-0.98, P = 0.0385) and small metropolitan areas (APR = 0.82, 95% CI 0.72-0.94, P = 0.0032) were less adherent than residents of large metropolitan areas. There were no racial differences in optimal adherence. Targeted interventions that provide adherence support, case management, and peer navigation services may be of benefit in achieving optimal adherence in this population.


A one-dimensional analysis of LGBT aging has increased attention to LGBT elder needs. But many elders’ lives are shaped not just by being LGBT, but also by race, gender, and other social conditions. The time has come for an intersectional approach that takes into full account all of these life experiences. This approach will prove invaluable to practitioners committed to working effectively with vulnerable older adults. It also will fuel policy progress by supporting shared agendas and advocacy based on the intersecting interests of diverse elder communities.

PURPOSE: Interruptions in HIV care are a major cause of morbidity and mortality, particularly in resource-limited settings. We compared engagement in care and virologic outcomes between HIV-infected adolescents and young adults (AYA) and older adults (OA) one year after starting antiretroviral therapy (ART) in Nigeria. METHODS: We conducted a retrospective cohort study of AYA (15-24 years) and OA (>24 years) who initiated ART from 2009-2011. We used negative binomial regression to model the risk of inconsistent care and viremia (HIV RNA >1,000 copies/mL) among AYA and OA in the first year on ART. Regular care included monthly ART pickup and 3-monthly clinical visits. Patients with <3 months between consecutive visits were considered in care. Those with inconsistent care had >3 months between consecutive visits. RESULTS: The cohort included 354 AYA and 2,140 OA. More AYA than OA were female (89% vs. 65%, p < .001). Median baseline CD4 was 252/μL in AYA and 204/μL in OA (p = .002). More AYA had inconsistent care than OA (55% vs. 47%, p = .001). Adjusting for sex, baseline CD4, and education, AYA had a greater risk of inconsistent care than OA (Relative Risk [RR]: 1.15, p = .008). Among those in care after one year on ART, viremia was more common in AYA than OA (40% vs. 26% p = .003, RR: 1.53, p = .002). CONCLUSIONS: In a Nigerian cohort, AYA were at increased risk for inconsistent HIV care. Of patients remaining in care, youth was the only independent predictor of viremia at 1 year. Youth-friendly models of HIV care are needed to optimize health outcomes.


BACKGROUND: Accumulating evidence suggests responses to HIV that combine individual-level interventions with those that address structural or contextual factors that influence risks and health outcomes of infection. Housing occupies a strategic position as an intermediate structural factor, linking "upstream" economic, social, and cultural determinants to the more immediate physical and social environments in which everyday life is lived. The importance of housing status for HIV prevention and care has been recognized, but much of this attention has focused on homeless individuals as a special risk group. Analyses have less often addressed community housing availability and conditions as factors influencing population health or unstable, inadequate, or unaffordable housing as a situation or temporary state. A focus on individual-level characteristics associated with literal homelessness glosses over social, economic, and policy drivers operating largely outside any specific individual's control that affect housing and residential environments and the health resources or risk exposures such contexts provide. OBJECTIVES: We examined the available empirical evidence on the association between housing status (broadly defined), medical care, and health outcomes among people with HIV and analyzed results to inform future research, program development, and policy implementation. SEARCH METHODS: We searched 8 electronic health and social science databases from January 1, 1996, through March 31, 2014, using search terms related to housing, dwelling, and living arrangements and HIV and AIDS. We contacted experts for additional literature. SELECTION CRITERIA: We selected articles if they were quantitative analyses published in English, French, or Spanish that included at least 1 measure of housing status as an independent variable and at least 1 health status, health care, treatment adherence, or risk behavior outcome among people with HIV in high-income countries. We defined housing status to include consideration of material or social dimensions of housing adequacy, stability, and security of tenure. DATA COLLECTION AND ANALYSIS: Two independent reviewers performed data extraction and quality appraisal. We used the Cochrane Risk of Bias Tool for randomized controlled trials and a modified version of the Newcastle Ottawa Quality Appraisal Tool for nonintervention studies. In our quality appraisal, we focused on issues of quality for observational studies: appropriate methods for determining exposure and measuring outcomes and methods to control confounding. RESULTS: Searches yielded 5528 references from which we included 152 studies, representing 139,757 HIV-positive participants. Most studies were conducted in the United States and Canada. Studies examined access and utilization of HIV medical care, adherence to antiretroviral medications, HIV clinical outcomes, other health outcomes, emergency department and inpatient utilization, and sex and drug risk behaviors. With rare exceptions, across studies in all domains, worse housing status was independently associated with worse outcomes, controlling for a range of individual patient and care system characteristics. CONCLUSIONS: Lack of stable, secure, adequate housing is a significant barrier to consistent and appropriate HIV medical care, access and adherence to antiretroviral medications, sustained viral suppression, and risk of forward transmission. Studies that examined the history of homelessness or problematic housing years before outcome assessment were least likely to find negative outcomes, homelessness being a potentially modifiable contextual factor. Randomized controlled trials and observational studies indicate an independent effect of housing assistance on improved outcomes for formerly homeless or inadequately housed people with HIV. Housing challenges result from complex interactions between individual vulnerabilities and broader economic, political, and legal structural determinants of health. The broad structural processes sustaining social exclusion and inequality seem beyond the immediate reach of HIV interventions, but changing housing and residential environments is both possible and promising.

In this update, antiretroviral therapy (ART) is recommended for all patients infected by type 1 human immunodeficiency virus (HIV-1). The objective of ART is to achieve an undetectable plasma viral load (PVL). Initial ART should comprise 3 drugs, namely, 2 nucleoside reverse transcriptase inhibitors (NRTI), and 1 drug from another family. Four of the recommended regimens, all of which have an integrase strand transfer inhibitor (INSTI) as the third drug, are considered a preferred regimen; a further 6 regimens, which are based on an INSTI, a non-nucleoside reverse transcriptase inhibitor (NNRTI), or a protease inhibitor boosted with cobicistat or ritonavir (PI/COBI, PI/r), are considered alternatives. The reasons and criteria for switching ART are presented both for patients with an undetectable PVL and for patients who experience virological failure, in which case the rescue regimen should include 3 (or at least 2) drugs that are fully active against HIV. The specific criteria for ART in special situations (acute infection, HIV-2 infection, pregnancy) and comorbid conditions (tuberculosis and other opportunistic infections, kidney disease, liver disease, and cancer) are updated.


Intensive care unit (ICU) survival has been improved significantly for HIV-infected patients since the advent of antiretroviral therapy (ART). Non-AIDS conditions account for the majority of ICU admission diagnoses in areas with access to ART. However, opportunistic infections such as Pneumocystis jirovecii pneumonia still account for a significant proportion of ICU admissions, particularly in newly diagnosed HIV-infected patients, and are associated with increased ICU mortality. We discuss risk factors and outcomes for HIV-infected admitted to the ICU in the current ART era. We review the changing patterns in ICU admission diagnoses over time and how common ICU conditions are managed in HIV-infected compared with uninfected patients. We next address issues specific to the care for HIV-infected patients in the ICU, focusing on immune reconstitution inflammatory syndrome, ART continuation or initiation, and some common and potentially life-threatening ART-associated toxicities.


This cross-sectional study evaluates the prevalence and factors associated with sleep disturbances in French adult HIV-infected outpatients. Patients fullfilled a self-administered questionnaire on their health behavior, sleep attitudes (Pittsburgh sleep quality index, PSQI), quality of life and depression; 1354 patients were enrolled. Median sleeping time was 7 h. Poor sleep quality was observed in 47 % of the patients, and moderate to serious depressive symptoms in 19.7 %. Factors significantly associated with sleep disturbances were depression, male gender, active employment, living single, tobacco-smoking, duration of HIV infection, nevirapine or efavirenz-including regimen. Prevalence of poor sleepers is high in this HIV adult outpatient population. Associated factors seem poorly specific to HIV infection and more related to social and psychological status. Taking care of these disturbances may prove to be an effective health management strategy.


INTRODUCTION: Maps are powerful tools for visualization of differences in health indicators by geographical region, but multi-country maps of HIV indicators do not exist, perhaps due to lack of consistent data across countries. Our objective was to create maps of four HIV indicators in North, Central, and South American countries. METHODS: Using data from the North American AIDS Cohort Collaboration on Research and Design (NA-ACCORD) and the Caribbean, Central, and South America network for HIV epidemiology (CCASAnet), we mapped median CD4 at presentation for HIV clinical care, proportion retained in HIV primary care, proportion prescribed antiretroviral therapy (ART), and the proportion with suppressed plasma HIV viral load (VL) from 2010 to 2012 for North, Central, and South America. The 15 Canadian and US clinical cohorts and 7 clinical cohorts in Argentina, Brazil, Chile, Haiti, Honduras, Mexico, and Peru represented approximately 2-7% of persons known to be living with HIV in these countries. RESULTS: Study populations were selected for each indicator: median CD4 at presentation for care was estimated among 14,811 adults; retention was estimated among 87,979 adults; ART use was estimated among 84,757 adults; and suppressed VL was estimated among 51,118 adults. Only three US states and the District of Columbia had a median CD4 at presentation >350 cells/mm(3). Haiti, Mexico, and several states had >85% retention in care; lower (50-74%) retention in care was observed in the US West, South, and Mid-Atlantic, and in Argentina, Brazil, and Peru. ART use was highest (90%) in Mexico. The
percentages of patients with suppressed VL in the US South and Northeast were lower than in most of Central and South America. CONCLUSIONS: These maps provide visualization of gaps in the quality of HIV care and allow for comparison between and within countries as well as monitoring policy and programme goals within geographical boundaries.


PURPOSE OF REVIEW: Evidence-based strategies are needed to address the growing complexity of care of those ageing with HIV so that as life expectancy is extended, quality of life is also enhanced. RECENT FINDINGS: Modifiable contributing factors to the quantity and quality of life in adults ageing with HIV include: burden of harmful health behaviours, injury from HIV infection, HIV treatment toxicity and general burden of age-associated comorbidities. In turn, these factors contribute to geriatric syndromes including multimorbidity and polypharmacy, physiologic frailty, falls and frailty fractures and cognitive dysfunction, which further compromise the quality of life long before they lead to mortality. SUMMARY: Viral suppression of HIV with combination antiviral therapy has led to increasing longevity but has not enabled a complete return to health among ageing HIV-infected individuals (HIV+). As adults age with HIV, the role of HIV itself and associated inflammation, effects of exposure to antiretroviral agents, the high prevalence of modifiable risk factors for age-associated conditions (e.g. smoking), and the effects of other viral coinfections are all influencing the health trajectory of persons ageing with HIV. We must move from the simplistic notion of HIV becoming a 'chronic controllable illness' to understanding the continually evolving 'treated' history of HIV infection with the burden of age-associated conditions and geriatric syndromes in the context of an altered and ageing immune system.


OBJECTIVE: To describe trends in the prevalence of diabetes among hospitalized HIV-infected patients between 1997 and 2012 in Spain and compare them with those of age- and sex-matched non-HIV-infected patients. METHODS: The study was based on Spanish national hospital discharge data. We performed a retrospective study for the period 1997-2012. HIV infection (HIV-infected versus non-HIV-infected [control group])and calendar period in relation to widespread use of combination antiretroviral therapy (cART) (1997-1999; 2000-2003; 2004-2007 and 2008-2012), were the exposure variables The outcome variables were diagnosis of diabetes and in-hospital mortality (IHM). RESULTS: From 1997 to 2012, we identified 91,752 cases of diabetes: 15,398 in the HIV-infected group (403,277 hospital admissions) and 76,354 in the non-HIV-infected group (1,503,467 hospital admissions). Overall, HIV-infected patients had lower prevalence values for diabetes than non-HIV-infected patients throughout the follow-up (3.8% vs. 5.1%; p<0.001). The prevalence of diabetes increased 1.56-fold among non-HIV-infected patients and 4.2-fold among HIV-infected patients. The prevalence of diabetes in females was almost twice as high in HIV-infected patients as in non-HIV-infected patients during the last study period (4.72% vs. 2.88%; p<0.001). Diabetes showed a protective effect against IHM throughout the study period (aOR = 0.70; 95%CI, 0.65-0.75). CONCLUSIONS: During the cART era, the prevalence of diabetes has increased sharply among HIV-infected hospitalized patients compared with matched non-HIV-infected subjects. The prevalence of diabetes is rising very fast among HIV-infected women. Diabetes has a protective effect on IHM among HIV-infected patients. Nevertheless, our study has several limitations. No information is available in the database used on important sociodemographic characteristics and relevant clinical variables including duration of the HIV infection, treatments used, drug resistance, treatment adherence or CD4 count, among others. Also, it is possible that increase of diabetes prevalence could reflect the improvement in recording habits.


HIV-seropositive patients show high incidence of coronary heart disease and oxidative stress has been described as relevant key in atherosclerosis development. The aim of this study was to assess the effect of omega 3 fatty acids on different markers of oxidative stress in HIV-seropositive patients. We performed a randomized parallel controlled clinical trial in The Instituto Mexicano del Seguro Social, a public health hospital. 70 HIV-seropositive patients aged 20 to 55 on clinical score A1, A2, B1 or B2 receiving highly active antiretroviral therapy (HAART) were studied. They were randomly assigned to receive omega 3 fatty acids 2.4 g (Zonelabs, Marblehead MA) or placebo for 6 months. At baseline and at the end of the study, anthropometric measurements, lipid profile, glucose and stress oxidative levels [nitric oxide catabolites, lipoperoxides (malondialdehyde plus 4-hydroxalkenals), and glutathione] were evaluated. Principal HAART therapy was EFV/TDF/FTC (55%) and AZT/3TC/EFV (15%) without difference between groups. Treatment with omega 3 fatty acids as compared with placebo decreased triglycerides (-0.32 vs. 0.54 mmol/L; p = 0.04), but oxidative stress markers were not different between groups.

**PURPOSE:** To assess the agreement between self-reported and medical record data on HIV status and dates of first positive and last negative HIV tests. **METHODS:** Participants were recruited from patients attending Houston health clinics during 2012-2013. Self-reported data were collected using a questionnaire and compared with medical record data. Agreement of HIV status was assessed using kappa statistics and of HIV test dates using concordance correlation coefficient. The extent of difference between self-reported and medical record test dates was determined. **RESULTS:** Agreement between self-reported and medical record data was good on HIV status and date of first positive HIV test, but poor on date of last negative HIV test. About half of participants that self-reported never tested had HIV test results in medical records. Agreement varied by sex, race and/or ethnicity, and medical care facility. For HIV-positive persons, more self-reported first positive HIV test dates preceded medical record dates, with a median difference of 6 months. For HIV-negative persons, more medical record dates of last negative HIV test preceded self-reported dates, with a median difference of 2 months. **CONCLUSIONS:** Studies relying on self-reported HIV status other than HIV positive and self-reported date of last negative should consider including information from additional sources to validate the self-reported data.


Since the implementation of effective combination antiretroviral therapy, HIV infection has been transformed from a life-threatening condition into a chronic disease. As people with HIV are living longer, aging and its associated manifestations have become key priorities as part of HIV care. For women with HIV, menopause is an important part of aging to consider. Women currently represent more than one half of HIV-positive individuals worldwide. Given the vast proportion of women living with HIV who are, and will be, transitioning through age-related life events, the interaction between HIV infection and menopause must be addressed by clinicians and researchers. Menopause is a major clinical event that is universally experienced by women, but affects each individual woman uniquely. This transitional time in women's lives has various clinical implications including physical and psychological symptoms, and accelerated development and progression of other age-related comorbidities, particularly cardiovascular disease, neurocognitive dysfunction, and bone mineral disease; all of which are potentially heightened by HIV or its treatment. Furthermore, within the context of HIV, there are the additional considerations of HIV acquisition and transmission risk, progression of infection, changes in antiretroviral pharmacokinetics, response, and toxicities. These menopausal manifestations and complications must be managed concurrently with HIV, while keeping in mind the potential influence of menopause on the prognosis of HIV infection itself. This results in additional complexity for clinicians caring for women living with HIV, and highlights the shifting paradigm in HIV care that must accompany this aging and evolving population.


Many of the alterations that affect innate and adaptive immune cell compartments in HIV-infected patients are reminiscent of the process of immune aging, characteristic of old age. These alterations define the immunological age of individuals and are likely to participate to the decline of immune competence with HIV disease progression. It is therefore important to characterize these changes, which point toward the accumulation of highly differentiated immunocompetent cells, associated with overall telomere length shortening, as well as understanding their etiology, especially related to the impact of chronic immune activation. Particular attention should be given to the exhaustion of primary immune resources, including haematopoietic progenitors and naive cells, which holds the key for effective hematopoiesis and immune response induction, respectively. The alteration of these compartments during HIV infection certainly represents the foundation of the immune parallel with aging.


To characterize the clinical, virological, and immunological status at presentation as well as the outcome of patients diagnosed with HIV above the age of 50. A retrospective study of 418 patients newly diagnosed with HIV in 1 Israeli center, between the years 2004 and 2013. Patients with new HIV diagnosis >/= 50 years of age defined as 'older' and < 50 defined as...
"younger.' Patients were evaluated every 1 to 3 months (mean follow-up 53 +/- 33 months). Patients with < 2 CD4/viral-load measurements or with < 1 year of follow-up were excluded. Time of HIV infection was estimated by HIV sequence ambiguity assay. Ambiguity index </= 0.43 indicated recent (</= 1 year) HIV infection. Eighty nine (21%) patients were diagnosed with HIV at an older age. Those older patients presented with significant lower CD4 cell counts and higher viral-load compared with the younger patients. At the end of the study, the older patients had higher mortality rate (21% vs 3.5%; P < 0.001) and lower CD4 cell counts (381 +/- 228 vs 483 +/- 26 cells/muL; P < 0.001) compared with the younger patients. This difference was also observed between older and younger patients with similar CD4 cell counts and viral load at the time of HIV diagnosis and among patients with a recent (</= 1 year) HIV infection. One-fifth of HIV patients are diagnosed at older age (>/= 50 years). Those older patients have less favorable outcome compared with the younger patients. This point to the need of educational and screening programs within older populations and for a closer follow-up of older HIV patients.


OBJECTIVE: Measuring malnutrition in hospitalized patients is difficult in all settings. I evaluated associations of items in the mini nutritional assessment short-form (MNA-sf), a nutritional-risk screening tool previously validated in the elderly, with malnutrition among hospitalized patients in Uganda. I used results to construct two simplifications of this tool that may be applicable to young and middle-aged adults. METHODS: I assessed the association of each MNA-sf item with the mid-upper arm circumference (MUAC), a specific measure of malnutrition at appropriate cut-offs. I incorporated only malnutrition-specific items into the proposed simplifications scoring each item according to its association with malnutrition. I assessed numbers classified to different score-levels by the simplifications and, via proportional hazards regression, how the simplifications predicted in-hospital mortality. RESULTS: I analyzed 318 patients (median age 37, interquartile range 27 to 56). Variables making it into the simplifications were: reduced food intake, weight loss, mobility, and either BMI in kg/m(2) (categorized as <16, 16 to 16.9, and >/=17) or MUAC in centimeters (categorized as <16 or <17, 16 to 18.9 or 17 to 19.9, and >/=19 or >/=20 for females and males respectively). Compared to the traditional MNA-sf, the simplifications classified fewer patients as malnourished, yet remained strongly predictive of in-hospital mortality. In the MUAC-incorporating simplification, malnourished patients had 3.8-fold (95% CI 1.9 to 7.8) higher risk of in-hospital death than those not malnourished; adjusting for age, sex, and HIV status. CONCLUSION: The MNA-sf simplifications described may provide an improved measure of malnutrition in hospitalized young and middle-aged adults.


BACKGROUND: Gender-specific data on the management of HIV infection are scarce. Further an increase in the proportion of new HIV diagnoses in older persons has been observed. Using data from the CoRIS cohort, we compared immunovirological responses and survival in HIV-infected men and women who started their first combination antiretroviral therapy (cART) when aged </>/= 50 years. METHODS: We used multivariable logistic, linear and Cox regression, adjusting for potential confounders and including an interaction between age and sex, to assess differences in immunovirological responses and mortality, respectively. RESULTS: At 96 weeks, among subjects <50 years, women were less likely than men to achieve Virological Response (VR) (adjustedOR: 0.77, 95%CI:0.60;0.99) and among women, older were more likely to achieve VR than the younger ones (aOR: 1.96; 95%CI:1.15;3.34). Initiating cART at >/=50 years was associated with lower increases in CD4+ T-cell count both in men (-65.8; 95%CI:-91.3;-40.3) and women (-37.7; 95%CI:-79.7;4.4) and women showed higher increases than men in both subjects aged<50 (21.8; 95%CI:-1.9;45.5) and >/=50 years at cART initiation (49.9; 95%CI:19.9;79.9). A higher risk of death in men >/=50 was observed (aHR:2.69; 95%CI:1.73;4.21), but not in women (aHR:1.49; 95%CI:0.70;1.14). Women experienced lower mortality than men <50 (0.66; 95%CI:0.41;1.07) and in those >/=50 (0.37; 95%CI:0.14;0.93). CONCLUSIONS: Sex and age at cART initiation have a noticeable association with both virological and immunological responses and mortality. Aged >/=50 is associated with poorer immunological response and higher mortality but this effect is less pronounced in women than in men.


The National HIV/AIDS Strategy (NHAS) originally issued in 2010 targets the reduction of HIV-related health disparities. Hispanic men who have sex with men (MSM) have the third highest burden of incident HIV in the US, but there are no estimates of the unmet HIV service needs for Hispanic MSM. We estimate that of approximately 204,800 Hispanic MSM living with HIV, roughly 46,900 were undiagnosed. 157,900 were diagnosed, and of those, 75,700 were not linked to care and 82,200 were linked. Among diagnosed individuals, 48,800 had undetectable viral loads, and 109,100 had detectable viral loads. An estimated 30,000 of diagnosed Hispanic MSM engage in unprotected, serodiscordant risk behaviors. Total cost to meet service needs and achieve NHAS goals is $2.511 billion in 2011 US dollars. Transmission rate modeling suggests this investment would avert 3656 new HIV infections at an economically favorable cost of $61,202 per quality-adjusted life year saved.


Routine population-wide HIV screening, early linkage and long-term retention in healthcare for HIV-infected individuals are key nodes of the HIV continuum of care and are essential elements of the National HIV/AIDS Strategy. Despite this, up to 80% of youth are unaware of their HIV infection status and only 29% are linked to HIV healthcare; less than half are engaged in long-term HIV healthcare, and far fewer maintain viral suppression. To fill this gap and to address the national call to action to establish a seamless system for immediate linkage to continuous and coordinated quality healthcare after diagnosis, this paper describes the processes and mechanisms by which the SMILE Program worked within the infrastructure of the ATN-affiliated Connect to Protect(R) (C2P) community coalitions to address structural barriers that hindered youth in their communities from being tested for HIV infection or linked and engaged in healthcare after an HIV positive diagnosis.


In 1990, New York State instituted Comprehensive Medicaid Case Management, also known as Target Case Management (TCM), for people dealing with multiple comorbid conditions, including HIV. The goal of TCM is to assist clients in navigating the health care system to increase care engagement and treatment adherence for individuals with complex needs. HIV-positive individuals engaged in care are more likely to be virally suppressed, improving clinical outcomes and decreasing chances of HIV transmission. The purpose of this study was to understand the impact of TCM management on outcomes for people with HIV. Data were obtained from Amida Care, which operates not-for-profit managed care Medicaid and Medicare Special Needs Plans (SNPs) for HIV clients. Changes in clinical, cost, as well as medical and pharmacy utilization data among TCM clients were examined between January 2011 through September 2012 from the start of case management enrollment through the end of the study period (i.e., up to 6 months after disenrollment). Additionally, CD4 counts were compared between Amida Care TCM clients and non-TCM clients. Notable findings include increased CD4 counts for TCM clients over the one-year study period, achieving parity with non-TCM clients (i.e., Mean CD4 count > 500). When looking exclusively at TCM clients, there were increases in medication costs over time, which were concomitant with increased care engagement. Current findings demonstrate that TCM is able to achieve its goals of improving care engagement and treatment adherence. Subsequent policy changes resulting from the Affordable Care Act and the New York State Medicaid Redesign have made the Health Home the administrator of TCM services. Government entities charged with securing and managing TCM and care coordination for people with HIV should provide thoughtful and reasonable guidance and oversight in order to maintain optimal clinical outcomes for TCM clients and reduce the transmission of HIV.


BACKGROUND: To describe the development and the psychometric properties of the Istituto Superiore di Sanita-HIV symptoms scale (ISS-HIV symptoms scale). METHODS: The ISS-HIV symptom scale was developed by an Italian working team including researchers, physicians and people living with HIV. The development process went through the following steps: (1) review of HIV/AIDS literature; (2) focus group; (3) pre-test analysis; (4) scale validation. RESULTS: The 22 symptoms of HIV-ISS symptoms scale were clustered in five factors: pain/general discomfort (7 items); depression/anxiety (4 items); emotional reaction/psychological distress (5 items); gastrointestinal discomfort (4 items); sexual discomfort (2 items). The internal consistence reliability was for all factors within the minimum accepted standard of 0.70. CONCLUSIONS: The results of this study provide a preliminary evidence of the reliability and validity of the ISS-HIV symptoms scale. In the new era where HIV infection has been transformed into a chronic diseases and patients are experiencing a complex range of symptoms, the ISS-HIV symptoms scale may represent an useful tool for a comprehensive symptom assessment with the advantage of being easy to fill out by patients and potentially attractive to physicians mainly because it is easy to understand and requires short time to interpret the results.


There are an estimated 35 million people living with human immunodeficiency virus (HIV) globally, 19 million of whom are unaware of their HIV status and, in the absence of antiretroviral therapy (ART), will have a shortened life expectancy. Although ART remains the "gold standard" for treatment of HIV infection, the requirement for lifelong treatment poses multiple challenges for the patient. These include stigma, an untenable pill burden, side effects, and the threat of viral resistance in the case of non-compliance. This review evaluates the challenges of accessing, delivering, and sustaining ART for people living with HIV and will discuss the case for pursuing a goal of HIV cure, the potential benefits of such a cure for the individual patient, and the current potential candidates for such a cure.


BACKGROUND: The current syphilis epidemic among urban men who have sex with men (MSM) has serious implications for those co-infected with human immunodeficiency virus (HIV). Routine and frequent syphilis screening has the potential to ensure early detection and treatment, minimize disease burden, and help control the ongoing spread of syphilis and HIV. We aim to enhance syphilis screening among HIV-positive men by conducting a clinic-based intervention that incorporates opt-out syphilis testing into routine HIV laboratory evaluation for this population. Trial objectives are to determine the degree to which the intervention (1) increases the detection rate of untreated syphilis, (2) increases screening coverage, (3) increases screening frequency, and (4) reaches men at highest risk according to sexual behaviors. METHODS/DESIGN: The trial is a pragmatic, stepped wedge cluster-randomized controlled trial that introduces the intervention stepwise across four urban HIV clinics in Ontario, Canada. The intervention includes standing orders for syphilis serological testing whenever a male in HIV care undergoes HIV viral load testing, which typically occurs every 3-6 months. The control condition is the maintenance of current, provider-initiated syphilis testing practice. Approximately 3100 HIV-positive men will be followed over 30 months. Test results will be obtained from the centralized provincial laboratory in Ontario and will be supplemented by a standardized clinical worksheet and medical chart review at the clinics. Detailed clinical, psychosocial, and behavioral data is available for a subset of men receiving HIV care who are also participants of the province-wide Ontario HIV Treatment Network Cohort Study. Process evaluation plans include audit and feedback of compliance of the participating centers to identify potential barriers to the introduction of this type of practice into routine care. Health economic components include evaluation of the impact and cost-effectiveness of the intervention. DISCUSSION: This trial will be the first of its kind in Canada and will provide evidence regarding the feasibility, clinical effectiveness, and cost-effectiveness of a clinic-based intervention to improve syphilis screening among HIV-positive men. Involvement of knowledge users in all stages of trial design, conduct, and analysis will facilitate scale-up should the intervention be effective. TRIAL REGISTRATION: ClinicalTrials.gov NCT02019043.


This study evaluated how clinicians assess antiretroviral (ARV) adherence in clinical encounters, and which questions elicit accurate responses. We conducted conversation analysis of audio-recorded encounters between 34 providers and 58 patients reporting ARV non-adherence in post-encounter interviews. Among 42 visits where adherence status was unknown by providers, 4 providers did not discuss ARVs (10 %), 6 discussed ARVs but did not elicit non-adherence disclosure (14 %), and 32
discussed ARVs which prompted disclosure (76%). Questions were classified as: (1) clarification of medication ("Are you still taking the Combivir?"); (2) broad ("How's it going with your meds?"); (3) positively-framed ("Are you taking your medications regularly?"); (4) negatively-framed ("Have you missed any doses"). Clinicians asked 75 ARV-related questions: 23 clarification, 12 broad, 17 positively-framed, and 23 negatively-framed. Negatively-framed questions were 3.8 times more likely to elicit accurate disclosure than all other question types (p < 0.0001). Providers can improve disclosure probability by asking directly about missed doses.


OBJECTIVE: To illustrate an approach to compare CD4 cell count and HIV-RNA monitoring strategies in HIV-positive individuals on antiretroviral therapy (ART). DESIGN: Prospective studies of HIV-positive individuals in Europe and the USA in the HIV-CAUSAL Collaboration and The Center for AIDS Research Network of Integrated Clinical Systems. METHODS: Antiretroviral-naive individuals who initiated ART and became virologically suppressed within 12 months were followed from the date of suppression. We compared 3 CD4 cell count and HIV-RNA monitoring strategies: once every (1) 3 +/- 1 months, (2) 6 +/- 1 months, and (3) 9-12 +/- 1 months. We used inverse-probability weighted models to compare these strategies with respect to clinical, immunologic, and virologic outcomes. RESULTS: In 39,029 eligible individuals, there were 265 deaths and 690 AIDS-defining illnesses or deaths. Compared with the 3-month strategy, the mortality hazard ratios (95% CIs) were 0.86 (0.42 to 1.78) for the 6 months and 0.82 (0.46 to 1.47) for the 9-12 month strategy. The respective 18-month risk ratios (95% CIs) of virologic failure (RNA >200) were 0.74 (0.46 to 1.19) and 2.35 (1.56 to 3.54) and 18-month mean CD4 differences (95% CIs) were -5.3 (-18.6 to 7.9) and -31.7 (-52.0 to -11.3). The estimates for the 2-year risk of AIDS-defining illness or death were similar across strategies. CONCLUSIONS: Our findings suggest that monitoring frequency of virologically suppressed individuals can be decreased from every 3 months to every 6, 9, or 12 months with respect to clinical outcomes. Because effects of different monitoring strategies could take years to materialize, longer follow-up is needed to fully evaluate this question.


Background and objective We determined the prevalence and types of clinically significant drug–drug interactions (CSDI) in the drug regimens of HIV-infected patients receiving antiretroviral treatment.

Material and methods Design: retrospective review of database. Centre: Hospital Universitario Severo Ochoa, Infectious Unit. Participants: one hundred and forty-two patients followed by one of the authors were selected from January 1985 to December 2014. Data collection: from their outpatient medical records we reviewed information from the last available visit of the participants, in relation to HIV infection, comorbidities, demographics and the drugs that they were receiving; both antiretroviral drugs and drugs not related to HIV infection. We defined CSDI from the information sheet and/or database on antiretroviral drug interactions of the University of Liverpool (http://www.hiv-druginteractions.org) and we developed a diagnostic tool to predict the possibility of CSDI. By multivariate logistic regression analysis and by estimating the diagnostic performance curve obtained, we identified a quick tool to predict the existence of drug interactions.

Results Of 142 patients, 39 (29.11%) had some type of CSDI and in 11.2% 2 or more interactions were detected. In only one patient the combination of drugs was contraindicated (this patient was receiving darunavir/r and quetiapine). In multivariate analyses, predictors of CSDI were regimen type (PI or NNRTI) and the use of 3 or more non-antiretroviral drugs (AUC 0.886, 95% CI 0.828–0.944; P=.0001). The risk was 18.55 times in those receiving NNRTI and 27.95 times in those receiving IP compared to those taking raltegravir.

Conclusions Drug interactions, including those defined as clinically significant, are common in HIV-infected patients treated with antiretroviral drugs, and the risk is greater in IP-based regimens. Raltegravir-based prescribing, especially in patients who receive at least 3 non-HIV drugs could avoid interactions.

The sustainability of healthcare systems worldwide is threatened by the absolute and relative increase in the number of older persons. The traditional models of care (largely based on a disease-centered approach) are inadequate for a clinical world dominated by older individuals with multiple (chronic) comorbidities and mutually interacting syndromes. There is the need to shift the center of the medical intervention from the disease to the biological age of the individual. Thus, multiple medical specialties have started looking with some interest at concepts of geriatric medicine in order to better face the increased complexity (due to age-related conditions) of their average patient. In this scenario, special interest has been given to frailty, a condition characterized by the reduction of the individual’s homeostatic reserves and increased vulnerability to stressors. Frailty may indeed represent the fulcrum to lever for reshaping the healthcare systems in order to make them more responsive to new clinical needs. However, the dissemination of the frailty concept across medical specialties requires a parallel and careful consideration around the currently undervalued role of geriatricians in our daily practice.


OBJECTIVE: In Southeast Asia, subtypes B and CRF01_AE are the prevalent human immunodeficiency virus-1 (HIV-1) subtypes. This study examines the intersubtype differences in clinical indicators and psychiatric symptoms in a multiethnic sample. METHODS: The study site was a national HIV treatment center. Data were extracted from the Molecular Epidemiology Research study and the HIV-Psychiatry Integrated Mental Health Project, and analyzed according to groups defined by viral subtype. RESULTS: Of 177 subjects, 54.8% were infected with subtype CRF01_AE; 42.9% screened positive on the Hospital Anxiety and Depression Scale (HADS). The CRF01_AE group was significantly older (mean 38.29 years vs. 34.62 years, P=.031) and had advanced immunosuppression (CD4 <200) just prior to HADS screening (33.0% vs. 13.5%, P=.003). By multivariate logistic regression, homosexual transmission [odds ratio (OR) 0.388, 95% confidence interval (CI) 0.158-0.951, P=.038], subtype CRF01_AE (OR 2.898, 95% CI 1.199-7.001, P=.018) and positive HADS screening (OR 2.859, 95% CI 1.261-8.484, P=.012) were associated with advanced immunosuppression; and only advanced immunosuppression was associated with screening positive on the HADS (OR 3.270, 95% CI 1.299-8.227, P=.012). CONCLUSION: Subtype CRF01_AE is associated with advanced immunosuppression but not with symptoms of anxiety and depression. The results suggest that psychiatric symptoms are associated with advanced HIV disease regardless of subtype.


Problem: Chronic diseases (e.g., heart diseases, cancer, chronic lower respiratory disease, stroke, diabetes, and arthritis) and unintentional injuries are the leading causes of morbidity and mortality in the United States. Behavioral risk factors (e.g., tobacco use, poor diet, physical inactivity, excessive alcohol consumption, failure to use seat belts, and insufficient sleep) are linked to the leading causes of death. Modifying these behavioral risk factors and using preventive health services (e.g., cancer screenings and influenza and pneumococcal vaccination of adults aged ≥65 years) can substantially reduce morbidity and mortality in the U.S. population. Continuous monitoring of these health-risk behaviors, chronic conditions, and use of preventive services are essential to the development of health promotion strategies, intervention programs, and health policies at the state, city, and county level. Reporting Period: January-December 2012. Description of the System: The Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing, state-based, random-digit-dialed landline- and cellular-telephone survey of noninstitutionalized adults aged >18 years residing in the United States. BRFSS collects data on health-risk behaviors, chronic diseases and conditions, access, to health care, and use of preventive health services related to the leading causes of death and disability. This report presents results for all 50 states, the District of Columbia, participating U.S. territories that include the Commonwealth of Puerto Rico (Puerto Rico) and Guam, 187 Metropolitan/ Micropolitan Statistical Areas (MMSAs), and 210 counties (n = 475,687 survey respondents) for the year 2012. Results: In 2012, the estimated prevalence of health-risk behaviors, chronic diseases or conditions, access to health care, and use of preventive health services substantially varied by state and territory, MMSA, and county. The following portion of the abstract lists a summary of results by selected BRFSS measures. Each set of proportions refers to the range of estimated prevalence for health-risk behaviors, chronic diseases or conditions, and use of preventive health care services among geographical units, as reported by survey respondents. Adults with good or better health: 64.0%-88.3% for states and territories, 62.7%-90.5% for MMSAs, and 68.1%-92.4% for counties. Adults aged 18-64 years with health care coverage: 64.2%-93.1% for states and territories, 35.4%-93.7% for MMSAs, and 35.4%-96.7% for counties. Adults who received a routine physical checkup during the preceding 12 months: 55.7%-80.1% for states and territories, 50.6%-85.0% for MMSAs, and 52.4%-85.0% for counties. An influenza vaccination received during the preceding 12 months among adults aged >65 years: 26.3%-70.1% for states and territories, 20.8%-77.8% for MMSAs, and 24.1%-77.6% for counties. Ever received
pneumococcal vaccination among adults aged >65 years: 22.2%-76.2% for states and territories, 15.3%-83.4% for MMSAs, and 25.8%-85.2% for counties. Adults who had a dental visit in the past year: 53.7%-76.2% for states and territories, and 44.8%-81.7% for MMSAs and counties. Adults aged >65 years who have lost all of their natural teeth from tooth decay or gum disease: 7.0%-33.7% for states and territories, 5.8%-39.6% for MMSAs, and 5.8%-37.1% for counties. Adults aged 50-75 years who received a colorectal cancer screening on the basis of the U.S. Preventive Services Task Force recommendation: 40.0%-76.4% for states and territories, 47.1%-80.7% for MMSAs, and 47.0%-81.0% for counties. Women aged 21-65 years who had a Papanicolaou test during the preceding 3 years: 68.5% to 89.6% for states and territories, 70.3% to 92.8% for MMSAs, and 65.7%-94.6% for counties. Women aged 50-74 years who had a mammogram during the preceding 2 years: 66.5%-89.7% for states and territories, 61.1%-91.5% for MMSAs, and 61.8%-91.6% for counties. Current cigarette smoking among adults: 10.6%-28.3% for states and territories, 5.1%-30.1% for MMSAs, and 5.1%-28.3% for counties. Binge drinking among adults during the preceding month: 10.2%-25.2% for states and territories, 6.2%-28.1% for MMSAs, and 6.2%-29.5% for counties. Heavy drinking among adults during the preceding month: 3.5%-8.5% for states and territories, 2.0%-11.0% for MMSAs, and 1.9%-11.0% for counties. Adults who reported no leisure-time physical activity: 16.3%-42.4% for states and territories, 9.2%-47.3% for MMSAs, and 9.2%-39.0% for counties. Self-reported seat belt use: 62.0%-93.7% for states and territories, 54.1%-97.1% for MMSAs, and 50.1%-97.4% for counties. Adults who were obese: 20.5%-34.7% for states and territories, 14.8%-44.5% for MMSAs and counties. Adults with diagnosed diabetes: 7.0%-16.4% for states and territories, 3.4%-17.4% for MMSAs, and 3.1%-17.4% for counties. Adults who ever had any type of cancer: 3.0%-13.7% for states and territories, 3.8%-19.2% for MMSAs, and 4.5%-19.2% for counties. Adults with current asthma: 5.8%-11.1% for states and territories, 3.1%-15.0% for MMSAs, and 3.1%-15.7% for counties. Adults with some form of arthritis: 15.6%-36.4% for states and territories, 16.8%-45.8% for MMSAs, and 14.8%-35.9% for counties. Adults having had a depressive disorder: 9.0%-23.5% for states and territories, 9.2%-28.3% for MMSAs, and 8.5%-28.4% for counties. Adults aged >45 years who have had coronary heart disease: 7.4%-19.0% for states and territories, 6.1%-23.3% for MMSAs, and 6.1%-20.6% for counties. Adults aged >45 years who have had a stroke: 3.1%-7.3% for states and territories, 2.1%-9.3% for MMSAs, and 1.5%-9.3% for counties. Adults with limited activities because of physical, mental, or emotional problems: 15.0%-28.6% for states and territories, 12.0%-31.7% for MMSAs, and 11.3%-31.7% for counties. Adults using special equipment because of any health problem: 4.8%-11.6% for states and territories, 4.0%-14.7% for MMSAs, and 2.8%-13.6% for counties. Interpretation: This report underscores the need for continuous surveillance of health-risk behaviors, chronic diseases or conditions, health care access, and use of preventive care services at state and local levels. It will help to identify high-risk populations and to evaluate public health intervention programs and policies designed to reduce morbidity and mortality from chronic disease and injury. Public Health Action: State and local health departments and agencies can continue to use BRFSS data to identify populations at high risk for unhealthy behaviors and chronic diseases or conditions, lack of health care access, and inadequate use of preventive care services. Additionally, states can use the data to design, implement, monitor, and evaluate public health programs and policies at state and local levels.


Current antiviral treatments can reduce HIV-associated morbidity, prolong survival, and prevent HIV transmission. Combination antiretroviral therapy (cART) containing preferably three active drugs from two or more classes is required for durable virologic suppression. Regimen selection is based on virologic efficacy, potential for adverse effects, pill burden and dosing frequency, drug-drug interaction potential, resistance test results, comorbid conditions, social status, and cost. With prolonged virologic suppression, improved clinical outcomes, and longer survival, patients will be exposed to antiretroviral agents for decades. Therefore, maximizing the safety and tolerability of cART is a high priority. Emergence of resistance and/or lack of tolerability in individual patients require availability of a range of treatment options. Development of new drugs is focused on improving safety (e.g. tenofovir alafenamide) and/or resistance profile (e.g. doravirine) within the existing drug classes, combination therapies with improved adherences (e.g. single-tablet regimens), novel mechanisms of action (e.g. attachment inhibitors, maturation inhibitors, broadly neutralizing antibodies), and treatment simplification with infrequent dosing (e.g. long-acting injectables). In parallel with cART innovations, research and development efforts focused on agents that target persistent HIV reservoirs may lead to prolonged drug-free remission and HIV cure.


OBJECTIVE: To examine personal characteristics, disease-related impairment variables, activity limitations, and environmental factors as correlates of social participation in older adults with vision loss guided by the World Health Organization’s International Classification of Functioning, Disability and Health Model. DESIGN: Baseline data of a larger longitudinal study. SETTING: Community-based vision rehabilitation agency. SUBJECTS: A total of 364 older adults with significant
vision impairment due to age-related macular degeneration. MAIN MEASURES: In-person interviews assessing social participation (i.e. frequency of social support contacts, social/leisure challenges faced due to vision loss, and of social support provided to others) and hypothesized correlates (e.g. visual acuity test, Functional Vision Screening Questionnaire, ratings of attachment to house and neighborhood, environmental modifications in home). RESULTS: Regression analyses showed that indicators of physical, social, and mental functioning (e.g. better visual function, fewer difficulties with instrumental activities of daily living, fewer depressive symptoms) were positively related to social participation indicators (greater social contacts, less challenges in social/leisure domains, and providing more support to others). Environmental factors also emerged as independent correlates of social participation indicators when functional variables were controlled. That is, participants reporting higher attachment to their neighborhood and better income adequacy reported having more social contacts; and those implementing more environmental strategies were more likely to report greater challenges in social and leisure domains. Better income adequacy and living with more people were related to providing more social support to others. CONCLUSION: Environmental variables may play a role in the social participation of older adults with age-related macular degeneration.


To move society toward an AIDS-free generation, behavioral interventions for prevention and treatment of HIV/AIDS must be not only effective, but also cost-effective, efficient, and readily scalable. The purpose of this article is to introduce to the HIV/AIDS research community the multiphase optimization strategy (MOST), a new methodological framework inspired by engineering principles and designed to develop behavioral interventions that have these important characteristics. Many behavioral interventions comprise multiple components. In MOST, randomized experimentation is conducted to assess the individual performance of each intervention component, and whether its presence/absence/setting has an impact on the performance of other components. This information is used to engineer an intervention that meets a specific optimization criterion, defined a priori in terms of effectiveness, cost, cost-effectiveness, and/or scalability. MOST will enable intervention science to develop a coherent knowledge base about what works and does not work. Ultimately this will improve behavioral interventions systematically and incrementally.


This mixed methods study used an explanatory sequential design to examine the relationship between attachment and sexual behavior among young Black gay and bisexual men (YBGBM). Cross sectional online surveys and sex diaries were completed by a sample of YBGBM in New York City (n = 153) to assess the association between adult attachment insecurity and sexual risk behavior. The Experiences in Close Relationships Scale-Revised (ECR-R) was used to assess three types of adult attachment (i.e., secure, anxious, and avoidant). Participants reported condomless sex encounters, as well as serodiscordant condomless anal sex encounters, as measures of sexual risk. Quantitative findings suggested that there were few associations between attachment type and sexual risk behavior; only men with attachment avoidance were likely to engage in condomless sex. However, qualitative findings illuminated some of the social complexities of the association between attachment in childhood, attachment in young adulthood and intimate partnerships, which could be linked to young adult sexual risk behavior. The study findings highlight the need for researchers to further examine the process by which individual differences in attachment orientation are related to YBGBM's sexual behavior.


INTRODUCTION: HIV controllers (HICs) experience relatively low-level viraemia and CD4 preservation without antiretroviral therapy (ART), but also immune activation that may predispose to adverse clinical events such as cardiovascular disease and hospitalization. The objective of this study was to characterize the rates and reasons for hospitalization among HICs and persons with medically controlled HIV. METHODS: Subjects with consistently well-controlled HIV were identified in the U.S. Military HIV Natural History Study. ART prescription and HIV-1 RNA data were used to categorize subjects as HICs or medically controlled as defined by ≥ 3 HIV-1 RNA measurements ≤ 2000 or ≤ 400 copies/mL, respectively, representing the majority of measurements spanning ≥ 12 months. Hospitalizations were tallied and assigned diagnostic categories. All-cause hospitalization rates were compared between groups using negative binomial regression. RESULTS AND DISCUSSION: Of 3106 subjects followed from 2000 to 2013, 221 were HICs, including 33 elite (1.1%) and 188 viraemic (6.0%) controllers, who contributed 882 person-years (PY) of observation time. An additional 870 subjects with medically controlled HIV contributed 4217 PY. Mean hospitalization rates were 9.4/100 PY among HICs and 8.8/100 PY among medically controlled subjects. Non-AIDS-defining infections were the most common reason for hospitalization (2.95/100 PY and 2.70/100 PY, respectively) and rates of cardiovascular hospitalization were similar in both groups (0.45/100 PY and 0.76/100 PY). There was no difference in hospitalization rate for HICs compared with subjects with medically controlled HIV (adjusted incidence rate ratio 1.15 [95% confidence interval 0.80 to 1.65]). CONCLUSIONS: All-cause and cardiovascular hospitalization rates did not differ between HICs and persons with medically controlled HIV. Non-AIDS defining infections were common in this young, healthy, predominantly male cohort of military personnel and beneficiaries.


INTRODUCTION: The effect of clinical interventions can differ because of sex/gender. Studies have shown that women are often under-represented in medical research. The aim of this systematic literature review was to characterize women's participation in HIV clinical studies of antiretroviral drugs (ARV), prophylactic vaccines (VAX), and curative strategies (CURE). METHODS: Systematic PubMed searches were conducted to identify ARV, VAX, and CURE studies. Data were extracted on the number of women, date of publication, sources of funding, country of study, and trial phase. Correlates of female participation were assessed. RESULTS: Women represented a median of 19.2% participants in ARV studies (387), 38.1% in VAX studies (53), and 11.1% in CURE studies (104). Funding source was not correlated with the proportion of female participants in VAX and CURE studies but was for ARV studies (P = 0.03). ARV trials funded by private noncommercial sources had the highest proportion of women, whereas publicly funded trials had the lowest female participation (median 16.7%). The median proportion of women in ARV trials that were fully or partially funded by the National Institutes of Health was significantly lower than the median in trials funded by other sources (19.6% vs. 22.3%, P = 0.001). CONCLUSIONS: Although women comprise nearly half of people living with HIV, they continue to be under-represented in clinical studies. Despite federal policies that have been established to address this, our study shows that publicly funded ARV trials recruit even fewer women than other trials. There is an urgent need to ensure that HIV clinical studies consider sex/gender dimensions.


Despite the combined antiretroviral therapy has improved the length and quality of life of HIV infected patients, the survival of these patients is always decreased compared with the general population. This is the consequence of non-infectious illnesses including cardiovascular diseases. In fact large studies have indicated an increased risk of coronary atherosclerotic disease, myocardial infarction even in HIV patients on cART. In HIV infected patients several factors may contribute to the pathogenesis of cardiovascular problems: life-style, metabolic parameters, genetic predisposition, viral factors, immune activation, chronic inflammation and side effects of antiretroviral therapy. The same factors may also contribute to complicate the clinical management of these patients. Therefore, treatment of these non-infectious illnesses in HIV infected population is an emerging challenge for physicians. The purpose of this review is to focus on the new insights in non AIDS-related cardiovascular diseases in patients with suppressed HIV viremia.

OBJECTIVE: To evaluate the prevalence of anal cytology (ACyt) abnormalities among HIV-infected and HIV-uninfected men who have sex with men (MSM). DESIGN: Multicenter cohort study of 723 HIV-infected and 788 HIV-uninfected MSM with ACyt, with a second ACyt collected 2 years later. A referral for high-resolution anoscopy was suggested for abnormal ACyt.

METHODS: ACyt samples were collected using a polyester swab and liquid cytology media and read in a central laboratory.

RESULTS: Prevalence of any abnormal ACyt was 25% in HIV-uninfected MSM and increased to 38%, 41%, and 47% among HIV-infected MSM with current CD4 T-cell counts >/=500, 350-499, and <350 cells/mm (P < 0.001), respectively. Anal HPV16 DNA was also more common in HIV-infected than HIV-uninfected MSM (25% versus 16%, P < 0.001). Abnormal baseline ACyt together with prevalent HPV16 DNA detection was present in only 7% of HIV-uninfected MSM compared to 18% of HIV-infected MSM with current CD4 < 350, P < 0.001. Among HIV-infected men, 56% of the men with atypical squamous cells of undetermined significance or low-grade squamous intraepithelial lesions ASCs-US/LSILs and 81% of men with atypical squamous cells cannot exclude high-grade (ASC-H)/high-grade squamous intraepithelial lesions (HSIL) had lower grade ACyt findings 18-30 months later ("regressed"). However, 19% of untreated HIV-infected men with ASC-H/HSIL cytology maintained that same grade of cytology in their second test approximately 2 years later, and 15% with ASC-US/LSIL "progressed" to ASC-H/HSIL. Abnormal ACyt had high sensitivity (96%) but low specificity (17%) for biopsy-proven HSIL.

CONCLUSIONS: Prevalence of abnormal ACyt remains elevated in HIV-infected men during the current antiretroviral therapy era.


BACKGROUND: Neighborhood disorder, signs of physical and social disorganization, has been related to a range of poor mental and physical health outcomes. Although individual factors have been widely associated with getting a mammogram, little is known about the impact of the neighborhood environment on a woman's decision to get a mammogram. METHODS: In a sample of women at risk for human immunodeficiency virus and sexually transmitted infections, we explored the role of perceptions of one's neighborhood on getting a mammogram. The study included two samples: women 40 to 49 years (n = 233) and women 50 years and older (n = 83). Data were collected from May 2006 through June 2008. RESULTS: Women age 50 years and older who lived in a neighborhood with disorder were 72% less likely to get a mammogram compared with women who lived in neighborhoods without disorder. There was no relationship for women age 40 to 49 years. CONCLUSIONS: Interventions are needed to increase awareness and encourage women living in neighborhoods with disorder to get a mammogram. In addition to interventions to increase mammography, programs are needed to decrease neighborhood disorder. Increasing neighborhood cohesion, social control, and empowerment could integrate health promotion programs to both reduce disorder and increase health behaviors.


PURPOSE: To explore primary care providers' HIV prevention practices for older adults. Primary care providers' perceptions and awareness were explored to understand factors that affect their provision of HIV prevention materials and HIV screening for older adults. DESIGN AND METHOD: Data were collected through 24 semistructured interviews with primary care providers (i.e., physicians, physician assistants, and nurse practitioners) who see patients older than 50 years. RESULTS: Results reveal facilitators and barriers of HIV prevention for older adults among primary care providers and understanding of providers' HIV prevention practices and behaviors. Individual, patient, institutional, and societal factors influenced HIV prevention practices among participants, for example, provider training and work experience, lack of time, discomfort in discussing HIV/AIDS with older adults, stigma, and ageism were contributing factors. Furthermore, factors specific to primary and secondary HIV prevention were identified, for instance, the presence of sexually transmitted infections influenced providers' secondary prevention practices. IMPLICATIONS: HIV disease, while preventable, is increasing among older adults. These findings inform future research and interventions aimed at increasing HIV prevention practices in primary care settings for patients older than 50.
The purpose of this research was to explore primary care providers' willingness and ability to increase HIV prevention efforts among older adults and to gain recommendations for improving HIV prevention in primary care settings. Data were collected through 24 semistructured interviews with primary care providers. The results of the study reveal that the majority of providers find it necessary to increase HIV prevention efforts in primary care settings and are willing to do so; however, they cannot do so without assistance. Providers suggested strategies to increase HIV prevention in primary care, for instance, expanding the use of electronic reminders to include HIV prevention and increasing collaboration among providers of different specialties. As a result of the interviews, additional recommendations for increasing HIV prevention have been identified. These findings will aid in improving the quality of care provided to individuals older than 50 in primary care settings.


Health literacy is important for access to and quality of HIV care. While most models of health literacy acknowledge the importance of the patient-provider relationship to disease management, a more nuanced understanding of this relationship is needed. Thematic analysis from 28 focus groups with HIV-experienced patients (n = 135) and providers (n = 71) identified a long-term and trusting relationship as an essential part of HIV treatment over the continuum of HIV care. We found that trust and relationship building over time were important for patients with HIV as well as for their providers. An expanded definition of health literacy that includes gaining a patient's trust and engaging in a process of health education and information sharing over time could improve HIV care. Expanding clinical perspectives to include trust and the importance of the patient-provider relationship to a shared understanding of health literacy may improve patient experiences and engagement in care.


INTRODUCTION: In 2010, the AIDS Study Group (Grupo de Estudio del SIDA [GESIDA]) developed 66 quality care indicators. The aim of this study is to determine which of these indicators are associated with mortality and hospital admission, and to perform a preliminary assessment of a prediction rule for mortality and hospital admission in patients on treatment and follow-up. METHODS: A retrospective cohort study was conducted in the Hospital Universitario Son Espases (Palma de Mallorca, Spain). Eligible participants were patients with human immunodeficiency syndrome >/=18 years old who began follow-up in the Infectious Disease Section between 1 January 2000 and 31 December 2012. A descriptive analysis was performed to evaluate anthropometric variables, and a logistic regression analysis to assess the association between GESIDA indicators and mortality/admission. The mortality probability model was built using logistic regression. RESULTS: A total of 1,944 adults were eligible (median age: 37 years old, 78.8% male). In the univariate analysis, the quality of care indicators associated with mortality in the follow-up patient group were the items 7, 16 and 20, and in the group of patients on treatment were 7, 16, 20, 35, and 38. The quality of care indicators associated with hospital admissions in the follow-up patients group were the same as those in the mortality analysis, plus number 31. In the treatment group the associated quality of care indicators were items 7, 16, 20, 35, 38, and 40. CONCLUSIONS: Some GeSIDA quality of care indicators were associated with mortality and/or hospital admissions. These indicators are associated with delayed diagnosis, regular monitoring, prevention of infections, and control of comorbidities.


Ageism, in the form of prejudice, stereotyping, and discrimination targeting older adults, represents a barrier to addressing the graying of the HIV epidemic. There is widespread misperception on the part of older adults themselves, as well as service providers and society in general that HIV risk is low as one ages. In addition, internalized ageism may play a role in poorer physical and mental health outcomes, as the negative stereotypes associated with aging become a self-fulfilling prophecy. A number of steps can be taken to address HIV and aging in the context of ageism with regard to: prevention, education, and outreach; treatment guidelines for older adults with HIV; funding to address the aging of the epidemic; engagement of communities, health and social service organizations, and other providers around mental health and social support, and addressing the needs of special populations. Caring for an aging population with HIV represents a challenge, which is exacerbated in low and/or middle-income countries that typically lack the infrastructure of high resource settings. How we address the aging-related issues of the HIV epidemic across regions and settings could serve as a model in dealing with aging in our society in general regardless of HIV status.
OBJECTIVES: To access the costs of care for Ivorian children before and after initiating LPV/r-based antiretroviral therapy (ART) before the age of two. METHODS: We assessed the direct costs of care for all HIV-infected children over the first 12 months on LPV/r-based ART initiated <2 years of age in Abidjan. We recorded all drug prescriptions, ART and cotrimoxazole prophylaxis delivery, medical analyses/examinations and hospital admissions. We compared these costs to those accrued in the month prior to ART initiation. Costs and 95% confidence intervals (95%CI) were estimated per child-month, according to severe morbidity. RESULTS: Of the 114 children screened, 99 initiated LPV/r-based ART at a median age of 13.5 months (IQR: 6.8-18.6); 45% had reached World Health Organization stage 3 or 4. During the first 12 months on ART, 5% died and 3% were lost to follow-up. In the month before ART initiation, the mean cost of care per child-month reached $123.39 (95%CI:$121.02-$125.74). After ART initiation, it was $42.53 (95%CI:$42.15-$42.91); 50% were ART costs. The remaining costs were non-antiretroviral drugs (18%) and medical analyses/examinations (14%). Mean costs were significantly higher within the first three months on ART ($48.76, 95%CI:$47.95-$49.56) and in children experiencing severe morbidity ($49.76, 95%CI:$48.61-50.90). CONCLUSION: ART reduces the overall monthly cost of care of HIV-infected children < 2 years. Because children were treated at an advanced HIV disease stage, the additional costs of treating severe morbidity on ART remain substantial. Strategies for treating HIV-infected children as early as possible must remain a priority in Cote d'Ivoire.


A San Francisco study conducted in 2008 showed that the permanent supportive housing program, Direct Access to Housing, dramatically decreased the risk of death in people living with HIV. In our study, we compared the health care utilization patterns and HIV-related biological markers of formerly homeless adults with HIV before and during two types of permanent supportive housing: (a) housing with on-site nursing care for residents, and (b) housing without on-site nursing care. Using nearest-neighbor matching with propensity scoring, the difference in outcomes was calculated. In the matched analysis, adjusted for adherence to combination antiretroviral therapy, people housed at sites with nurses had 4.8 fewer emergency department visits per person (SE: 1.53, p < .01), and they had an increased mean CD4+ T cell count (101.14 cells per person [SE: 55.10, p < .05]) compared to those who lived at sites without nurses.


Objectives We investigated risk and protective factors associated with sleep quality among a national sample of HIV-positive gay, bisexual, and other men who have sex with men (GBMSM).

Design This study reports on findings from both an eligibility survey and baseline assessment for an online HIV risk reduction intervention.


BACKGROUND: Identification of risk for non-adherence to treatment is a challenge for personalized care for people living with HIV. Standardized questionnaires of patients' expectations of their capability to overcome obstacles for treatment adherence may be used as a pre-screening for risk identification. A scale of self-efficacy expectations of adherence to antiretroviral treatment (SEA-ART scale) was previously developed. This study assesses the scale validity in predicting non-adherence to ART in adults living with HIV. METHODS AND FINDINGS: A prospective cohort study applied a 21-item SEA-ART scale to 275 adults in ART treatment at an outpatient public service for HIV in Southern Brazil. ART medications taken were assessed at one-month follow-up; ART adherence was devised as an intake of 95% and more of the prescribed medication. A SEA-ART score was calculated by adding up the scores of all items. Multivariable logistic regression and the Area Under the Receiver-Operating-Characteristic Curve (AUROC) were applied to examine the ability of the SEA-ART score to predict non-adherence at follow-up. The SEA-ART score varied from 21 to 105; mean 93.9; median 103.0. Non-adherence was 30.3% (n = 81/267). The odds of non-adherence was 8% lower for each unit increase of the SEA-ART score; after adjustment for age, sex, formal education and time in treatment (OR = 0.92; 95%CI 0.90-0.95; LRT for linear trend, p = 0.002). The AUROC was 0.80 (95%CI 0.73-0.87; p<0.001). The SEA-
ART optimal cut-off value was 101, providing a sensitivity of 76.5%, a specificity of 73.1%, a positive predictive value of 55.4% and a negative predictive value of 87.7%. There was no evidence of difference in sensitivity, and specificity among groups organized by age, gender, formal education and time in treatment. CONCLUSIONS: The SEA-ART scale appears to have a good capacity to discriminate between adherents and non-adherents at one-month follow-up. Further studies should confirm these results in other populations.


BACKGROUND: The range of combination antiretroviral therapy (cART) regimens available in many middle-income countries differs from those suggested in international HIV treatment guidelines. We compared first-line cART regimens, timing of initiation and treatment outcomes in a middle income setting (HIV Centre, Belgrade, Serbia - HCB) with a high-income country (Royal Free London Hospital, UK - RFH). METHODS: All antiretroviral-naïve HIV-positive individuals from HCB and RFH starting cART between 2003 and 2012 were included. 12-month viral load and CD4 count responses were compared, considering the first available measurement 12-24 months post-cART. The percentage that had made an antiretroviral switch for any reason, or for toxicity and the percentage that had died by 36 months (the latest time at which sufficient numbers remained under follow-up) were investigated using standard survival methods. RESULTS: 361/597 (61 %) of individuals initiating cART at HCB had a prior AIDS diagnosis, compared to 337/1763 (19 %) at RFH. Median pre-ART CD4 counts were 177 and 238 cells/mm(3) respectively (p < 0.0001). The most frequently prescribed antiretrovirals were zidovudine with lamivudine (149; 25 %) and efavirenz [329, 55 %] at HCB and emtricitabine with tenofovir (899; 51 %) and efavirenz [681, 39 %] at RFH. At HCB, a median of 2 CD4 count measurements in the first year of cART were taken, compared to 5 at RFH (p < 0.0001). Median (IQR) CD4 cell increase after 12 months was +211 (+86, +359) and +212 (+105, +318) respectively. 287 (48 %) individuals from HCB and 1452 (82 %) from RFH had an available viral load measurement, of which 271 (94 %) and 1280 (88 %) were <400 copies/mL (p < 0.0001). After 36 months, comparable percentages had made at least one antiretroviral switch (77 % HCB vs. 78 % RFH; p = 0.23). However, switches for toxicity/patient choice were more common at RFH. After 12 and 36 months of cART 3 % and 8 % of individuals died at HCB, versus 2 % and 4 % at RFH (p < 0.0001). CONCLUSION: In middle-income countries, cART is usually started at an advanced stage of HIV disease, resulting in higher mortality rates than in high income countries, supporting improved testing campaigns for early detection of HIV infection and early introduction of newer cART regimens.


Geosocial-networking smartphone applications ("apps") are widely used by gay, bisexual, and other men who have sex with men (MSM) and facilitate connections between users based on proximity and attraction. MSM have sexual encounters and relationships of varying degrees of emotional and physical intimacy with app-met individuals, potentially placing them at risk for intimate partner violence (IPV). The purpose of the current study was to utilize a geosocial-networking application to investigate relationships between experiences of IPV victimization as it relates to substance use and sexual risk behaviors in a sample of MSM. Participants (n = 175) were recruited by means of broadcast advertisements on an application widely used by MSM (Grindr) to seek sexual partners. Multivariable regression models were fit to examine associations between IPV, substance abuse, and sexual risk behaviors. Lifetime experiences of IPV victimization were common, where 37.7% of respondents reported having experienced at least one form of IPV. While a marginally significant positive association between IPV and substance abuse was detected in multivariable models (p = .095), individual forms of IPV were strongly associated with substance abuse. For example, sexual IPV victimization was associated with an increase in substance abuse in the preceding month (p = .004). Experiences of IPV victimization were associated with higher numbers of partners for both condomless receptive and insertive anal intercourse (p < .05). Given the relatively high prevalence of IPV victimization and its associations with substance abuse and sexual risk behaviors, these findings suggest that IPV screening and prevention programs may reduce substance abuse and sexual risk behaviors in this population.

PURPOSE: To assess content validity and patient and provider prioritization of Patient-Reported Outcomes Measurement Information System (PROMIS) depression, anxiety, fatigue, and alcohol use items in the context of clinical care for people living with HIV (PLWH), and to develop and assess new items as needed. METHODS: We conducted concept elicitation interviews (n = 161), item pool matching, prioritization focus groups (n = 227 participants), and cognitive interviews (n = 48) with English-speaking (~75 %) and Spanish-speaking (~25 %) PLWH from clinical sites in Seattle, San Diego, Birmingham, and Boston. For each domain we also conducted item review and prioritization with two HIV provider panels of 3-8 members each. RESULTS: Among items most highly prioritized by PLWH and providers were those that included information regarding personal impacts of the concept being assessed, in addition to severity level. Items that addressed impact were considered most actionable for clinical care. We developed additional items addressing this. For depression we developed items related to suicide and other forms of self-harm, and for all domains we developed items addressing impacts PLWH and/or providers indicated were particularly relevant to clinical care. Across the 4 domains, 16 new items were retained for further psychometric testing. CONCLUSION: PLWH and providers had priorities for what they believed providers should know to provide optimal care for PLWH. Incorporation of these priorities into clinical assessments used in clinical care of PLWH may facilitate patient-centered care.


Federal acknowledgement of LGBT elders remains scant, including in the 2015 White House Conference on Aging report and the Older Americans Act. This article outlines the many reforms and policy changes necessary for LGBT elders to age independently, in good health, and be financially secure in their homes and communities, without discrimination, and also stresses the need for more research on LGBT aging.


In response to the call to create an AIDS Education and Training Center for Nurse Practitioner Education by the Health Resources and Services Administration, The Johns Hopkins University School of Nursing embarked on a transformative curriculum overhaul to integrate HIV prevention, treatment, and care into the Adult/Geriatric Nurse Practitioner Program. A six-step process outlined in the Curriculum Development for Medical Education was followed. A pilot cohort of Adult/Geriatric Nurse Practitioner students were enrolled, including 50% primary care setting and 50% HIV-focused primary care through a 12-month HIV continuity clinic experience. Through this pilot, substantive changes to the program were adopted. Programmatic outcomes were not compromised with the modification in clinical hours. The model of a 12-month HIV continuity clinical experience reduced the number of required preceptors. This model has important implications for the HIV workforce by demonstrating successful integration of HIV and primary care training for nurse practitioners.


OBJECTIVES: To identify the HIV incidence and its associated factors (AFs) of the ITACA, a community-based cohort of HIV-negative men who have sex with men (MSM) established in Barcelona, Spain from 2008 to 2011. METHODS: Participants were men aged 18 years or older, having a negative HIV test result at baseline and agreeing to participate. Bio-behavioural data were collected by peers in each visit. HIV incidence rates using person-time measures and 95% CIs were calculated. Cox logistic regression models were used to identify AFs to seroconversion. RESULTS: Over the period, 3544 participants with at least one follow-up visit or those who had a first visit no longer than a year prior to the date of data censoring were included in the analysis contributing 3567.09 person-year (p-y) and 85 MSM seroconverted for an overall HIV incidence of 2.4 per 100 p-y (95% CI 1.9 to 2.9) ranging from 1.21/100 (2009) to 3.1/100 p-y (2011). Independent AF included: foreign origin, having more than five HIV tests at baseline, reporting in the preceding 6 months the following: condomless anal sex with the last steady partner of unknown serostatus, more than 10 casual partners, condomless anal sex with casual partner, self-reported gonorrhea and entered in the cohort in 2010 or 2011. CONCLUSIONS: The ITACA cohort revealed a high and increasing HIV incidence among MSM, especially important among foreign-born men. The findings underscore the need to implement multilevel interventions for MSM taking into account different types of partners, cultural origins and the exposure to other sexually transmitted infections.

BACKGROUND: Costs of care for persons living with HIV have been high historically. Cost estimates based on data from 1 health care site may underestimate total expenditures; using insurance claims avoids this limitation. We used Medicaid claims data to comprehensively assess payments for care for persons living with HIV between 2006 and 2010. METHODS: Five sites from the HIV Research Network (HIVRN) provided information on patients with Medicaid coverage. Medicaid data were obtained from the sites' states (MD, NY, and MA) and 3 surrounding states and matched to HIVRN medical record-based data. Individuals less than 18, those with Medicare, and those in Medicaid managed care plans were excluded. Medicaid and HIVRN data were compared to ascertain concordance in capturing any inpatient event and any antiretroviral (ART) medication use. RESULTS: Of 6892 unique HIVRN identifiers, 6196 (90%) were linked to Medicaid data. The analytic sample included 11,341 person-years of Medicaid claims data from 3695 individuals in fee-for-service (FFS) programs. The mean annual FFS payment for all services was $47,434; mean annual FFS payment for only medical services was $38,311. Concordance between Medicaid and HIVRN data was excellent for ART use, but HIVRN data did not record a substantial proportion of years in which Medicaid recorded inpatient use. CONCLUSIONS: Estimated Medicaid payment amounts in this study are higher than some previous estimates. More complete capture of expensive inpatient hospitalizations in Medicaid data may partially explain this finding. Although inpatient care and ART medications contribute the most, expenditures for nonmedical services are substantial.


OBJECTIVE: Attitudes towards patients may influence how clinicians interact. We investigated whether respect for patients was associated with communication behaviors during HIV care encounters. METHODS: We analyzed audio-recordings of visits between 413 adult HIV-infected patients and 45 primary HIV care providers. The independent variable was clinician-reported respect for the patient and outcomes were clinician and patient communication behaviors assessed by the Roter Interaction Analysis System (RIAS). We performed negative binomial regressions for counts outcomes and linear regressions for global outcomes. RESULTS: When clinicians had higher respect for a patient, they engaged in more rapport-building, social chitchat, and positive talk. Patients of clinicians with higher respect for them engaged in more rapport-building, social chitchat, positive talk, and gave more psychosocial information. Encounters between patients and clinicians with higher respect for them had more positive clinician emotional tone [regression coefficient 2.97 (1.92-4.59)], more positive patient emotional tone [2.71 (1.75-4.21)], less clinician verbal dominance [0.81 (0.68-0.96)] and more patient-centeredness [1.28 (1.09-1.51)]. CONCLUSIONS: Respect is associated with positive and patient-centered communication behaviors during encounters. PRACTICE IMPLICATIONS: Clinicians should be mindful of their respectful attitudes and work to foster positive regard for patients. Educators should consider methods to enhance trainees' respect in communication skills training.


The article focuses on challenges faced by people living with HIV in Ireland. Topics discussed include criticism concerning efforts to characterize HIV as a long-term chronic treatable illness; social work services offered to HIV patients who were intravenous drug users (IDUs); and contribution of social workers in hospitals, community care and addiction services to work with and save people diagnosed with HIV.

Non-gay-identified men who have sex with men and women and who use alcohol and other drugs are a vulnerable population. Little is known about health and medical service provider interaction with these underserved clients. This article presents a thematic analysis of two focus groups undertaken with social and medical service providers regarding the needs of non-gay-identified men who have sex with men and women. Four emergent themes (labeling, constructions of masculinity, HIV/AIDS awareness, and treatment success) illustrate perceived barriers to HIV/AIDS prevention and treatment, as well as treatment success. Implications for policy, practice, and future research are discussed.


Inflammation is related to several pathological processes. The aim of this study was to investigate the protein expression of the different subunits of the nuclear factor kappa B (NFκBp65, p50, p105, p52, p100) and the protein expressions of IκB beta and alpha in the hearts from a murine model of accelerated aging (SAM model) by Western blot. In addition, the translocation of some isoforms of NFκB from cytosol to nuclei (NFκBp65, p50, p52) and ATP level content was studied. In addition we investigated the effect of the chronic administration of growth hormone (GH) on these age-related parameters. SAMP8 and SAMR1 mice of 2 and 10 months of age were used (n = 30). Animals were divided into five experimental groups: 2 old untreated (SAMP8/SAMR1), 2 young control (SAMP8/SAMR1) and one GH treated-old groups (SAMP8). Age-related changes were found in the studied parameters. We were able to see decreases of ATP level contents and the translocation of the nuclear factor kappa B p50, p52 and p65 from cytosol to nuclei in old SAMP8 mice together with a decrease of IκB proteins. However p100 and p105 did not show differences with aging. No significant changes were recorded in SAMR1 animals. GH treatment showed beneficial effects in old SAMP8 mice inducing an increase in ATP levels and inhibiting the translocation of some NFκB subunits such as p52. Our results supported the relation of NFκB activation with enhanced apoptosis and pro-inflammatory status in old SAMP8 mice and suggested a selective beneficial effect of the GH treatment, which was able to partially reduce the incidence of some deleterious changes in the heart of those mice.


Clonal expansion of human T-lymphotropic virus type-1 (HTLV-1) infected cells in vivo is well documented. Unlike human immunodeficiency virus type 1 (HIV-1), HTLV-1 plasma RNA is sparse. The contribution of the "mitotic" spread of HTLV-1 compared with infectious spread of the virus to HTLV-1 viral burden in established infection is uncertain. Since extrachromosomal long terminal repeat (LTR) DNA circles are indicators of viral replication in HIV-1 carriers with undetectable plasma HIV RNA, we hypothesised that HTLV-1 LTR circles could indicate reverse transcriptase (RT) usage and infectious activity. 1LTR and 2LTR DNA circles were measured in HTLV-1 cell lines and peripheral blood mononuclear cells (PBMC) of asymptomatic carriers (ACs) and patients with HTLV-1-associated myelopathy/tropical spastic paraparesis (HAM/TSP) or adult T cell leukaemia/lymphoma (ATLL). 1LTR DNA circles were detected in 14/20 patients at a mean of 1.38/100 PBMC but did not differentiate disease status nor correlate with HTLV-1 DNA copies. 2LTR DNA circles were detected in 30/31 patients and at higher concentrations in patients with HTLV-1-associated diseases, independent of HTLV-1 DNA load. In an incident case the 2LTR DNA circle concentration increased 2.1 fold at the onset of HAM/TSP compared to baseline. Detectable and fluctuating levels of HTLV-1 DNA circles in patients indicate viral RT usage and virus replication. Our results indicate HTLV-1 viral replication capacity is maintained in chronic infection and may be associated with disease onset.


OBJECTIVE: In response to the current CDC recommendations for routine HIV testing in clinical settings, the Adolescent AIDS Program at Montefiore Medical Center in the Bronx, New York, developed the Advise, Consent, Test, Support routine HIV testing model (ACTS) in 2003. ACTS was piloted in 10 community health centers operated by Montefiore because they serve populations most at risk for HIV/AIDS. METHODS: ACTS streamlined and codified the counseling and testing process, provided a routine HIV testing practice change plan, and provided training and communication materials that promoted routine HIV testing. To determine program success, we measured the number of patients seen at the clinics, the number of HIV test-eligible patients (those aged 13-64 years and not pregnant), the number and percent of patients receiving HIV testing, HIV test results, and the number of patients linked to care. RESULTS: HIV testing in the 10 sites increased nearly threefold during the pilot period (2003-2007), from 3,944 of 49,125 eligible patients (8%) tested in 2003 to 11,212 of 55,629 eligible patients (20%) tested in 2007. With little ongoing support, the sites continued or maintained improvements: 13,226 of 56,686 eligible patients (23%) were tested in
Health numeracy plays a vital role in the successful management of HIV because much HIV-related health information is expressed in quantitative terms. The purpose of our study was to explore what older African Americans with HIV (N = 20) understood about their HIV laboratory numbers and to examine communication of the numbers between patients and providers during clinic visits. The following four themes emerged: (a) HIV laboratory numbers are important to understand health status; (b) the numbers can often be confusing; (c) mutual communication between patient and provider is essential to understand the numbers; and (d) when communicating numbers, use less detail. Implications for future interventions to address health numeracy deficits in this population are discussed.


Background: The percentage of older HIV-positive patients is growing, with an increase in age-related comorbidities and concomitant medication. Objectives: To quantify polypharmacy and profile types of non-antiretroviral drugs collected at community pharmacies in 2014 by HIV-positive individuals on antiretroviral therapy and to compare these findings with those of the general population. Methods: HIV-positive patients (n=199) were compared with a group of patients from the general population (n=8,172), aged between 50 and 64 years. The factors compared were prevalence of polypharmacy (>/=5 comedications with cumulative defined daily dose [DDD] per drug over 180), percentage of patients who collected each therapeutic class of drug, and median duration for each drug class (based on DDD). Results were stratified by sex. Results: Polypharmacy was more common in HIV-positive males than in the male general population (8.9% vs 4.4%, P=0.010). Polypharmacy was also higher in HIV-positive females than in the female general population (11.3% vs 3.4%, P=0.002). Percentage of HIV-positive patients receiving analgesics, anti-infectives, gastrointestinal drugs, central nervous system (CNS) agents, and respiratory drugs was higher than in the general population, with significant differences between male populations. No differences were observed in proportion of patients receiving cardiovascular drugs. The estimated number of treatment days (median DDDs) were higher in HIV-positive males than in males from the general population for anti-infectives (32.2 vs 20.0, P<0.001) and CNS agents (238.7 vs 120.0, P=0.002). A higher percentage of HIV-positive males than females from the general population received sulfonamides (17.1% vs 1.5%, P<0.001), macrolides (37.1% vs 24.9%, P=0.020), and quinolones (34.3% vs 21.2%, P=0.009). Conclusion: Polypharmacy is more common in HIV-positive older males and females than in similarly aged members of the general population. HIV-positive patients received more CNS drugs and anti-infectives, specifically sulfonamides, macrolides, and quinolones, but there were no differences in the percentage of patients receiving cardiovascular drugs. It is essential to investigate nonantiretroviral therapy medication use in the HIV-positive population to ensure these patients receive appropriate management.


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Background: HIV patients on highly-active antiretroviral therapy (HAART) have shown elevated incidence of dyslipidemia, lipodystrophy, and markers of cardiovascular disease. Evidence is beginning to emerge that implicates efavirenz (EFV) as a potential mediator of early on-set cardiovascular disease. Methods: Pediatric and adult HIV-infected HAART-naive, EFV-treated, nevirapine (NVP)-treated, and ritonavir-boosted lopinavir (LPV/r)-treated subjects were recruited from Black Lion Hospital in Addis Ababa, Ethiopia. Pulse wave velocity (PWV), carotid intima-media thickness (cIMT), carotid arterial stiffness, brachial artery flow-mediated dilation (FMD), body mass index, waist-to-hip circumference ratio, and skinfold thickness were measured. CD4+ cell count, fasting glucose, lipoprotein profiles and triglycerides were also determined. Results were segmented into pediatric (6-17 years of age), young adults (25-39 years old) and older adults (40-60 years old). Results: PWV was generally elevated in EFV- and LPV/r-treated subjects compared to NVP-treated subjects across age groups. cIMT was elevated in EFV- and LPV/r-treated compared to NVP-treated older adults and in EFV-treated compared to HAART-naive older adults. FMD was
impaired in EFV- and LPV/r-treated compared to HAART-naive younger adults, in EFV-treated compared to NVP-treated young and older adults, and in LPV/r-treated compared to NVP-treated older adults. Differences in lipoprotein profiles and skinfold thickness with HAART regimen were observed in pediatric and young adults, but less so in older adults. CONCLUSIONS: Whereas LPV/r and other protease inhibitors have long been recognized as mediators of HIV/HAART-associated atherosclerosis, this report supports the emerging evidence that EFV may also mediate cardiovascular disease in people living with HIV on HAART.


Survival with human immunodeficiency virus (HIV) infection has greatly improved due to effective antiretroviral therapy (ART). As infectious complications have declined, malignancy now accounts for over one-third of deaths among people living with HIV (PLWH). Based on practices in the general population, cancer screening of PLWH can decrease both morbidity and mortality. In this article, we review and consider directed approaches for colorectal, breast, cervical and lung cancer screening. Furthermore, routine physical examinations may detect lymphomas and skin, anal and oral cancers. Comprehensive cancer prevention in PLWH should also include ART adherence, vaccination against oncogenic viruses, treatment of hepatitis viruses and smoking cessation. Cancer screening for PLWH warrants further research on safety and efficacy as well as targeted efforts to increase adherence.


The article discusses the relationship between aging HIV-positive patients and the production and use of less-toxic HIV medications and treatments in places such as the U.S., and it mentions how antiretroviral therapy is helping many HIV-positive patients live longer lives. According to the article, pharmaceutical firms such as GlaxoSmithKline are working on developing easier-to-tolerate two-drug combinations for patients. The side effects of Gilead Sciences Inc.’s Truvada drug are assessed.


BACKGROUND: The US National HIV/AIDS Strategy defines national objectives related to HIV prevention and care. The extent to which US cities are meeting those objectives is uncertain. METHODS: We analyzed King County, WA, HIV surveillance data collected between 2004 and 2013. The study population included 9539 persons diagnosed as having and living with HIV infection and 3779 persons with newly diagnosed HIV infection. RESULTS: Between 2004 and 2013, the rate of new HIV diagnosis decreased from 18.4 to 13.2 per 100,000 residents (decline of 28%); AIDS diagnosis rates declined 42% from 12 to 7 per 100,000; and age-adjusted death rates decreased from 27 to 15 per 1000 persons living with HIV/AIDS (decline of 42%; \(P<0.0001\) for all 3 trends). The rate of new HIV diagnosis declined 26% among men who have sex with men (MSM; \(P=0.0002\)), with the largest decline occurring in black MSM (44%). Among 8679 individuals with laboratory results reported to National HIV Surveillance System from 2006 through 2013, viral suppression (viral load<200 copies/mL) increased from 45% to 86% (\(P<0.0001\), with all racial/ethnic groups achieving greater than 80% viral suppression in 2013. INTERPRETATION: The rates of new HIV diagnosis, AIDS diagnoses, and mortality in persons living with HIV in King County, WA, have significantly declined over the last decade. These changes have occurred concurrent with a dramatic increase in HIV viral suppression and have affected diverse populations, including MSM and African American MSM. These findings demonstrate substantial local success in achieving the goals of the National HIV/AIDS Strategy.

Grace, D., et al. (2016). ""... it’s almost therapeutic, right? Because it’s almost like that session that I never had": gay men's accounts of being a participant in HIV research." AIDS Care 28(10): 1306-1311.

Limited research has explored how gay, bisexual and other men who have sex with men describe the impact of their involvement in HIV and sexual health research. We enrolled 166 gay and bisexual men who tested HIV-negative at a community sexual health clinic in Vancouver, British Columbia, into a year-long mixed methods study. Thirty-three of these participants who reported recent condomless anal intercourse were purposively recruited into an embedded qualitative study. Analysis revealed rich accounts of the self-described, interrelated impacts of study participation: (1) pride in contribution and community involvement (e.g., as a rationale for enrollment and an outcome of participation); (2) how one thinks about sexual behaviors and partnerships (e.g., encouraging reflection on the types and amount of sex they have had; in some cases the methods of quantitative data collection were said to have produced feelings of guilt or shame); and (3) experiencing research as a form of counselling (e.g., qualitative interviews were experienced as having a major therapeutic component to them). Our analysis
underscores the importance of researchers being reflexive regarding how study participation in HIV research may impact participants, including unintended emotional and behavioural impacts.


We compared self-described HIV-positive (31.6 %, n = 445), HIV-negative (56.8 %, n = 801), and HIV-unknown (11.6 %, n = 164) gay and bisexual men on sociodemographic and behavioral characteristics. Participants from across the U.S. were enrolled via a popular sexual networking website to complete an online survey. In total, 44.8 % of HIV-negative and HIV-unknown men said they had not been tested for HIV in the CDC-recommended last 6 months. HIV-unknown men significantly differed from HIV-negative and HIV-unknown men in sexual behavior and HIV status disclosure patterns. HIV-unknown men were more willing than HIV-negative men to take PrEP; however, HIV-unknown men were significantly less likely than others to have health insurance or a primary care provider. Given the observed differences, researchers should consider analyzing men who are HIV-unknown distinctly from HIV-negative and HIV-positive men.


The care of the HIV-infected patient in the emergency department has changed since the development of highly active antiretroviral therapy. This therapy has resulted in longer life expectancies and increased quality of life for HIV-infected patients, and in cases of treatment compliance and success, virtual elimination of AIDS-associated opportunistic infections. As a result, the emergency clinician is now more often confronted with adverse events related to medication and the diseases associated with aging and chronic disease. This issue focuses on the differences in evaluation of HIV patients on long-term therapy and patients with medication noncompliance and low CD4 counts, as well as recognition of life-threatening and rare opportunistic infections. Disease processes related to the effect of longstanding HIV infection, even with good control, on many organ systems are addressed.


Death due to HIV remains a leading cause of death among some US populations, yet little is known about HIV care before death. We used data from the National HIV Surveillance System to determine disease stage and care within 12 months prior to death among persons infected with HIV who died in 2012. Persons were considered to be in care within 12 months before death if they had >/=1 CD4 or viral load test results, and in continuous care if they had >/=2 CD4 or viral load test results at least 3 months apart. Viral suppression (viral load <200 copies/mL) was based on the most recent viral load test result in the 12 months before death. Among 7348 persons infected with HIV who died in 2012, 47.1% had late stage disease (AIDS) within 12 months before death. Overall, 85.7% had >/=1 test result, 64.3% had >/=2 tests at least 3 months apart, and 41.6% had a suppressed viral load. While blacks and Hispanics/Latinos had higher percentages of continuous care compared with whites, they had lower percentages of viral suppression and higher percentages with late stage disease. Viral suppression was higher among older persons. The majority had been diagnosed with HIV more than 5 years before death (86.3%). Although the majority of persons infected with HIV who died in 2012 had been diagnosed many years before death, almost half had late stage disease, and there were disparities in late stage disease and viral suppression by race/ethnicity and age.


The majority of persons infected with HIV live in large metropolitan areas and many such areas have implemented intensified HIV testing programs. A national indicator of HIV testing outcomes is late diagnosis of HIV infection (stage 3, AIDS). Based on National HIV Surveillance System data, 23.3 % of persons with HIV diagnosed in 2012 had a late diagnosis in large MSAs, 26.3 % in smaller MSAs, and 29.6 % in non-metropolitan areas. In the 105 large MSAs, the percentage diagnosed late ranged from 13.2 to 47.4 %. During 2003-2012, the percentage diagnosed late decreased in large MSAs (32.2-23.3 %), with significant decreases in 41 of 105 MSAs overall and among men who have sex with men. Sustained testing efforts may help to continue the
decreasing trend in late-stage HIV diagnosis and provide opportunities for early care and treatment and potential reduction in HIV transmission.


OBJECTIVE: The aim of this study was to examine changes over time in the female: male HIV prevalence ratio in 18 countries in Sub-Saharan Africa, overall and when stratified by area of residence, educational attainment and marital status.

METHODOLOGY: We used data from the Demographic and Health Surveys, which are nationally representative household surveys. By using data from 18 countries with at least two survey rounds with HIV testing, and dividing the countries into three regions (Western/Central, Eastern and Southern) we were able to examine cross-country and regional changes in the female: male HIV prevalence ratio over time. Logistic regression was used to estimate female: male HIV prevalence ratios in urban versus rural areas and for different categories of education and marital status. To assess changes over time, we compared the confidence intervals of the prevalence ratios.

RESULTS: The female: male HIV prevalence ratio was above one in all countries in at least one survey round for both ages 15-24 years and 25-49 years. In 13 out of 18 countries the prevalence ratio was higher for the younger age group compared to the age group 25-49 years (3 significant) and this difference in prevalence ratios between the age groups did not change over time. Overall, there was a higher frequency of increasing than decreasing prevalence ratios. The gender disparity was greater among those who were married/living together than among the never-married, and over time, the ratio was more stable among the married/living together. The study found no clear differential changes by education.

CONCLUSION: Women continue to carry the greater burden of HIV in Sub-Saharan Africa and there is no clear pattern of change in the gap between men and women as the direction and magnitude of change in the prevalence ratios varied greatly.


In Mexico, public health services have provided universal access to antiretroviral therapy (ART) since 2004. For individuals receiving HIV care in public healthcare facilities, the data are limited regarding CD4 T-lymphocyte counts (CD4e) at the time of entry into care. Relevant population-based estimates of CD4e are needed to inform strategies to maximize the impact of Mexico's national ART program, and may be applicable to other countries implementing universal HIV treatment programs. For this study, we retrospectively analyzed the CD4e of persons living with HIV and receiving care at state public health facilities from 2007 to 2014, comparing CD4e by demographic characteristics and the marginalization index of the state where treatment was provided, and assessing trends in CD4e over time. Our sample included 66,947 individuals who entered into HIV care between 2007 and 2014, of whom 79% were male. During the study period, the male-to-female ratio increased from 3.0 to 4.3, reflecting the country's HIV epidemic; the median age at entry decreased from 34 years to 32 years. Overall, 48.6% of individuals entered care with a CD4e<200 cells/mul, ranging from 42.2% in states with a very low marginalization index to 52.8% in states with a high marginalization index, and from 38.9% among individuals aged 18-29 to 56.5% among those older than 50. The adjusted geometric mean (95% confidence interval) CD4e increased among males from 135 (131,142) cells/mul in 2007 to 148 (143,155) cells/mul in 2014 (p-value<0.0001); no change was observed among women, with a geometric mean of 178 (171,186) and 171 (165,183) in 2007 and 2014, respectively. There have been important gains in access to HIV care and treatment; however, late entry into care remains an important barrier in achieving optimal outcomes of ART in Mexico. The geographic, socioeconomic, and demographic differences observed reflect important inequities in timely access to HIV prevention, care, and treatment services, and highlight the need to develop contextual and culturally appropriate prevention and HIV testing strategies and linkage programs.


BACKGROUND: The health implications of weight gain after antiretroviral therapy (ART) for HIV infection are not well characterized and may differ from weight gain among uninfected individuals. We use data from the Veterans Aging Cohort Study
to determine whether weight gain after ART has a similar association with incident type 2 diabetes mellitus (DM) as weight gained among HIV-uninfected (uninfected) individuals. METHODS: We explored associations of weight gain and incident diabetes (A1c >/= 6.5%), in the Veterans Aging Cohort Study, a national observational study of HIV-infected (HIV+) individuals demographically matched 1:2 to uninfected controls. From 2000 to 2011, weight change was assessed in the year following ART initiation for HIV+ individuals and date of first available body mass index for uninfected individuals. We estimated hazard ratios (HRs) and 95% confidence intervals (CIs) adjusted for baseline body mass index using Cox regression. RESULTS: HIV+ individuals had lower prevalence of DM at baseline (12% HIV+, 23% uninfected) and lower incident diabetes (5% HIV+, 11% uninfected). The association of weight gain with risk of DM was linear for HIV+ and uninfected but the slope of the association was steeper for HIV+. For each 5 pounds of weight gained, HIV+ had 14% increased risk of DM (HR, 1.14; 95% CI: 1.10 to 1.17) and uninfected individuals had 8% increased risk (HR, 1.08; 95% CI: 1.07 to 1.10) (P < 0.01 for interaction). CONCLUSIONS: Weight gained in the first year after ART initiation is associated with greater risk of DM than that among uninfected individuals. HIV+ individuals initiating ART who are not underweight should avoid substantial weight gain.


A systematic review was conducted to identify best practices for increasing linkage, retention and re-engagement in HIV care (LRC) for persons living with HIV (PLWH). Our search strategy consisted of automated searches of electronic databases and hand searches of journals, reference lists and listservs. We developed two sets of criteria: evidence-based to identify evidence-based interventions (EBIs) tested with a comparison group and evidence-informed to identify evidence-informed interventions (EIs) tested with a one-group design. Eligible interventions included being published between 1996 and 2014, U.S.-based studies with a comparison or one-group designs with pre-post data, international randomized controlled trials, and having objective measures of LRC-relevant outcomes. We identified 10 best practices: 5 EBIs and 5 EIs. None focused on re-engagement. Providers and prevention planners can use the review findings to identify best practices suitable for their clinics, agencies, or communities to increase engagement in care for PLWH, ultimately leading to viral suppression.


BACKGROUND: Gay, bisexual, and other men who have sex with men (GBMSM) accounted for 67% of new US human immunodeficiency virus (HIV) infections in 2012; however, less than 40% of HIV-positive GBMSM are virally suppressed. Preventing transmission from virally unsuppressed men who have condomless anal sex (CAS) with serodiscordant partners is a public health imperative. New HIV infections in GBMSM are attributed in part to online access to sex partners; therefore, low-cost eHealth interventions are a unique opportunity to reach men where they meet partners. OBJECTIVE: To describe the protocol of a randomized controlled trial evaluating whether video-based messaging delivered online may lead to reductions in serodiscordant CAS and increased HIV disclosure. METHODS: Sex Positive([+]) is a two-arm, phase III, video-based randomized controlled trial delivered online to GBMSM living with HIV. Participants in the intervention arm receive 10 video vignettes grounded in social learning and social cognitive theories that are designed to elicit critical thinking around issues of HIV transmission and disclosure. Participants in the attention control arm receive 10 video vignettes that focus on healthy living. All videos are optimized for mobile viewing. The study protocol includes five online assessments conducted over a 1-year period among 1500 US white, black, or Hispanic/Latino GBMSM living with HIV who report suboptimal antiretroviral therapy (ART) adherence or a detectable viral load in the past 12 months and recent CAS (past 6 months) with HIV-negative or unknown status male partners. Compared to the control arm, we hypothesize that men who watch the intervention videos will report at 12-month follow-up significantly fewer serodiscordant CAS partners, increased HIV disclosure, and improved social cognition (eg, condom use self-efficacy, perceived responsibility). RESULTS: Participant recruitment began in June 2015 and ended in December 2015. CONCLUSIONS: This protocol describes the underlying theoretical framework and measures, study design, recruitment challenges, and antifraud measures for an online, video-based randomized controlled trial that has the potential to decrease HIV transmission risk behaviors among HIV-positive GBMSM who struggle with ART adherence. The Sex Positive([+]) intervention allows for participation through multiple Internet-based mediums and has the potential to reach and engage a broader population of HIV-positive GBMSM who are virally unsuppressed. CLINICALTRIAL: ClinicalTrials.gov NCT02023580; https://clinicaltrials.gov/ct2/show/NCT02023580 (Archived by WebCite at http://www.webcitation.org/6iHzA8wRG).


The aging population of people living with human immunodeficiency virus (HIV) (PLWH) is exposed to a widening spectrum of non-AIDS-defining diseases. Thus, our objective was to compare the health care offered to PLWH according to age. We conducted a multicenter cross-sectional study on PLWH who consulted at one of 59 French HIV reference centers from 15th to 19th October 2012. Using our survey questionnaires, PLWH self-reported the medical care they received, whether or not tied to HIV infection monitoring, during the previous year. A total of 650 PLWH participated in the survey (median age 48 years, Interquartile range (IQR) 40-54), of which 95 were aged 60 years or over (14.5%). Compared to younger PLWH, 60-and-over PLWH were more often under complementary health insurance cover and less socially deprived based on the French EPICES (Evaluation of Precarity and Inequalities in Health Examination Centers) score. The elderly PLWH presented more comorbidities and less coinfections with hepatitis viruses. During health care, therapeutic education was less often offered to older PLWH (14% vs. 26%, p = .01), but this difference was mainly explained by sociodemographic factors and clinical status. Over the previous 6 months, 74% of PLWH who were followed up in hospital had also consulted another doctor, with a mean of 3.75 consultations (+/-4.18) without difference between age groups. After adjustment for sociodemographic factors and comorbidities, PLWH over 60 years were more likely to have consulted medical specialists as outpatients in the last 6 months (odds ratio [OR] = 2.63 [1.11-6.20]). Whatever their age, 13% of PLWH had been refused care on disclosure of their HIV status, and 27% of PLWH still did not disclose their HIV status to some caregivers. Coordinated health care throughout patients' lives is crucial, as health-care pathways evolve toward outpatient care as the patients get older.


Linking and retaining people living with HIV in ongoing, HIV medical care is vital for ending the U.S. HIV epidemic. Yet, 41-44 % of HIV+ individuals are out of care. In response, AIDS United initiated Positive Charge, a series of five HIV linkage and re-engagement projects around the U.S. This paper investigates whether three Positive Charge programs were cost effective and calculates a return on investment for each program. It uses standard methods of cost utility analysis and WHO-CHOICE thresholds. All three projects were found to be cost effective, and two were highly cost effective. Cost utility ratios ranged from $4439 to $137,271. These results suggest that HIV linkage to care programs are a productive and efficient use of public health funds.


New York City has experienced the largest HIV epidemic among persons who use psychoactive drugs. We examined progress in placing HIV seropositive persons who inject drugs (PWID) and HIV seropositive non-injecting drug users (NIDU) onto antiretroviral treatment (ART) in New York City over the last 15 years. We recruited 3511 PWID and 3543 NIDU from persons voluntarily entering drug detoxification and methadone maintenance treatment programs in New York City from 2001 to 2014. HIV prevalence declined significantly among both PWID and NIDU. The percentage who reported receiving ART increased significantly, from approximately 50 % (2001-2005) to approximately 75 % (2012-2014). There were no racial/ethnic disparities in the percentages of HIV seropositive persons who were on ART. Continued improvement in ART uptake and TasP and maintenance of other prevention and care services should lead to an "End of the AIDS Epidemic" for persons who use heroin and cocaine in New York City.


HIV is evolving from a life-threatening infection to a long-term, manageable condition because of medical advances, radical changes in health and social care policy, and the impact of an aging population. However, HIV remains complex,
Clinical care may help target interventions to optimize clinical care and quality of life for older HIV-infected individuals. Multiple significant aging-related conditions were identified in older HIV-infected adults, including balance problems, slower gait, lower anxiety, poorer general health, and higher antiretroviral adherence. The Veterans Aging Cohort Study (VACS) index score was associated with dependence in >/=1 IADL and antiretroviral adherence. CONCLUSION: In a large sample of older HIV-infected patients >/=50 years at 2 San Francisco-based HIV clinics, we evaluated 4 health domains: (1) physical health and function (activities of daily living), instrumental activities of daily living (IADL), falls, gait speed, (2) social support (physical and perceived support, loneliness), (3) mental health (depression, anxiety, posttraumatic stress disorder) and cognition, and (4) behavioral and general health (antiretroviral adherence and quality of life). We analyzed one year of data from 638 patients receiving standard-of-care antiretroviral therapy in a large primary care HIV clinic, located in the Harlem neighborhood of New York City. We found that 40% of patients carried one or more chronic pain diagnoses. The most common diagnoses were degenerative musculoskeletal disorders (eg, degenerative spinal disease and osteoarthritis), followed by neuropathic pain and headache disorders. Many patients (16%) had multiple chronic pain diagnoses. Women, older patients, and patients with greater burdens of medical illness, and psychiatric and substance use comorbidities were disproportionately represented among those with chronic pain diagnoses. Controlling for overall health status, HIV patients with chronic pain had greater healthcare utilization including emergency department visits and radiology procedures. In summary, our study demonstrates the high prevalence of chronic pain disorders in the primary care HIV clinic. Colocated interventions for chronic pain in this setting should not only focus on musculoskeletal pain but also account for complex multifaceted pain syndromes, and address the unique biopsychosocial features of this population. Furthermore, because chronic pain is prevalent in HIV and associated with increased healthcare utilization, developing clinic-based pain management programs could be cost-effective.


The objectives of this study, presented as part of a plenary session at WW7 in Hyderabad, India were to review (i) the epidemiology and current clinical issues of HIV infection with regard to HIV and older populations and (ii) models for increased morbidity and mortality in older HIV-positive individuals with implications for clinical care. HIV infection for those in treatment has become a complex chronic disease in which end-organ injury and resulting morbidity, functional decline, and mortality do not have a single etiology but reflect cumulative loss of organ system reserve from multiple interacting sources leading to functional decline, organ system failure, and death. Emerging guidelines and recommendations suggest a need for increased awareness and treatment of the multifaceted needs of the aging HIV-infected patient.


Chronic pain is common in HIV, but incompletely characterized, including its underlying etiologies, its effect on healthcare utilization, and the characteristics of affected patients in the HIV primary care setting. These data are needed to design and justify appropriate clinic-based pain management services. Using a clinical data warehouse, we analyzed one year of data from 638 patients receiving standard-of-care antiretroviral therapy in a large primary care HIV clinic, located in the Harlem neighborhood of New York City. We found that 40% of patients carried one or more chronic pain diagnoses. The most common diagnoses were degenerative musculoskeletal disorders (eg, degenerative spinal disease and osteoarthritis), followed by neuropathic pain and headache disorders. Many patients (16%) had multiple chronic pain diagnoses. Women, older patients, and patients with greater burdens of medical illness, and psychiatric and substance use comorbidities were disproportionately represented among those with chronic pain diagnoses. Controlling for overall health status, HIV patients with chronic pain had greater healthcare utilization including emergency department visits and radiology procedures. In summary, our study demonstrates the high prevalence of chronic pain disorders in the primary care HIV clinic. Colocated interventions for chronic pain in this setting should not only focus on musculoskeletal pain but also account for complex multifaceted pain syndromes, and address the unique biopsychosocial features of this population. Furthermore, because chronic pain is prevalent in HIV and associated with increased healthcare utilization, developing clinic-based pain management programs could be cost-effective.


OBJECTIVES: To perform geriatric assessments in older HIV-infected adults in San Francisco and examine the association with age and the Veterans Aging Cohort Study (VACS) index scores. METHODS: A cross-sectional study was conducted from 2012 to 2014 among HIV-infected patients >/=50 years at 2 San Francisco-based HIV clinics. We evaluated 4 health domains: (1) physical health and function (activities of daily living), instrumental activities of daily living (IADL), falls, gait speed, (2) social support (physical and perceived support, loneliness), (3) mental health (depression, anxiety, posttraumatic stress disorder) and cognition, and (4) behavioral and general health (antiretroviral adherence and quality of life). Contingency table and rank-sum analyses examined associations between these domains with age and VACS index scores. RESULTS: Three hundred fifty-nine patients completed assessments (median age 57; 85% male; 57% white; 72% >high school education). On functional assessment, 39% reported dependence with >/=1 IADL, and 40% reported falls in the previous year. Fifty-eight percent experienced loneliness, 60% the lowest levels of perceived social support, 55% depression, and 12% posttraumatic stress disorder. Forty percent had possible mild cognitive impairment. Thirty percent reported poor or fair quality of life. Older age was associated with lower CD4 counts, balance problems, slower gait, lower anxiety, poorer general health, and higher antiretroviral adherence. VACS Index score was associated with dependence in >/=1 IADL and antiretroviral adherence. CONCLUSION: In a large sample of older HIV-infected adults, multiple significant aging-related conditions were identified. Integrating geriatric assessment tools into HIV/AIDS clinical care may help target interventions to optimize clinical care and quality of life for older HIV-infected individuals.

BACKGROUND: The authors examined associations between structural characteristics and HIV disease management among a geographically diverse sample of behaviorally and perinatally HIV-infected adolescents and young adults in the United States. METHODS: The sample included 1891 adolescents and young adults living with HIV (27.8% perinatally infected; 72.2% behaviorally infected) who were linked to care through 20 Adolescent Medicine Trials Network for HIV/AIDS Interventions Units. All completed audio computer-assisted self-interview surveys. Chart abstraction or blood draw provided viral load data. Geographic-level variables were extracted from the United States Census Bureau (e.g., socioeconomic disadvantage, percent of Black and Latino households, percent rural) and Esri Crime (e.g., global crime index) databases as Zip Code Tabulation Areas. AIDSVu data (e.g., prevalence of HIV among youth) were extracted at the county-level. Using HLM v.7, the authors conducted means-as-outcomes random effects multi-level models to examine the association between structural-level and individual-level factors and (1) being on antiretroviral therapy (ART) currently; (2) being on ART for at least 6 months; (3) missed HIV care appointments (not having missed any vs. having missed one or more appointments) over the past 12 months; and (4) viral suppression (defined by the corresponding assay cutoff for the lower limit of viral load at each participating site which denoted nondetectability vs. detectability). RESULTS: Frequencies for the 4 primary outcomes were as follows: current ART use (n = 1120, 59.23%); ART use for >/=6 months (n = 861, 45.53%); at least one missed HIV care appointment (n = 936, 49.50); and viral suppression (n = 577, 30.51%). After adjusting for individual-level factors, youth living in more disadvantaged areas (defined by a composite score derived from 2010 Census indicators including percent poverty, percent receiving public assistance, percent of female, single-headed households, percent unemployment, and percent of people with less than a high school degree) were less likely to report current ART use (OR: 0.85, 95% CI: 0.72-1.00, p = .05). Among current ART users, living in more disadvantaged areas was associated with greater likelihood of having used ART for >/=6 months. Participants living in counties with greater HIV prevalence among 13-24 year olds were more likely to report current ART use (OR: 1.32, 95% CI: 1.05-1.65, p = .02), >/=6 months ART use (OR: 1.32, 95% CI: 1.05-1.65, p = .02), and to be virally suppressed (OR: 1.50, 95% CI: 1.20-1.87, p = .001); however, youth in these areas were also more likely to report missed medical appointments (OR: 1.32, 95% CI: 1.07-1.63, p = .008).

CONCLUSIONS: The findings underscore the multi-level and structural factors associated with ART use, missed HIV care appointments, and viral suppression for adolescents and young adults in the United States. Consideration of these factors is strongly recommended in future intervention, clinical practice, and policy research that seek to understand the contextual influences on individuals' health behaviors.


We explored factors influencing presentation with advanced human immunodeficiency virus (HIV) disease by age group. Data were derived from a city-wide cross-sectional survey of 759 HIV-infected adults living in Seoul, Korea. The significance of each observed factor was assessed via multivariate logistic regression. Of subjects aged 20-34 years, lower educational level had a positive influence on presentation with advanced HIV disease (adjusted odds ratio [aOR], 2.43; 95% confidence interval [CI], 1.36-4.34); those recently diagnosed with HIV were more likely to be presented with advanced HIV disease (aOR, 3.17; 95% CI, 0.99-10.2). Of the subjects aged 35-49 years, those w ith advanced HIV disease were more likely to have been diagnosed during health check-ups (aOR, 2.91; 95% CI, 1.15-7.32) or via clinical manifestations (aOR, 3.61; 95% CI, 1.39-9.36). Of the subjects aged >/= 50 years, presentation with advanced HIV disease was significantly more common in older subjects (aOR per increment of 5 years, 2.06; 95% CI, 1.32-3.23) and less common among individuals diagnosed with HIV in 2000-2006 (aOR, 0.18; 95% CI, 0.04-0.83). In conclusion, a lower educational level in younger subjects and more advanced age in older subjects positively influence the presentation of advanced HIV disease.


BACKGROUND: HIV-disease progression correlates with immune activation. Here we investigated whether corticosteroid treatment can attenuate HIV disease progression in antiretroviral-untreated patients. METHODS: Double-blind, placebo-controlled randomized clinical trial including 326 HIV-patients in a resource-limited setting in Tanzania (clinicaltrials.gov NCT01299948). Inclusion criteria were a CD4 count above 300 cells/mul, the absence of AIDS-defining symptoms and an ART-naive therapy status. Study participants received 5 mg prednisolone per day or placebo for 2 years. Primary endpoint was time to progression to an AIDS-defining condition or to a CD4-count below 200 cells/mul. RESULTS: No significant change in progression...

OBJECTIVE: The Johns Hopkins Hospital Emergency Department has served as a window on the HIV epidemic for 25 years, and as a pioneer in emergency department-based screening/linkage-to-care (LTC) programs. We document changes in the burden of HIV and HIV care metrics to the evolving HIV epidemic in inner-city Baltimore. DESIGN/METHODS: We analyzed seven serosurveys conducted on 18,144 adult Johns Hopkins Hospital Emergency Department patients between 1987 and 2013 as well as our HIV-screening/LTC program (2007, 2013) for trends in HIV prevalence, cross-sectional annual incidence estimates, undiagnosed HIV, LTC, antiretrovirals treatment, and viral suppression. RESULTS: HIV prevalence in 1987 was 5.2%, peaked at more than 11% from 1992 to 2003 and declined to 5.6% in 2013. Seroprevalence was highest for black men (initial 8.0%, peak 20.0%, last 9.9%) and lowest for white women. Among HIV-positive individuals, proportion of undiagnosed infection was 77% in 1987, 28% in 1992, and 12% by 2013 (P < 0.001). Cross-sectional annual HIV incidence estimates declined from 2.28% in 2001 to 0.16% in 2013. Thirty-day LTC improved from 32% (2007) to 72% (2013). In 2013, 80% of HIV-positive individuals had antiretrovirals ARVs detected in sera, markedly increased from 2007 (27%) (P < 0.001). Proportion of HIV-positive individuals with viral suppression (<400 copies/ml) increased from 23% (2001) to 59% (2013) (P < 0.001). CONCLUSION: Emergency department-based HIV testing has evolved from describing the local epidemic to a strategic interventional role, serving as a model for early HIV detection and LTC. Our contribution to community-based HIV-screening and LTC program parallels declines in undiagnosed HIV infection and incidence, and increases in antiretroviral use with associated viral suppression in the community.


BACKGROUND: Tools using local HIV data to help jurisdictions estimate future demand for medical and support services are needed. We present an interactive prevalence projection model using data obtainable from jurisdictional HIV surveillance and publically available data. METHODS: Using viral load data from Georgia’s enhanced HIV/AIDS Reporting System, state level death rates for people living with HIV and the general population, and published estimates for HIV transmission rates, we developed a model for projecting future HIV prevalence. Keeping death rates and HIV transmission rates for undiagnosed, in care/viral load >200, in care/viral load<200, and out of care (no viral load for 12 months) constant, we describe results from simulations with varying inputs projecting HIV incidence and prevalence from 2014 to 2024. RESULTS: In this model, maintaining Georgia’s 2014 rates for diagnosis, transitions in care, viral suppression (VS), and mortality by sub-group through 2020, resulted in 85% diagnosed, 59% in care, and 44% VS among diagnosed (85%/58%/44%) with a total of 67 815 PLWH, 33 953 in care, and more than 1000 new cases per year by 2020. Neither doubling the diagnosis rate nor tripling rates of re-engaging out of care PLWH into care alone were adequate to reach 90/90/80 by 2020. We demonstrate a multicompontent scenario that achieved NHAS goals and resulted in 63 989 PLWH, 57 546 in care, and continued annual prevalence increase through 2024. CONCLUSIONS: Jurisdictions can use this HIV prevalence prediction tool, accessible at https://dph.georgia.gov/hiv-prevalence-projections to assess local capacity to meet future HIV care and social services needs. In this model, achieving 90/90/80 by 2020 in Georgia slowed but did not reverse increases in HIV prevalence, and the number of HIV-infected persons needing care and support services more than doubled. Improving the HIV care infrastructure is imperative.

BACKGROUND: Theory suggests that perceived human immunodeficiency virus (HIV) risk and actual HIV risk behaviour are cyclical whereby engaging in high risk behaviour can increase perceived risk, which initiates precautionary behaviour that reduces actual risk, and with time reduces perceived risk. While current perceived risk may impact future actual risk, it is less clear how previous actual risk shapes current perceived risk. If individuals do not base their current perceived risk on past behaviour, they lose the protective effect of perceived risk motivating precautionary behaviour. Our goal was to determine the impact of actual risk on perceived risk. METHODS: Sexually active men who have sex with men (MSM) were recruited at the Maple Leaf Medical Clinic in downtown Toronto from September 2010 to June 2012. Participants completed a socio-behavioural questionnaire using an Audio Computer Assisted Self-Interview (ACASI). Actual HIV risk (primary predictor) was constructed by applying principal component analysis (PCA) to eight sexual risk survey questions and comprised three components which reflected sex with casual partners, sex with HIV-positive regular partners and sex with HIV unknown status regular partners. Perceived HIV risk (outcome) was measured by asking participants what the chances were that they would ever get HIV. Multivariable logistic regression was used to measure the association between actual and perceived HIV risk. RESULTS: One hundred and fifty HIV-negative MSM were recruited (median age 44.5 years [IQR 37-50 years]). Twenty percent of MSM perceived their HIV risk to be high. The odds of having a high perceived risk was significantly higher in those with high actual HIV risk indicated by low condom use with an HIV-positive regular partner compared to those with low actual HIV risk indicated by high condom use with an HIV-positive regular partner (Odds Ratio (OR) 18.33, 95% confidence interval (CI) 1.65-203.45). Older age was associated with lower perceived risk but only age 40-49 compared to less than 30 was statistically significant (OR 0.12, 95% CI 0.016-0.86). The odds of having high perceived risk was significantly associated with men who used poppers in the previous 6 months compared to those who did not use poppers (OR 5.64, 95% CI 1.20-26.48). CONCLUSIONS: Perceived HIV risk increased significantly as condom use with an HIV-positive regular partner decreased. However, perceived HIV risk was not associated with condom use with casual partners or HIV unknown status regular partners, even though these behaviours could be considered risky. The relationship between perceived and actual risk in HIV studies is complex and has implications on how health care workers address the issue of risky sexual behaviour and perceived risk.


There remains a salient need to conceptualize lesbian, gay, bisexual, transgender, and queer (LGBTQ) aging as an area of study. Although the limited body of theoretical literature in this field has delineated systemic silence or invisibility as a prominent feature of marginalization among LGBTQ elders, this model does not appear to account for mechanisms of surveillance and control that often regulate sexuality and gender identity in old age. This paper represents a preliminary attempt at developing a framework of LGBTQ aging that addresses social processes in which queerness and gender variance are monitored and limited in later stages of the life course. The analysis is guided by the Foucauldian notion of neoliberal governmentality, which enables consideration of bodies of discourse and technologies of power that together drive these systemic phenomena in contemporary political and economic contexts. The paper concludes with implications of this analysis on theory and empirical inquiry in the field of LGBTQ aging.


With over 1 million people living with HIV, the US faces national challenges in HIV care delivery due to an inadequate HIV specialist workforce and the increasing role of non-communicable chronic diseases in driving morbidity and mortality in HIV-infected patients. Alternative HIV care delivery models, which include substantial roles for advanced practitioners and/or coordination between specialty and primary care settings in managing HIV-infected patients, may address these needs. We aimed to systematically review the evidence on patient-level HIV-specific and primary care health outcomes for HIV-infected adults receiving outpatient care across HIV care delivery models. We identified randomized trials and observational studies from bibliographic and other databases through March 2016. Eligible studies met pre-specified eligibility criteria including on care delivery models and patient-level health outcomes. We considered all available evidence, including non-experimental studies, and evaluated studies for risk of bias. We identified 3605 studies, of which 13 met eligibility criteria. Of the 13 eligible studies, the majority evaluated specialty-based care (9 studies). Across all studies and care delivery models, eligible studies primarily reported mortality and antiretroviral use, with specialty-based care associated with mortality reductions at the clinician and practice levels and with increased antiretroviral initiation or use at the clinician level but not the practice level. Limited and heterogeneous outcomes were reported for other patient-level HIV-specific outcomes (e.g., viral suppression) as well as for primary care health outcomes across all care delivery models. No studies addressed chronic care outcomes related to aging. Limited evidence was available across geographic settings and key populations. As re-design of care delivery in the US continues to evolve, better
understanding of patient-level HIV-related and primary care health outcomes, especially across different staffing models and among different patient populations and geographic locations, is urgently needed to improve HIV disease management.


The goals of the United States' National HIV/AIDS Strategy are reducing HIV infections, increasing linkage to care, and reducing health disparities. To accomplish these, it is imperative to have accurate data about HIV prevalence, especially in high-burden populations, including immigrants, ethnic/racial minorities and other minority populations. However, recent increases in HIV prevalence among Black migrants from sub-Saharan Africa has drawn attention to the need to examine the epidemiological diversity of the Black population, and accurately account for HIV prevalence within it. In most HIV surveillance data, a single category, Black/African American, is used to combine data for U.S.-born and foreign-born Blacks, including migrants from sub-Saharan Africa. Such categorizations result in under-estimation of HIV prevalence in the African immigrant population, making it difficult to allocate resources appropriately for HIV prevention and treatment. This paper highlights and provides recommendations regarding the importance of disaggregating HIV surveillance data on Blacks by country of birth.


BACKGROUND: The Patient Protection and Affordable Care Act encourages healthcare systems to track quality-of-care measures; little is known about their impact on mortality rates. The objective of this study was to assess associations between HIV quality of care and mortality rates. METHODS: A longitudinal survival analysis of the Veterans Aging Cohort Study included 3038 human immunodeficiency virus (HIV)-infected patients enrolled between June 2002 and July 2008. The independent variable was receipt of >/=80% of 9 HIV quality indicators (QIs) abstracted from medical records in the 12 months after enrollment. Overall mortality rates through 2014 were assessed from the Veterans Health Administration, Medicare, and Social Security National Death Index records. We assessed associations between receiving >/=80% of HIV QIs and mortality rates using Kaplan-Meier survival analysis and adjusted Cox proportional hazards models. Results were stratified by unhealthy alcohol and illicit drug use. RESULTS: The majority of participants were male (97.5%) and black (66.8%), with a mean (standard deviation) age of 49.0 (8.8) years. Overall, 25.9% reported past-year unhealthy alcohol use and 28.4% reported past-year illicit drug use. During 24 805 person-years of follow-up (mean [standard deviation], 8.2 [3.3] years), those who received >/=80% of QIs experienced lower age-adjusted mortality rates (adjusted hazard ratio, 0.75; 95% confidence interval, .65-.86). Adjustment for disease severity attenuated the association. CONCLUSIONS: Receipt of >/=80% of select HIV QIs is associated with improved survival in a sample of predominantly male, black, HIV-infected patients but was insufficient to overcome adjustment for disease severity. Interventions to ensure high-quality care and address underlying chronic illness may improve survival in HIV-infected patients.


BACKGROUND: Rates of first antiretroviral therapy (cART) modifications are high in most observational studies. The age-related differences in treatment duration and characteristics of first cART modifications remain underinvestigated. With increasing proportion of older patients in HIV population it is important to better understand age-related treatment effects. METHODS: Patients were included into this analysis, if being cART naive at the first visit at the clinic. Follow-up time was measured from the first visit date until first cART modification or 28 February 2013. First cART modification was defined as any change in the third drug component i.e. protease inhibitor (PI), non-nucleoside reverse transcriptase inhibitor (NNRTI), integrase inhibitor or fusion inhibitor. Cox proportional hazard models were used to identify factors related to first cART modification in three age groups: <30, 30-50 and >50. RESULTS: In total 2027 patients with 14,965 person-years of follow-up (PYFU) were included. The oldest group included 136 patients with 1901, middle group 1202 with 8416 PYFU and youngest group consisted of 689 patients with 4648 PYFU. Median follow-up time was 5.8 (IQR 3.4-9.4) years, median time on first cART was 4.4 (IQR 2.1-8.5) years. 72.4% of patients started PI-based and 26.1% NNRTI-based regimen. In total 1268 (62.5%) patients had cART modification (non-adherence 30.8%, toxicity 29.6%). Durability of first cART was the best in patients over 50 y.o. (log-rank test, p = 0.001). Factors associated with discontinuation in this group were late presentation (HR 0.45, [95 % CI 0.23-0.90], p = 0.02) and PI use (HR 2.17, [95 % CI 1.18-4.0], p = 0.01). CONCLUSIONS: Rates of first cART modifications or discontinuation were comparable in all groups; however older patients were significantly longer on first cART regimen.
To determine whether CDC-funded HIV testing programs are reaching persons disproportionately affected by HIV infection. The percentage distribution for HIV testing and diagnoses by demographics and transmission risk group (diagnoses only) were calculated using 2013 data from CDC’s National HIV Surveillance System and CDC’s national HIV testing program data. In 2013, nearly 3.2 million CDC-funded tests were provided to persons aged 13 years and older. Among persons who received a CDC-funded test, 41.1% were aged 20-29 years; 49.2% were male, 46.2% were black/African American, and 56.2% of the tests were conducted in the South. Compared with the characteristics of all persons diagnosed with HIV in the United States in 2013, among persons diagnosed as a result of CDC-funded tests, a higher percentage were aged 20-29 years (40.3 vs 33.7%) and black/African American (55.3 vs 46.0%). CDC-funded HIV testing programs are reaching young people and blacks/African Americans.

OBJECTIVE: To describe demographic and behavioral characteristics of persons with acute HIV infection (AHI) over time.

METHODS: We conducted a retrospective assessment of AHI identified through the Screening and Tracing Active Transmission (STAT) program from 2003 to 2012 in North Carolina (NC). AHI was identified using pooled nucleic acid amplification for antibody negative samples and individual HIV-1 RNA for antibody indeterminate samples. The STAT program provides rapid notification and evaluation. We compared STAT-collected demographic and risk characteristics with all persons requesting tests and all non-AHI diagnoses from the NC State Laboratory of Public Health. RESULTS: The STAT Program identified 236 AHI cases representing 3.4% (95% confidence interval: 3.0% to 3.9%) of all HIV diagnoses. AHI cases were similar to those diagnosed during established HIV. On pretest risk-assessments, AHI cases were predominately black (69.1%), male (80.1%), young (46.8% < 25 years), and men who have sex with men (MSM) (51.7%). Per postdiagnosis interviews, the median age decreased from 35 (interquartile range 25-42) to 27 (interquartile range 22-37) years, and the proportion <25 years increased from 23.8% to 45.2% (trend P = 0.04) between 2003 and 2012. AHI men were more likely to report MSM risk post-diagnosis than on pretest risk-assessments (64%-82.9%; P < 0.0001). Post-diagnosis report of MSM risk in men with AHI increased from 71.4% to 96.2%. CONCLUSIONS: In NC, 3.4% of individuals diagnosed with HIV infection have AHI. AHI screening provides a real-time source of incidence trends, improves the diagnostic yield of HIV testing, and offers an opportunity to limit onward transmission.

Accomplishments in biomedical research and technology, combined with innovative community and clinically based interventions, have expanded HIV testing globally. However, HIV screening and receipt of results remains a challenge in some areas. To optimize the benefits of HIV screening, it is imperative that there is a better understanding of the barriers to and motivators of testing for HIV infection. This study is a meta-synthesis of the qualitative literature on HIV screening and receipt of results; 128 unique publications had implications for HIV screening and receipt of results. A socioecological perspective provided an appropriate approach for synthesizing the literature. Three levels of influence emerged: individual attributes, interpersonal attributes, and broader patterns of influence. Findings were reviewed and found to have implications for continued engagement in the HIV treatment cascade. Recommendations to enhance HIV screening and to ensure receipt of results are proposed and discussed.

BACKGROUND: Although the prevalence of HIV-infection among individuals >/= 50 years of age has increased, the impact of HIV-infection on risk of death in this population remains to be established. Our aim was to estimate long-term mortality among HIV-infected individuals who were 50 years or older, when compared with an individually-matched cohort from the background population. METHODS: Population-based cohort-study including HIV-infected individuals >/= 50 years, who were alive 1 year after HIV-diagnosis (n = 2440) and a comparison cohort individually-matched by age and gender extracted from the background population (n = 14,588). Cumulative survival was evaluated using Kaplan-Meier method and Mortality Rate Ratios (MRRs) were estimated using Cox Regression Models. Study period 1996-2014. RESULTS: Estimated median survival time from age 50 years for HIV-infected individuals increased from 11.8 years (95% CI: 10.2 to 14.5) during 1996-1999 to 22.8 years (20.0-24.2) in 2006-2014.
MRR decreased with increasing age from 3.8 (3.1-4.7) for 50-55 years to 1.6 (1.0-2.6) for 75-80 years. In a cohort of well-treated HIV-infected individuals >/= 50 years without AIDS-defining events or comorbidity at study inclusion (n = 517). MRR was 1.7 (1.2-2.3) compared with population controls without comorbidity. CONCLUSION: Among HIV-infected individuals estimated median survival time from age 50 years has increased by more than 10 years from 1996-1999 to 2006-2014, but is still substantially lower than in the background population. Even among well-treated HIV-infected individuals >/= 50 years without comorbidity or AIDS-defining events the estimated median survival time remains lower than in the general population.


An estimated one in four transgender women (trans women) in the U.S. are infected with HIV. Rates of HIV testing are not commensurate with their risk, necessitating alternative strategies for early detection and care. We explored the feasibility and acceptability of HIV self-testing (HIVST) with 50 HIV-negative adult trans women in San Francisco. Participants received three self-test kits to perform once a month. Acceptability and behavioral surveys were collected as were 11 in-depth interviews (IDIs). Among 50 participants, 44 reported utilizing HIVST at least once; 94 % reported the test easy to use; 93 % said results were easy to read; and 91 % would recommend it to others. Most participants (68 %) preferred HIVST to clinic-based testing, although price was a key barrier to uptake. IDIs revealed a tension between desires for privacy versus support found at testing sites. HIVST for trans women was acceptable and feasible and requires careful consideration of linkage to support services.


PURPOSE OF REVIEW: To evaluate evidence that statins reduce cardiovascular risk in patients living with HIV. RECENT FINDINGS: Moderate to high-dose atorvastatin and rosuvastatin appear to reduce noncalcified coronary plaque volume and slow progression of carotid intima-media thickness in patients with treated HIV infection. Expected lipoprotein changes with statins on the background of modern antiretroviral therapy are similar to the general population. In addition to lipids, the statin benefit may be mediated in part by improvements in vascular inflammation and levels of T-cell and monocyte activation. One concern is the potential for rosuvastatin to cause insulin resistance. Decisions to prescribe statins must be done in the context of global risk assessment, but traditional risk calculators such as the Framingham Risk Score or the American College of Cardiology/American Heart Association pooled-risk equations underestimate risk in this population. Furthermore, many patients with subclinical disease would not be recommended for statins according to the most recent American College of Cardiology/American Heart Association guidelines. SUMMARY: Statins are likely to improve cardiovascular outcomes for patients with HIV, but results of the first outcome study are not expected until 2020. In the meantime, clinicians should individualize statin prescriptions, and should consider using more potent statins (rosuvastatin, atorvastatin, and pitavastatin) when possible.


Successful biomedical prevention/treatment-as-prevention (TasP) requires identifying individuals at greatest risk for transmitting HIV, including those with antiretroviral therapy (ART) nonadherence and/or 'amplified HIV transmission risk,' defined as condomless sex with HIV-uninfected/unknown-status partners when infectious (i.e., with detectable viremia or STI diagnosis according to Swiss criteria for infectiousness). This study recruited sexually-active, HIV-infected patients in Brazil, Thailand, and Zambia to examine correlates of ART nonadherence and 'amplified HIV transmission risk'. Lower alcohol use (OR = .71, p < .01) and higher health-related quality of life (OR = 1.10, p < .01) were associated with greater odds of ART adherence over
and above region. Of those with viral load data available (in Brazil and Thailand only), 40% met Swiss criteria for infectiousness, and 29% had ‘amplified HIV transmission risk.’ MSM had almost three-fold (OR = 2.89, p < .001) increased odds of ‘amplified HIV transmission risk’ (vs. heterosexual men) over and above region. TasP efforts should consider psychosocial and contextual needs, particularly among MSM with detectable viremia.


OBJECTIVE: Lung cancer screening with chest computed tomography (CT) is beneficial in smokers aged 55 to 74 years. We studied the risks, benefits and feasibility of early lung cancer diagnosis with CT in HIV-infected smokers. DESIGN AND SETTING: French, multicentre, single round chest CT study in France, realized between February 2011 and June 2012. PARTICIPANTS: Patients were HIV-infected smokers at least 40 years, at least 20 pack-years, and with a CD4 T-lymphocyte nadir count below 350 cells/mul. INTERVENTION: Single chest CT with a proposed standardized workup algorithm of positive images. MAIN OUTCOME MEASURE: The outcome was the number of histologically proven lung cancers diagnosed by CT with a 2-year follow-up. RESULTS: Median age of the 442 included patients was 49.8 years, 81.6% were under 55 years, 84% were men, median smoking was 30 pack-years, median nadir and last CD4 cell counts were 168 and 574 cells/mul, respectively, and 90% of patients had a plasma HIV RNA below 50 copies/ml. A positive image at baseline was reported in 94 (21%) patients, and 15 (3.4%) patients had 18 invasive procedures with no serious adverse events. Lung cancer was diagnosed in 10 patients (six at early stages), of which nine (2.0%, 95% confidence interval: 0.9-3.8) were CT detected, and eight in patients below 55 years. CONCLUSION: Early lung cancer diagnosis with CT in HIV-infected smokers was feasible, safe, and yielded a significant number of cancers. Lung cancer screening of HIV-infected smokers with an important history of immunodeficiency revealed a substantial number of cancers at younger ages than the targeted range in the general population.


Depression in HIV/AIDS patients affects adherence and disease progression and often goes unnoticed. DHIVA is a cross-sectional epidemiologic survey, investigating the prevalence of depression in people living with HIV through use of a validated self-administered scale (CES-D-20), as well and the degree of concordance between the physician’s perception and patients' reports. A total of 690 HIV-infected patients attending 24 centers across Italy were enrolled. Concordance was calculated by K statistics. Association between depression and subject characteristics were evaluated through univariate and multivariate logistic models (OR and 95%CI). The prevalence of depressive symptoms was 48.8% from patient’s questionnaires and 49.5% from physicians' reports, with a low/fair concordance (K = .38, p < .001). CES-D-20 found severe depression in 22.5% of the patients vs 4% identified by physicians. 135/155 (87%) of the severely depressed patients (according to CES-D-20) were considered as non or mildly/moderately depressed by physicians. Risk of severe depression was associated with unemployment (p < .001), previous depression (p < .001), treatment failure (p = .001), and former smoking status (p = .018). Depression is frequent in HIV-infected patients in the HAART era, with significant discrepancy between physician perception and the self-reported CES-D-20 results. Screening should be mandatory in all HIV patients.


BACKGROUND: The HIV continuum of care paradigm uses a single viral load test per patient to estimate the prevalence of viral suppression. We compared this single-value approach with approaches that used multiple viral load tests to examine the stability of suppression. METHODS: The retrospective analysis included HIV patients who had at least 2 viral load tests during a 12-month observation period. We assessed the (1) percent with suppressed viral load (<200 copies/mL) based on a single test during observation, (2) percent with suppressed viral loads on all tests during observation, (3) percent who maintained viral suppression among patients whose first observed viral load was suppressed, and (4) change in viral suppression status comparing
first with last measurement occasions. Prevalence ratios compared demographic and clinical subgroups. RESULTS: Of 10,942 patients, 78.5% had a suppressed viral load based on a single test, whereas 65.9% were virally suppressed on all tests during observation. Of patients whose first observed viral load was suppressed, 87.5% were suppressed on all subsequent tests in the next 12 months. More patients exhibited improving status (13.3% went from unsuppressed to suppressed) than worsening status (5.6% went from suppressed to unsuppressed). Stable suppression was less likely among women, younger patients, black patients, those recently diagnosed with HIV, and those who missed >/=1 scheduled clinic visits. CONCLUSIONS: Using single viral load measurements overestimated the percent of HIV patients with stable suppressed viral load by 16% (relative difference). Targeted clinical interventions are needed to increase the percent of patients with stable suppression.


With widespread and effective antiretroviral therapy, the life expectancy in the HIV population has dramatically improved over the last two decades. Consequently, as patients are aging with HIV, other age-related comorbidities, such as metabolic disturbances and cardiovascular disease (CVD), have emerged as important causes of morbidity and mortality. An overrepresentation of traditional cardiovascular risk factors (RF), toxicities associated with long exposure to antiretroviral therapy, together with residual chronic inflammation and immune activation associated with HIV infection are thought to predispose to these metabolic complications and to the excess risk of CVD observed in the HIV population. The metabolic syndrome (MS) represents a clustering of RF for CVD that includes abdominal obesity, hypertension, dyslipidemia and insulin resistance. Hypertension is a prevalent feature of the MS in HIV, in particular in the aging population, and constitutes an important RF for CVD. Physicians should screen their patients for metabolic and cardiovascular risk at the regular visits to reduce MS and the associated CVD risk among people aging with HIV, since many of RF are under-diagnosed and under-treated conditions. Interventions to reduce these RF can include lifestyle changes and pharmacological interventions such as antihypertensive and lipid-lowering therapy, and treatment of glucose metabolism disturbances. Changes in antiretroviral therapy to more metabolic neutral antiretroviral drugs may also be considered.


In the United States more than half of everyone who ever smoked has quit. Most people addicted to nicotine require several quit attempts to stop, but in some people with HIV a failed quit attempt predicts future success. People with HIV appear to have a harder time quitting than people without HIV. CDC analysis of nationally representative samples figured a quit ratio of 52% in the general population versus 32% in HIV-positive people. Studies in HIV populations indicate that those most likely to quit smoking include older people, pregnant women, and people with a high motivation to quit, a previous quit attempt, or recent pulmonary disease. US health authorities recommend that clinicians adopt the 5As approach to smoking cessation: ask, advise, assess, assist, and arrange. But only a little more than half of US clinicians assist smokers in picking a smokeending strategy, and only 10% arrange follow-up within the first week after a quit date. Smokingcessation medications recommended and tested in people with HIV are varenicline, bupropion, and nicotine replacement in various forms. Success with these strategies generally ranges from 10% to 20% in HIV-positive people, with higher success rates in some subgroups. Successful nondrug strategies to support drug therapy in people with HIV include an Internet-based interactive program, cell-phone reminder calls, one-time 1-hour one-on-one counseling, and formal clinician education.


BACKGROUND: CD4 count at start of combination antiretroviral therapy (ART) is strongly associated with short-term survival, but its association with longer-term survival is less well characterized. METHODS: We estimated mortality rates (MRs) by time since start of ART (<0.5, 0.5-0.9, 1-2.9, 3-4.9, 5-9.9, and >/=10 years) among patients from 18 European and North American cohorts who started ART during 1996-2001. Piecewise exponential models stratified by cohort were used to estimate crude and adjusted (for sex, age, transmission risk, period of starting ART [1996-1997, 1998-1999, 2000-2001], and AIDS and human immunodeficiency virus type 1 RNA at baseline) mortality rate ratios (MRRs) by CD4 count at start of ART (0-49, 50-99, 100-199, 200-349, 350-499, >/=500 cells/µL) overall and separately according to time since start of ART. RESULTS: A total of 6344 of 37 496 patients died during 359 219 years of follow-up. The MR per 1000 person-years was 32.8 (95% confidence interval [CI], 30.2-
35.5) during the first 6 months, declining to 16.0 (95% CI, 15.4-16.8) during 5-9.9 years and 14.2 (95% CI, 13.3-15.1) after 10 years' duration of ART. During the first year of ART, there was a strong inverse association of CD4 count at start of ART with mortality. This diminished over the next 4 years. The adjusted MRR per CD4 group was 0.97 (95% CI, .94-1.00; P = .054) and 1.02 (95% CI, .98-1.07; P = .32) among patients followed for 5-9.9 and >/=10 years, respectively. CONCLUSIONS: After surviving 5 years of ART, the mortality of patients who started ART with low baseline CD4 count converged with mortality of patients with intermediate and high baseline CD4 counts.


Treatment for hypogonadism is on the rise, particularly in the aging population. Yet treatment in this population represents a unique challenge to clinicians. The physiology of normal aging is complex and often shares the same, often vague, symptoms of hypogonadism. In older men, a highly prevalent burden of comorbid medical conditions and polypharmacy complicates the differentiation of signs and symptoms of hypogonadism from those of normal aging, yet this differentiation is essential to the diagnosis of hypogonadism. Even in older patients with unequivocally symptomatic hypogonadism, the clinician must navigate the potential benefits and risks of treatment that are not clearly defined in older men. More recently, a greater awareness of the potential risks associated with treatment in older men, particularly in regard to cardiovascular risk and mortality, have been appreciated with recent changes in the US Food and Drug Administration recommendations for use of testosterone in aging men. The aim of this review is to provide a framework for the clinician evaluating testosterone deficiency in older men in order to identify correctly and treat clinically significant hypogonadism in this unique population while minimizing treatment-associated harm.


BACKGROUND: Despite the success of antiretroviral therapy (ART), HIV-infected older African Americans experience higher mortality rates compared to their white counterparts. This disparity may be partly attributable to the differences in ART adherence by different racial and gender groups. The purpose of this study was to describe demographic, psychosocial, and HIV disease-related factors that influence ART adherence and to determine whether race and gender impact ART adherence among HIV-infected adults aged 50 years and older. METHODS: This descriptive study involved a secondary analysis of baseline data from 426 participants in "PRIME," a telephone-based ART adherence and quality-of-life intervention trial. Logistic regression was used to examine the association between independent variables and ART adherence. RESULTS: Higher annual income and increased self-efficacy were associated with being >/=95% ART adherent. Race and gender were not associated with ART adherence. CONCLUSION: These findings indicated that improvements in self-efficacy for taking ART may be an effective strategy to improve adherence regardless of race or gender.


Responding to a national need for a new workforce of HIV care providers as the first generation of providers decrease their practices or retire, the Duke University School of Nursing, with funding from the Health Resources and Services Administration, developed and implemented a program to train nurse practitioners (NP) to assume the full spectrum of primary care services needed by people living with HIV infection and various co-morbidities. The 12-credit program includes course work in HIV-related epidemiology; pathogenesis; psychosocial, political, ethical, and legal issues; and pharmacology and clinical management. Students complete 392 hours of HIV-specific clinical practice in addition to clinical hours required of all NP students. The program is the only distance-based program of its kind in the United States. Online didactic instruction is complemented by campus-based sessions with interprofessional faculty. We describe the 5 overarching goals that frame the program, and challenges and progress toward achieving those goals.


OBJECTIVES: An increasing proportion of people living with HIV are older adults, who may require specialized care. Adverse physical and psychological effects of HIV infection may be greatest among older people or those who have lived longer with HIV. METHODS: The Astra study is a cross-sectional questionnaire study of 3258 HIV-diagnosed adults (2248 men who have sex with men, 373 heterosexual men and 637 women) recruited from UK clinics in 2011-2012. Associations of age group with
physical symptom distress (significant distress for at least one of 26 symptoms), depression and anxiety symptoms (scores ≥ 10 on PHQ-9 and GAD-7, respectively), and health-related functional problems (problems on at least one of three domains of the Euroqol 5D-3L) were assessed, adjusting for time with diagnosed HIV infection, gender/sexual orientation and ethnicity.

RESULTS: The age distribution of participants was: < 30 years, 5%; 30-39 years, 23%; 40-49 years, 43%; 50-59 years, 22%; and ≥ 60 years, 7%. Overall prevalences were: physical symptom distress, 56%; depression symptoms, 27%; anxiety symptoms, 22%; functional problems, 38%. No trend was found in the prevalence of physical symptom distress with age [adjusted odds ratio (OR) for trend across age groups, 0.96; 95% confidence interval (CI) 0.89, 1.04; P = 0.36]. The prevalence of depression and anxiety symptoms decreased with age [adjusted OR 0.86 (95% CI 0.79, 0.94; P = 0.001) and adjusted OR 0.85 (95% CI 0.77, 0.94; P = 0.001), respectively], while that of functional problems increased (adjusted OR 1.28; 95% CI 1.17, 1.39; P < 0.001). In contrast, a longer time with diagnosed HIV infection was strongly and independently associated with a higher prevalence of symptom distress, depression symptoms, anxiety symptoms, and functional problems (P < 0.001 for trends, adjusted analysis). CONCLUSIONS: Among people living with HIV, although health-related functional problems were more common with older age, physical symptom distress was not, and mental health was more favourable. These results suggest that a longer time with diagnosed HIV infection, rather than age, is the dominating factor contributing to psychological morbidity and lower quality of life.


OBJECTIVE: New guidelines recommend that all HIV-infected individuals initiate antiretroviral treatment (ART) immediately following diagnosis. This study describes how immune reconstitution varies by gender and age to help identify poorly reconstituting subgroups and inform targeted testing initiatives. DESIGN: Longitudinal data from the outpatient monitoring system of the National AIDS Control Program in Tanzania. METHODS: An asymptotic nonlinear mixed effects model was fit to post-treatment CD4+ cell count trajectories, allowing for fixed effects of age and sex, and an age by sex interaction. RESULTS: Across 220,544 clinic visits from 32,069 HIV-infected patients, age- and sex-specific average CD4+ cell count at ART initiation ranged from 83-136 cells/mm3, long term asymptotic CD4+ cell count ranged from 301-389 cells/mm3, and time to half of maximal CD4+ reconstitution ranged from 3.57-5.68 months. CD4+ cell count at ART initiation and asymptotic CD4+ cell count were 1.28 (95% CI: 1.18-1.40) and 1.25 (95% CI: 1.20-1.31) times higher, respectively, for females compared to males in the youngest age group (19-29 years). Older patients started treatment at higher CD4+ counts but experienced slower CD4+ recovery than younger adults. Treatment initiation at greater CD4+ cell counts was correlated with greater asymptotic CD4+ cell counts within all sex and age groups. CONCLUSION: Older adults should initiate care early in disease progression because total immune reconstitution potential and rate of reconstitution appears to decrease with age. Targeted HIV testing and care linkage remains crucial for patient populations who tend to initiate treatment at lower CD4+ cell counts, including males and younger adults.


BACKGROUND: New patterns in epidemiological characteristics of people living with HIV infection (PLWH) and the introduction of Highly Active Antiretroviral Therapy (HAART) have changed the profile of hospital admissions in this population. The aim of this study was to evaluate trends in hospital admissions, re-admissions, and mortality rates in HIV patients and to analyze the role of HCV co-infection. METHODS: A retrospective cohort study conducted on all hospital admissions of HIV patients between 1993 and 2013. The study time was divided in two periods (1993-2002 and 2003-2013) to be compared by conducting a comparative cross-sectional analysis. RESULTS: A total of 22,901 patient-years were included in the analysis, with 6917 hospital admissions, corresponding to 1937 subjects (75% male, mean age 36+/-11 years, 37% HIV/HCV co-infected patients). The median length of hospital stay was 8 days (5-16), and the 30-day hospital re-admission rate was 20.1%. A significant decrease in hospital admissions related with infectious and psychiatric diseases was observed in the last period (2003-2013), but there was an increase in those related with malignancies, cardiovascular, gastrointestinal, and chronic respiratory diseases. In-hospital mortality remained high (6.8% in the first period vs. 6.3% in the second one), with a progressive increase of non-AIDS-defining illness deaths (37.9% vs. 68.3%, P<.001). The admission rate significantly dropped after 1996 (4.9% yearly), but it was less pronounced in HCV co-infected patients (1.7% yearly). CONCLUSIONS: Hospital admissions due to infectious and psychiatric disorders have decreased, with a significant increase in non-AIDS-defining malignancies, cardiovascular, and chronic respiratory diseases. In-hospital mortality is currently still high, but mainly because of non-AIDS-defining illnesses. HCV co-infection increased the hospital stay and re-admissions during the study period.

Opioids are often prescribed for chronic pain, and opioid risks such as overdose and death are heightened when opioids are co-prescribed with other sedating medications. We investigated factors associated with chronic opioid prescription, alone and in combination with benzodiazepines and muscle relaxants, in a clinical cohort of individuals with HIV. We used multivariable logistic regression models to determine participant clinical and demographic characteristics that are associated with chronic prescription of opioids or chronic co-prescription of opioids with sedating medications. Among 1474 participants, chronic prescription of opioids occurred in 253 individuals (17.2 %), and chronic co-prescription occurred in 90 individuals (6.1 %). Age >50, public insurance as compared to private insurance, and symptoms of depression and anxiety were significantly associated with chronic opioid prescription and chronic co-prescription. Our findings raise concern that opioid prescription and co-prescription of sedating medications occurs disproportionately in patients for whom use is riskier.


Background Less than 30% of the 1.2 million persons living with HIV in the United States are successfully treated. There is a deficit in knowledge and skills to address the HIV epidemic among the health and service delivery workforce.

Purpose The purpose of our study was to evaluate the effect of a didactic and hands-on interprofessional HIV curriculum among a health and service delivery professions students in a US urban area using a Knowledge, Attitudes and Beliefs (KAB) framework.

Methods A pre- and post-test evaluation was distributed to students in the 2012–2013 academic year. Open-ended questions gathered “free-form” insight from participants. A total of 179 students (82% response rate) from the five academic disciplines completed the evaluations.

Discussion The Preparing the Future program accomplished its goal of increasing knowledge and attitudes about HIV among participants. Educating health and service delivery professions students about HIV provides an opportunity to influence knowledge and attitudes.


OBJECTIVE: As empirical evidence for the effectiveness of LGB-affirmative psychotherapy emerges, the question of whether some clients may derive greater benefit than others becomes important. The current study investigated whether internalized homonegativity (IH), both explicit and implicit, moderated the efficacy of a cognitive-behavioral intervention designed to improve the mental and sexual health of young gay and bisexual men through facilitating minority stress coping.

METHOD: At baseline, young gay and bisexual men (n = 54) experiencing symptoms of depression and anxiety completed measures of explicit and implicit IH. Participants also completed self-reports of mental health and an interviewer-based assessment of past-90-day risk behavior before and after treatment in a 10-session individual LGB-affirmative intervention.

RESULTS: Moderation analyses showed that participants higher in implicit IH experienced greater reductions in depression (b = -2.99, p = .031, 95% confidence interval [CI] [-5.69, -0.29]), anxiety (b = -3.56, p = .014, 95% CI [-6.35, -0.76]), and past-90-day condomless anal sex with casual partners (b = -1.29, p = .028, 95% CI [-2.44, -0.14]). Participants higher in explicit IH experienced greater reductions in past-90-day heavy drinking (b = -0.42, p = .003, 95% CI [-0.69, -0.15]).

CONCLUSIONS: These findings indicate that greater gains from LGB-affirmative psychotherapy were observed in gay and bisexual men who were higher in IH, particularly when measured implicitly. As the first study that examines factors moderating the efficacy of LGB-affirmative psychotherapy, the present research has important implications for intervention development and highlights the value of incorporating implicit measures into clinical work. (PsycINFO Database Record


The aim of this paper was to evaluate the effectiveness of an online self-management program in improving health outcomes and well-being for gay men living with HIV in Australia. The online Positive Outlook Program was based on self-efficacy theory and used a self-management approach to enhance HIV-positive gay men’s skills, confidence and abilities to manage the psychosocial issues associated with HIV in daily life. The 7-week program was delivered in closed groups and comprised information modules, action-planning activities, moderated discussion boards, and weekly peer-facilitated 'live chats'. A
randomised controlled trial was conducted to establish the effectiveness of the Positive Outlook program compared to a 'usual care' control. Participants were HIV-positive gay men 18 years or older living in Australia. Primary outcomes were evaluated at three time-points (baseline, post-intervention and 12-week's post-intervention follow-up) and included HIV-related quality of life (PROQOL-HIV), outcomes of health education (HeiQ) and HIV specific self-efficacy (Positive Outlook Self-Efficacy Scale). A total of 132 gay men with HIV in Australia were randomly allocated to the intervention \( n = 68 \) or usual care control \( n = 64 \) groups. Maximum likelihood marginal-linear modelling indicated significant improvement in the intervention group on the PROQOL-HIV subscales of body change \( \beta = 0.036 \), social relationships \( \beta = 0.035 \) and emotional distress \( \beta = 0.031 \); the HeiQ subscales of health-directed activity \( \beta = 0.048 \); constructive attitudes and approaches \( \beta = 0.015 \); skill and technique acquisition \( \beta = 0.046 \) and health service navigation \( \beta = 0.008 \); and the Positive Outlook Self-Efficacy Scale on the subscales of relationships \( \beta = 0.019 \); social participation \( \beta = 0.006 \); and emotions \( \beta = 0.041 \). Online delivery of self-management programs is feasible and has the potential to improve quality of life, self-management skills and domain specific self-efficacy for gay men with HIV.


OBJECTIVES: This study examined how community levels of implicit HIV prejudice are associated with the psychological and physical well-being of people with HIV living in those same communities. It also examined whether community motivation to control prejudice and/or explicit HIV prejudice moderates the relationship of implicit prejudice and well-being. METHOD: Participants were 206 people with HIV living in 42 different communities in New England who completed measures that assessed psychological distress, thriving, and physical well-being. Telephone surveys of 347 residents of these same communities (selected via random digit dialing) were used to assess community explicit HIV prejudice and motivation to control HIV prejudice. These community residents then completed an online measure of implicit prejudice toward people with HIV, the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). RESULTS: Multilevel analyses showed that higher community implicit HIV prejudice was associated with greater psychological distress among residents with HIV living in that community. The physical well-being of participants with HIV was negatively related to community implicit HIV prejudice in communities in which residents were unmotivated to control HIV prejudice or had high levels of explicit HIV prejudice. CONCLUSIONS: These findings indicate that implicit prejudice of residents of real-world communities may create an environment that may impair the well-being of stigmatized people. Implicit prejudice can therefore be considered an element of macro-level or structural stigma. The discussion considered the possible role of implicit HIV prejudice on a community's social capital as a pathway by which it compromises the well-being of residents with HIV.


We determined factors associated with diet quality and assessed the relationship between diet quality, birth weight, and gestational age in a prospective national multicenter cohort study. We evaluated diet quality with the Healthy Eating Index (HEI, scale 0-100) in the third trimester of pregnancy with three 24-hr multiple-pass dietary recalls in 266 HIV+ women enrolled in the Pediatric HIV/AIDS Cohort Study. Covariates included demographics, food security, pre-pregnancy body mass index, HIV disease severity, substance use, and antiretroviral exposures. A two-stage multivariate process using classification and regression trees (CART) followed by multiple regression described HEI tendencies, controlled possible confounding effects, and examined the association of HEI with birth weight and gestational age. To assess the stability of the CART solution, both the HEI 2005 and 2010 were evaluated. The mean HEI scores were 56.1 and 47.5 for the 2005 and 2010 HEI, respectively. The first-stage CART analysis examined the relationship between HEI and covariates. Non-US born versus US-born mothers had higher HEI scores (15-point difference, \( R^2 = 0.28 \)). There was a secondary partition due to alcohol/cigarette/illicit drug usage (3.5-point difference, \( R^2 = 0.03 \)) among US-born women. For the second-stage CART adjusted multiple regression, birth weight z-score was positively related to HEI 2005 and 2010 (partial \( r^2 > 0.13 \), \( P^2 < 0.0398 \), but not gestational age \( r = 0.00 \)). We conclude that diet quality among HIV+ women is associated with higher birth weight. Despite the influence of a large cultural effect and poor prenatal behaviors, interventions to improve diet in HIV+ women may help to increase birth weight.


Poor retention in HIV medical care is associated with increased mortality among patients with HIV/AIDS. Developing new interventions to improve retention in HIV primary care is needed. The Department of Veteran Affairs (VA) is the largest single provider of HIV care in the US. We sought to understand what veterans would want in an intervention to improve retention in VA...
HIV care. We conducted 18 one-on-one interviews and 15 outpatient focus groups with 46 patients living with HIV infection from the Michael E. DeBakey VAMC (MEDVAMC). Analysis identified three focus areas for improving retention in care: developing an HIV friendly clinic environment, providing mental health and substance use treatment concurrent with HIV care and encouraging peer support from other Veterans with HIV.


BACKGROUND: Whether or not the association between some antiretrovirals used in HIV infection and chronic kidney disease is cumulative is a controversial topic, especially in patients with initially normal renal function. In this study, we aimed to investigate the association between duration of exposure to antiretrovirals and the development of chronic kidney disease in people with initially normal renal function, as measured by estimated glomerular filtration rate (eGFR). METHODS: In this prospective international cohort study, HIV-positive adult participants (aged ≥16 years) from the D:A:D study (based in Europe, the USA, and Australia) with first eGFR greater than 90 mL/min per 1.73 m(2) were followed from baseline (first eGFR measurement after Jan 1, 2004) until the occurrence of one of the following: chronic kidney disease; last eGFR measurement; Feb 1, 2014; or final visit plus 6 months (whichever occurred first). Chronic kidney disease was defined as confirmed (>3 months apart) eGFR lower than 60 mL/min per 1.73 m(2). The primary outcome was the occurrence of chronic kidney disease. Poisson regression was used to estimate the incidence rate of chronic kidney disease associated with cumulative exposure to tenofovir disoproxil fumarate, ritonavir-boosted atazanavir, ritonavir-boosted lopinavir, other ritonavir-boosted protease inhibitors, or abacavir. FINDINGS: Between Jan 1, 2004, and July 26, 2013, 23,905 eligible individuals from the D:A:D study were included. Participants had a median baseline eGFR of 110 mL/min per 1.73 m(2) (IQR 100-125), a median age of 39 years (33-45), and median CD4 cell count of 441 cells per mm(3) (294-628). During a median follow-up of 7.2 years (IQR 5.1-8.9), 285 (1%) of 23,905 people developed chronic kidney disease (incidence 1.76 per 1000 person-years of follow-up [95% CI 1.56-1.97]). After adjustment, we recorded a significant increase in chronic kidney disease associated with each additional year of exposure to tenofovir disoproxil fumarate [adjusted incidence rate ratio 1.14 [95% CI 1.10-1.19], p<0.0001], ritonavir-boosted atazanavir [1.20 [1.13-1.26], p<0.0001], and ritonavir-boosted lopinavir [1.11 [1.06-1.16], p<0.0001], but not other ritonavir-boosted protease inhibitors or abacavir. INTERPRETATION: In people with normal renal function, the annual incidence of chronic kidney disease increased for up to 6 years of exposure to tenofovir disoproxil fumarate, ritonavir-boosted atazanavir, or ritonavir-boosted lopinavir therapy. Although the absolute number of new cases of chronic kidney disease was modest, treatment with these antiretrovirals might result in an increasing and cumulative risk of chronic kidney disease. Patients on potentially nephrotoxic antiretrovirals or at high risk of chronic kidney disease should be closely monitored. FUNDING: The Highly Active Antiretroviral Therapy Oversight Committee.


OBJECTIVES: To examine the validity of deterministic compared to probabilistic record linkage in the ascertainment of hospitalizations in two linked cohorts. STUDY DESIGN AND SETTING: HIV-negative (HIV-ve) (n = 1,325) and HIV-positive (HIV+ve) gay and bisexual men (n = 557) recruited in Sydney, Australia, were probabilistically and deterministically linked to a statewide hospital registry (July 2000-June 2012). RESULTS: Using probabilistic linkage as the reference standard, deterministic linkage had higher specificity but much lower sensitivity [34.67% (95% confidence interval: 33.44, 35.92)]. A disproportionate number of links missed were individuals with poorer socioeconomic and health indicators, including HIV status. Risk of hospitalization compared to the general male population [HIV+ve standardized incidence ratio (SIR) = 1.45 (1.33-1.59); HIV-ve SIR = 0.72 (0.67-0.78)] was significantly underestimated when deterministic linkage was used [HIV+ve SIR = 0.46 (0.37-0.58); HIV-ve SIR = 0.29 (0.24-0.35)]. The impact of linkage strategy on the calculation of incidence rate ratios (IRRs) was less, but a greater discrepancy in IRRs was seen for diagnostic categories where event rates were low or where the sensitivity of the deterministic linkage was differential between the two cohorts. CONCLUSION: Linkage without proven high sensitivity and specificity should be carefully considered. In circumstances of undetermined sensitivity, SIRs should not be calculated as the extent of underestimation is unknown. The comparison of linked events within or between cohorts is more robust to linkage misclassification; however, selection bias does affect estimates and should be considered before linkage.

Background: Following HIV-1 acquisition, many individuals develop an acute retroviral syndrome and a majority seek care. Available antibody testing cannot detect an acute HIV infection, but repeat testing after 2–4 weeks may detect seroconversion. We assessed the effect of appointment reminders on attendance for repeat HIV testing. Methods: We enrolled, in a randomized controlled trial, 18–29 year old patients evaluated for acute HIV infection at five sites in Coastal Kenya (ClinicalTrials.gov). Participants were allocated 1:1 to either standard appointment (a dated appointment card) or enhanced appointment (a dated appointment card plus SMS and phone call reminders, or in-person reminders for participants without a phone). The primary outcome was visit attendance, i.e., the proportion of participants attending the repeat test visit. Factors associated with attendance were examined by bivariable and multivariable logistic regression. Principal Findings: Between April and July 2013, 410 participants were randomized. Attendance was 41% (85/207) for the standard group and 59% (117/199) for the enhanced group, for a relative risk of 1.4 [95% Confidence Interval, CI, 1.2–1.7]. Higher attendance was independently associated with older age, study site, and report of transactional sex in past month. Lower attendance was associated with reporting multiple partners in the past two months. Conclusions: Appointment reminders through SMS, phone calls and in-person reminders increased the uptake of repeat HIV test by forty percent. This low-cost intervention could facilitate detection of acute HIV infections and uptake of recommended repeat testing. Trial Registration: Clinicaltrials.gov


The development and use of antiretroviral medications to treat patients infected with human immunodeficiency virus (HIV) has dramatically changed the course of this disease from one that was fatal to a chronic and more manageable condition. Recommendations and guidelines for the general population are presented in this review with suggestions as to how they may be applied to this patient population. Issues for which there is little or no information available are noted to highlight the many gaps in our knowledge regarding diagnosis and management of dyslipidemia for patients living with HIV.


The A-DROP scoring system was originally designed to assess clinical severity of community acquired pneumonia using the following parameters: advanced Age, Dehydration, Respiratory failure, Orientation disturbance (confusion); and, low blood Pressure. Total A-DROP score ranges zero to five assigning one point for each component, wherein five indicates the poorest prognosis. The purpose of this single-center retrospective study was to determine whether A-DROP could predict the risk for death in patients with pulmonary tuberculosis. We reviewed consecutive HIV-negative, non-multidrug-resistant smear-positive adult pulmonary tuberculosis patients. The cohort consisted of 134 men (38.8%), 211 women (61.2%), 272 who discharged alive (28.8%), and 73 who died in-hospital (21.2%) with a median age of 72 (IQR: 54-82) years. A one-point increase in the A-DROP score was associated with a higher risk for in-hospital mortality with odds ratio of 3.8 (95% confidence interval 2.8-5.2, P < 0.001). The area under receiver operating characteristics curve was 0.86. The total score cutoff of 1.5 provided the best Youden Index of 0.61. Using this criteria, total score >1.5, sensitivity was 85% and specificity was 76%. Kaplan-Meier curve clearly indicated that inhospital mortality increased with higher A-DROP scores (Log-rank test <0.001). In conclusion, A-DROP score clearly indicate pulmonary tuberculosis in-hospital mortality.


**BACKGROUND:** Human immunodeficiency virus (HIV) infected individuals frequently suffer from anxiety and depression. Depression has been associated with rapid decline in CD4 counts and worsened treatment outcomes in HIV-infected patients. Yoga has been used to reduce psychopathology and improve immunity. AIM: To study the effect of 1-month integrated yoga (IY) intervention on anxiety, depression, and CD4 counts in patients suffering from HIV-1 infection. METHODS: Forty four HIV-1 infected individuals from two HIV rehabilitation centers of Manipur State of India were randomized into two groups: Yoga (n = 22; 12 males) and control (n = 22; 14 males). Yoga group received IY intervention, which included physical postures (asanas), breathing practices (pranayama), relaxation techniques, and meditation. IY sessions were given 60 min/day, 6 days a week for 1 month. Control group followed daily routine during this period. All patients were on anti-retroviral therapy (ART) and dosages were kept stable during the study. There was no significant difference in age, gender, education, CD4 counts, and ART status...
between the two groups. Hospital anxiety and depression scale was used to assess anxiety and depression, CD4 counts were measured by flow cytometry before and after intervention. Analysis of variance - repeated measures was applied to analyze the data using SPSS version 10. RESULTS: Within group comparison showed a significant reduction in depression scores (F [1, 21] =4.19, P < 0.05) and non-significant reduction in anxiety scores along with non significant increment in CD4 counts in the yoga group. In the control group, there was a non-significant increase in anxiety and depression scores and reduction in CD4 counts. Between-group comparison revealed a significant reduction in depression scores (F [1, 21] =5.64, P < 0.05) and significant increase in CD4 counts (F [1, 21] =5.35, P < 0.05) in the yoga group as compared to the control. CONCLUSION: One month practice of IY may reduce depression and improve immunity in HIV-1 infected adults.


INTRODUCTION: The burden of HIV is increasing among adults aged over 50, who generally experience increased risk of cormorbid illnesses and poorer financial protection. We compared patterns of health utilisation and expenditure among HIV-positive and HIV-negative adults over 50. METHODS: Data were drawn from the Study on global AGEing and adult health in South Africa with analysis focusing on individual and household-level data of 147 HIV-positive and 2725 HIV-negative respondents. RESULTS: HIV-positive respondents reported lower utilisation of private health-care facilities (11.8%) than HIV-negative respondents (25.0%) (p = .03) and generally had more negative attitudes towards health system responsiveness than HIV-negative counterparts. Less than 10% of HIV-positive and HIV-negative respondents experienced catastrophic health expenditure (CHE). Women (OR 1.8; p < .001) and respondents from rural settings (OR 2.9; p < .01) had higher odds of CHE than men or respondents in urban settings. Over half the respondents in both groups indicated that they had received free health care. CONCLUSIONS: These findings suggest that although HIV-positive and HIV-negative older adults in South Africa are protected to some extent from CHE, inequalities still exist in access to and quality of care available at health-care services - which can inform South Africa’s development of a national health insurance scheme.


OBJECTIVE: To assess the current frequency of ART-associated grade 3-4 transaminase elevations (TE) and grade 4 total bilirubin elevations (TBE) in HIV-infected patients with chronic hepatitis B and/ or C, who start a new regimen of ART. PATIENTS AND METHODS: A total of 192 pre-treated or treatment-naive HIV infected patients with HBV and/or HCV-coinfection who started ART in eight Southern Spanish centers from July/2011-December/2013, were followed for 12 months in this prospective study. RESULTS: Forty-one (21.4%) subjects had been naive to ART, median (IQR) follow-up was 11.6 (5.6-12.9) months. The most frequently initiated NRTI were tenofovir/emtricitabine [49 patients (25.5%)]. Eighty-nine (46.4%) patients started a ritonavir-boosted protease inhibitor and 77 (40.1%) individuals a NNRTI.Raltegravir and maraviroc were initiated in 24 (12.5%) and 9 (4.7%) individuals. Ten [5.21%; 95% confidence interval (CI): 2.53%-9.37%] patients presented grade 3 TE, while 8 (4.17%; 95%CI: 1.82%-8.04%) subjects showed grade 4 TBE. No episodes of grade 4 TE or ART discontinuation due to hepatotoxic events were observed. The use of ritonavir-boosted atazanavir was the only independent predictor for grade 4 TBE [adjusted odds ratio: 7.327 (95%CI: 1.417-37.89); p = 0.018] in an analysis adjusted for age, sex and baseline HIV-RNA levels, while no factor could be independently associated with grade 3-4 TE. CONCLUSIONS: Currently, the frequency of severe ART-associated TE and TBE under real-life conditions in patients with chronic viral hepatitis is similar to what has been reported previously. However, episodes of grade 4 TE are less frequent and severe TE appears to be of lesser concern.


Generational change is believed to be transforming the educational and employment preferences of medical trainees. In this article, we examine generational tensions in interviews with policy leaders and clinicians on workforce issues within one subset of the Australian medical profession: general practitioners who provide care to people with HIV in community settings. Integrating the accounts of policy leaders (n = 24) and clinicians representing the ‘first generation’ (n = 21) and ‘next generation’ (n = 23) of clinicians to do this work, shared and divergent perspectives on the role of generational change in shaping professional engagement were revealed. While those engaged in the early response to HIV believed younger clinicians to be less interested in the scientific and political dimensions of HIV care and more concerned about financial security and life balance, the next
generation both countered and integrated these beliefs into new ways of conceptualising the value and appeal of this field of medicine. Critical appraisal of the assumptions that underpin generational discourse is essential in appreciating the changing views of providers over time, particularly in fields of medicine which have featured significant historical turning points.


OBJECTIVE: To understand the misreporting rate regarding the routes of transmission among the reported HIV patients in Yili prefecture of Xinjiang, since 2011. METHODS: An investigation focusing on the route of transmission among people living with HIV/AIDS was carried out to clarify the responsible reasons for the situation. RESULTS: The overall incorrect reporting rate on the route of transmission was 10.8%. The proportion of heterosexual transmission route was over estimated by 63.8% to 72.0%. However, the proportion of injecting drug was underestimated by 27.5% to 22.2%. The number of cases being confirmed as through heterosexual transmission but incorrectly reported was quite high, contributing 82.6% of all the incorrectly reported cases. Most of the patients that incorrect reported, were moved from injecting drug use to heterosexual transmission, which contributed 79.5% of all the total incorrectly reported cases. Results from multi-factor analysis showed that the risk related to incorrect reporting was 3.64 times in males than in females. People who anticipated to receive HIV testing were 2.23 times more than those who had not. Old-age groups were 3.511, 4.053, 4.415 and 6.524 times higher than those people who were aged below 16 years. CONCLUSIONS: The proportion of heterosexual transmission route was over-estimated while the proportion on injecting drug use was underestimated. However, the transmission pattern had changed from injecting drug use at the early epidemic stage, to current sexual transmission mode. We recommended that more attentions should be paid to patients who were males, at older age or those who had no expectation in receiving the HIV testing, during the initial following-up stage.


As of July 2015, over 15 million people worldwide were undergoing lifesaving antiretroviral therapy to treat HIV, marking the achievement of an important Millennium Development Goal. More research is needed to determine sustainable interventions to engage patients in HIV care. We explored the perceptions, facilitators, and barriers of engagement in HIV care among people living with HIV. Fourteen patients participated in a focus group and in-depth interviews to propagating our understanding of participants’ readiness to engage and remain in HIV care. The themes that emerged were a desire to live and stay well, positive influence from support systems, struggles with mental and physical illness, safe haven in clinic and with staff, system reminders to stay in care, life gets in the way, struggles with alcohol and drugs, and a desire to feel needed. This study provides preliminary data designed to increase engagement and retention in care critical in the HIV Care Continuum for models of high-impact prevention.


Results from several studies have suggested that people with HIV have an increased risk of cardiovascular disease, especially coronary heart disease, compared with people not infected with HIV. People living with HIV have an increased prevalence of traditional cardiovascular disease risk factors, and HIV-specific mechanisms such as immune activation. Although older, more metabolically harmful antiretroviral regimens probably contributed to the risk of cardiovascular disease, new data suggest that early and continuous use of modern regimens, which might have fewer metabolic effects, minimises the risk of myocardial infarction by maintaining viral suppression and decreasing immune activation. Even with antiretroviral therapy, however, immune activation persists in people with HIV and could contribute to accelerated atherosclerosis, especially of coronary lesions that are susceptible to rupture. Therefore, treatments that safely reduce inflammation in people with HIV could provide additional cardiovascular protection alongside treatment of both traditional and non-traditional risk factors.


INTRODUCTION: An increasing proportion of adult patients initiating antiretroviral therapy (ART) in resource-limited settings are aged > 50 years. Older populations on ART appear to have heightened risk of death, but little is known about factors

BACKGROUND: People with HIV are living longer with the health-related consequences of HIV, multi-morbidity, and aging. Exercise is a key strategy that may improve or sustain health for people living with HIV. Our aim was to examine the safety and effectiveness of aerobic exercise interventions on immunological, virological, cardiorespiratory, strength, body composition, and psychological outcomes in adults living with HIV. METHODS: We conducted a systematic review using the Cochrane Collaboration protocol. We searched databases up to April 2013. We included randomized controlled trials comparing aerobic exercise with no exercise or another intervention performed at least three times per week for at least four weeks among adults living with HIV. Two reviewers independently determined study eligibility. Data were extracted from studies that met inclusion criteria using standardized forms. We assessed risk of bias using the Cochrane Collaboration's tool for assessing risk of bias. Outcomes were analyzed as continuous and meta-analyses conducted using random effects models with Review Manager (RevMan) computer software. RESULTS: Twenty-four studies met inclusion criteria (n = 936 participants at study completion); the majority of participants were men (73 %) and the majority were taking antiretroviral therapy (19/24 included studies). The exercise intervention included aerobic exercise alone (11 studies) or a combination of aerobic and resistive exercise (13 studies) ranging from 5 to 52 weeks. Fifty-eight meta-analyses were performed. Main results indicated statistically significant improvements in selected outcomes of cardiorespiratory status (maximum oxygen consumption, exercise time), strength (chest press, knee flexion), body composition (lean body mass, percent body fat, leg muscle area), depression symptoms, and quality of life (SF-36 questionnaire) among exercisers compared with non-exercisers. No significant differences in change in CD4 count and viral load were found. CONCLUSIONS: Performing aerobic exercise or a combination of aerobic and resistive exercise at least three times per week for at least five weeks is safe and can lead to improvements in cardiorespiratory fitness, strength, body composition and quality of life for adults with HIV. Aerobic exercise is safe and beneficial for adults living with HIV who are medically stable.


INTRODUCTION: Anal cancer in men who have sex with men (MSM) living with HIV is an important issue but there are no consistent guidelines for how to screen for this cancer. In settings where screening with anal cytology is unavailable, regular anal examinations have been proposed in some guidelines but their cost-effectiveness is unknown. METHODS: Our objective was to estimate the cost-effectiveness of regular anal examinations to screen for anal cancer in HIV-positive MSM living in Australia using a probabilistic Markov model. Data sources were based on the medical literature and a clinical trial of HIV-positive MSM receiving an annual anal examination in Australia. The main outcome measures for calculating effectiveness were undiscounted and discounted (at 3%) lifetime costs, life years gained, quality-adjusted life years (QALY) gained and incremental cost-effectiveness ratio (ICER). RESULTS: Base-case analysis estimated the average cost of screening for and management of anal cancer in MSM living with HIV in Australia with an average ICER of $41,275 per QALY gained.
cancer ranged from $195 for no screening to $1,915 for lifetime annual screening of men aged >/= 50. Screening of men aged >/= 50 generated ICERs of $29,760 per QALY gained (for screening every four years), $32,222 (every three years) and $45,484 (every two years). Uncertainty for ICERs was mostly influenced by the cost (financially and decrease in quality of life) from a false-positive result, progression rate of anal cancer, specificity of the anal examination, the probability of detection outside a screening program and the discount rate. CONCLUSIONS: Screening for anal cancer by incorporating regular anal examinations into routine HIV care for MSM aged >/= 50 is most likely to be cost-effective by conventional standards. Given that anal pap smears are not widely available yet in many clinical settings, regular anal exams for MSM living with HIV to detect anal cancer earlier should be implemented.


BACKGROUND: Viremia copy-years (VCY), a time-updated measure of cumulative HIV exposure, predicts AIDS/death; although its utility in deciding when to start combination antiretroviral therapy (cART) remains unclear. We aimed to assess the impact of initiating versus deferring cART on risk of AIDS/death by levels of VCY both independent of and within CD4 cell count strata >/=500 cells per cubic millimeter. METHODS: Using Concerted Action on Seroconversion to AIDS and Death in Europe (CASCADE) data, we created a series of nested "trials" corresponding to consecutive months for individuals >/=16 years at seroconversion after 1995 who were cART-naive and AIDS-free. Pooling across all trials, time to AIDS/death by CD4, and VCY strata was compared in those initiating vs. deferring cART using Cox models adjusted for: country, sex, risk group, seroconversion year, age, time since last HIV-RNA, and current CD4, VCY, HIV-RNA, and mean number of previous CD4/HIV-RNA measurements/year. RESULTS: Of 9353 individuals, 5312 (57%) initiated cART and 486 (5%) acquired AIDS/died. Pooling CD4 strata, risk of AIDS/death associated with initiating vs. deferring cART reduced as VCY increased. In patients with high CD4 cell counts, >/=500 cells per cubic millimeter, there was a trend for a greater reduction for those initiating vs. deferring with increasing VCY (P = 0.09), with the largest benefit in the VCY >/=100,000 copy-years/mL group [hazard ratio (95% CI) = 0.41 (0.19 to 0.87)]. CONCLUSIONS: For individuals with CD4 >/=500 cells per cubic millimeter, limiting the cumulative HIV burden to <100,000 copy-years/mL through cART may reduce the risk of AIDS/death.


Advances in solid drug nanoparticle technologies have resulted in a number of long-acting (LA) formulations with the potential for once monthly or longer administration. Such formulations offer great utility for chronic diseases, particularly when a lack of medication compliance may be detrimental to treatment response. Two such formulations are in clinical development for HIV but the concept of LA delivery has its origins in indications such as schizophrenia and contraception. Many terms have been utilised to describe the LA approach and standardisation would be beneficial. Ultimately, definitions will depend upon specific indications and routes of delivery, but for HIV we propose benchmarks that reflect perceived clinical benefits and available data on patient attitudes. Specifically, we propose dosing intervals of >/=1week, >/=1month or >/=6months, for oral, injectable or implantable strategies, respectively. This review focuses upon the critical importance of potency in achieving the LA outcome for injectable formulations and explores established and emerging technologies that have been employed across indications. Key technological challenges such as the need for consistency and ease of administration for drug combinations, are also discussed. Finally, the review explores the gaps in knowledge regarding the pharmacology of drug release from particulate-based LA injectable suspensions. A number of hypotheses are discussed based upon available data relating to local drug metabolism, active transport systems, the lymphatics, macrophages and patient-specific factors. Greater knowledge of the mechanisms that underpin drug release and protracted exposure will help facilitate further development of this strategy to achieve the promising clinical benefits.


Adipose tissue dysfunction occurs with aging and has systemic effects, including peripheral insulin resistance, ectopic lipid deposition, and inflammation. Fundamental aging mechanisms, including cellular senescence and progenitor cell dysfunction, occur in adipose tissue with aging and may serve as potential therapeutic targets in age-related disease. In this review, we examine the role of adipose tissue in healthy individuals and explore how aging leads to adipose tissue dysfunction, redistribution, and changes in gene regulation. Adipose tissue plays a central role in longevity, and interventions restricted to...
adipose tissue may impact lifespan. Conversely, obesity may represent a state of accelerated aging. We discuss the potential therapeutic potential of targeting basic aging mechanisms, including cellular senescence, in adipose tissue, using type II diabetes and regenerative medicine as examples. We make the case that aging should not be neglected in the study of adipose-derived stem cells for regenerative medicine strategies, as elderly patients make up a large portion of individuals in need of such therapies.


Recent epidemiological evidences indicate that arsenic exposure increases risk of atherosclerosis, cardiovascular diseases and microangiopathies in addition to the serious global health concern related to its carcinogenic effects. In experiments on animals, acute and chronic exposure to arsenic directly correlates cardiac tachyarrhythmia, and atherogenesis in a concentration and duration dependent manner. Moreover, the other effects of long-term arsenic exposure include induction of non-insulin dependent diabetes by mechanisms yet to be understood. On the other hand, there are controversial issues, gaps in knowledge, and future research priorities of accelerated incidences of CVD and mortalities in patients with HIV who are under long-term antiretroviral therapy (ART). Although, both HIV infection itself and various components of ART initiate significant pathological alterations in the myocardium and the vasculature, simultaneous environmental exposure to arsenic which is more convincingly being recognized as a facilitator of HIV viral cycling in the infected immune cells, may contribute an additional layer of adversity in these patients. In this mini-review which have been fortified with our own preliminary data, we will discuss some of the key current understating of chronic arsenic exposure, and its possible impact on the accelerated HIV/ART induced CVD. The review will conclude with notes on recent developments in mathematical modeling in this field that probabilistically forecast incidence prevalence as functions of aging and life style parameters, most of which vary with time themselves; this interdisciplinary approach provides a complementary kernel to conventional biology.


Health literacy significantly impacts health-related outcomes among people living with HIV. Our aim was to systematically review current literature on health literacy interventions for people living with HIV. The authors conducted a thorough literature search following the PRISMA statement and the AMSTAR checklist as a guide, and found six studies that met inclusion/exclusion criteria. The majority of these interventions were designed to improve HIV treatment adherence as well as HIV knowledge and treatment-related skills, with one study focusing on e-Health literacy. Several of the studies demonstrated trends toward improvement in medication adherence, but most did not achieve statistical significance primarily due to methodological limitations. Significant improvements in knowledge, behavioral skills, and e-Health literacy were found following interventions (p = 0.001-0.05). Health literacy interventions have the potential to promote HIV-related knowledge, behavioral skills, and self-management practices. More research is needed to assess the efficacy of interventions to promote a variety of self-management practices.


BACKGROUND: The life expectancy of patients with human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) reported by several epidemiological studies is inconsistent. This meta-analysis was conducted to estimate the survival rate from HIV diagnosis to AIDS onset and from AIDS onset to death. METHODS: The electronic databases PubMed, Web of Science and Scopus were searched to February 2016. In addition, the reference lists of included studies were checked to identify further references, and the database of the International AIDS Society was also searched. Cohort studies addressing the survival rate in patients diagnosed with HIV/AIDS were included in this meta-analysis. The outcomes of interest were the survival rate of patients diagnosed with HIV progressing to AIDS, and the survival rate of patients with AIDS dying from AIDS-related causes with or without highly active antiretroviral therapy (HAART). The survival rate (P) was estimated with 95% confidence intervals based on random-effects models. RESULTS: In total, 27,862 references were identified, and 57 studies involving 294,662 participants were included in this meta-analysis. Two, 4-, 6-, 8-, 10- and 12-year survival probabilities of progression from HIV diagnosis to AIDS onset were estimated to be 82%, 72%, 64%, 57%, 26% and 19%, respectively. Two, 4-, 6-, 8- and 10-year survival probabilities of progression from AIDS onset to AIDS-related death in patients who received HAART were estimated to be 87%, 86%, 78%, 78%, and 61%, respectively, and 2-, 4- and 6-year survival probabilities of progression from AIDS onset to AIDS-related
death in patients who did not receive HAART were estimated to be 48%, 26% and 18%, respectively. Evidence of considerable heterogeneity was found. The majority of the studies had a moderate to high risk of bias. CONCLUSION: The majority of HIV-positive patients progress to AIDS within the first decade of diagnosis. Most patients who receive HAART will survive for >10 years after the onset of AIDS, whereas the majority of the patients who do not receive HAART die within 2 years of the onset of AIDS.


Although improving health outcomes in human immunodeficiency virus (HIV)-infected persons has been identified as a national priority, little is known about the factors associated with hospitalizations of HIV-infected persons in the highly active antiretroviral therapy (HAART) era. Since the introduction of HAART in 1996, there has been a dramatic increase in the life expectancy of HIV-infected persons. However, aging and the long term use of HIV medications have led to an increased incidence of chronic, non-HIV-related illnesses. To improve patient outcomes, the factors that contribute to co-morbidities in HIV-infected persons need to be identified. As a first step, we will summarize the current literature on causes and contributing factors of hospitalizations in adults infected with HIV in the HAART era.


The purpose of this integrative review is to examine and synthesize extant literature pertaining to barriers to substance abuse and mental health treatment for persons with co-occurring substance use and mental health disorders (COD). Electronic searches were conducted using ten scholarly databases. Thirty-six articles met inclusion criteria and were examined for this review. Narrative review of these articles resulted in the identification of two primary barriers to treatment access for individuals with COD: personal characteristics barriers and structural barriers. Clinical implications and directions for future research are discussed. In particular, additional studies on marginalized sub-populations are needed, specifically those that examine barriers to treatment access among older, non-White, non-heterosexual populations.


Substance use is highly prevalent among people living with HIV (PLWH) and associated with poor health outcomes. Although understudied, integrating substance use and medical care for PLWH may decrease substance use. Using a quasi-experimental design, the authors tested an integrated model of substance use treatment provided by social workers located in HIV medical care settings in North Carolina. Participants were interviewed at baseline (N= 204), six months (n = 157), and 12 months (n = 138) using the Addiction Severity Index-Lite (ASI). In linear mixed analyses, statistically significant decreases were detected in ASI alcohol use (p = .003) and drug use (p = .023) severity scores after treatment participation. This was true regardless of gender, race, sexual orientation, education, self-rated health status, and age, suggesting there were no differences in integrated treatment outcomes across demographic groups. In addition, greater reductions in anxiety and depression were associated with lower ASI alcohol and drug severity scores after treatment participation. Study findings suggest that integrated care in HIV clinics with enhanced communication between social workers and HIV medical providers may deliver improved treatment outcomes for PLWH.
Engaging in regular physical activity (PA) is important in maintaining health and increasing the overall quality of life for people living with HIV (PLWH). The deep south of the USA is known for its high rate of sedentary behavior although data on the activity levels and perceptions of the benefits and barriers to exercise in women living with HIV in the deep south are lacking.


OBJECTIVE: To understand geographic variations in clinical retention, a central component of the HIV care continuum and key to improving individual- and population-level HIV outcomes. DESIGN: We evaluated retention by US region in a retrospective observational study. METHODS: Adults receiving care from 2000-2010 in 12 clinical cohorts of the North American AIDS Cohort Collaboration on Research and Design (NA-ACCORD) contributed data. Individuals were assigned to Centers for Disease Control and Prevention (CDC)-defined regions by residential data (10 cohorts) and clinic location as proxy (2 cohorts). Retention was > =2 primary HIV outpatient visits within a calendar year, > 90 days apart. Trends and regional differences were analyzed using modified Poisson regression with clustering, adjusting for time in care, age, sex, race/ethnicity, and HIV risk, and stratified by baseline CD4+ count. RESULTS: Among 78,993 adults with 444,212 person-years of follow-up, median time in care was 7 years (Interquartile Range: 4-9). Retention increased from 2000 to 2010: from 73% (5,000/6,875) to 85% (7,189/8,462) in the Northeast, 75% (1,778/2,356) to 87% (1,630/1,880) in the Midwest, 68% (8,451/12,417) to 80% (9,892/12,304) in the South, and 68% (5,147/7,520) to 72% (6,401/8,895) in the West. In adjusted analyses, retention improved over time in all regions (p<0.01, trend), although the average percent retained lagged in the West and South vs. the Northeast (p<0.01). CONCLUSIONS: In our population, retention improved, though regional differences persisted even after adjusting for demographic and HIV risk factors. These data demonstrate regional differences in the US which may affect patient care, despite national care recommendations.


Engaging in regular physical activity (PA) is important in maintaining health and increasing the overall quality of life for people living with HIV (PLWH). The deep south of the USA is known for its high rate of sedentary behavior although data on the activity levels and perceptions of the benefits and barriers to exercise in women living with HIV in the deep south are lacking.
Understanding the perceived benefits and barriers to exercise can guide the development of PA interventions. We conducted a cross-sectional study to determine the PA levels and perceived benefits and barriers to exercise associated with both age and depression level in a group of HIV+ women living in the deep south. We recruited a total of 50 participants from a cohort site for the Women’s Interagency HIV Study. Depression was assessed using the Center for Epidemiological Studies Depression Scale (CES-D) and benefits/barriers to exercise were measured using the Exercise Benefits and Barriers Scale (EBBS). We measured PA both subjectively and objectively using the International Physical Activity Questionnaire (IPAQ) and a Fitbit PA monitor, respectively. Our sample was predominantly African-American (96%) and the mean +/-SD age, body mass index, and CES-D score were 42 +/- 8.8 years, 36.6 +/- 11.5 kg/m(2), and 15.6 +/- 11.4, respectively. Both subjective and objective measures of PA indicated that our participants were sedentary. The greatest perceived benefit to exercise was physical performance and the greatest barrier to exercise was physical exertion. Higher overall perceived benefits were reported by women >/=43 years and women reporting higher levels of depression. There was no difference in overall barriers associated with age and depression level, but women with depression felt more fatigued by exercise. The results of this study can be helpful when designing and implementing PA interventions in women living with HIV in the deep south.


In the United States, only 30% of HIV-infected persons are diagnosed, engaged in care, provided antiretroviral therapy, and virologically suppressed. Competent HIV care providers are needed to achieve optimal clinical outcomes for all people living with HIV, but 69% of Ryan White Clinics in the United States report difficulty recruiting HIV clinicians, and one in three current HIV specialty physicians are expected to retire in the next decade. Nurse practitioners who specialize in HIV and have caseloads with large numbers of HIV-infected patients have care outcomes that are equal to or better than that provided by physicians, especially generalist non-HIV specialist physicians. We designed a national practice validation study to help prepare the next generation of primary care nurse practitioners who desire to specialize in HIV. This manuscript reports the results of the national study and identifies entry-level competencies for entry-level primary care nurse practitioners specializing in HIV.


BACKGROUND: The inclusion of community members and other stakeholders in the establishment of research priorities is vital to ensuring that priorities are congruent with the main concerns of affected communities. PURPOSE: The purpose of this project was to identify priority research topics for addressing the activity and community participation needs of people living with human immunodeficiency virus (HIV) and meaningfully involve multiple stakeholders in the development of those priorities. METHOD: We invited people living with HIV, researchers, service providers, and policy makers to a 2-day forum. Twenty-six people participated in developing priorities through the application of two methodologies, the World Cafe and Dotmocracy. We evaluated the forum through immediate dialogue and a postproject survey. FINDINGS: Participants identified 10 high-priority research topics. Evaluation findings highlighted positive substantive, instrumental, personal, and normative outcomes of stakeholder involvement. IMPLICATIONS: The identified priority topics can guide future occupational therapy practice and research in this emerging area.


BACKGROUND: Prior studies have described racial disparities in the quality of care for persons with HIV infection, but it is unknown if these disparities extend to common comorbid conditions. To inform implementation of interventions to reduce disparities in HIV care, we examined racial variation in a set of quality measures for common comorbid conditions among Veterans in care for HIV in the United States. METHOD: The cohort included 23,974 Veterans in care for HIV in 2013 (53.4% black; 46.6% white). Measures extracted from electronic health record and administrative data were receipt of combination antiretroviral therapy (cART), HIV viral control (serum RNA < 200 copies/ml among those on cART), hypertension control (blood pressure < 140/90 mm Hg among those with hypertension), diabetes control (hemoglobin A1C < 9% among those with diabetes), lipid monitoring, guideline-concordant antidepressant prescribing, and initiation and engagement in substance use disorder (SUD) treatment. Black persons were less likely than their white counterparts to receive cART (90.2% vs. 93.2%, p<.001), and experience viral control (84.6% vs. 91.3%, p<.001), hypertension control (61.9% vs. 68.3%, p<.001), diabetes control (85.5% vs. 89.5%, p<.001), and lipid monitoring (81.5% vs. 85.2%, p<.001). Initiation and engagement in SUD treatment were similar among blacks and whites. Differences remained after adjusting for age, comorbidity, retention in HIV care, and a measure of neighborhood.
social disadvantage created from census data. SIGNIFICANCE: Implementation of interventions to reduce racial disparities in HIV care should comprehensively address and monitor processes and outcomes of care for key comorbidities.


Antiretroviral therapy (ART) has reshaped the lives of millions of individuals infected with human immunodeficiency virus (HIV). Patients initiating ART early in the course of infection benefit from a considerable reduction in the risks of acquired immune deficiency syndrome (AIDS) and HIV-related inflammatory events. However, the absence of cure and lifelong requirements of treatment highlight the need of a vaccine and an immunotherapeutic strategy. Like for cancer, a paradigm shift has occurred with the contribution of immune activation and microbial translocation priming aberrant systemic immunity in restricting the ability of the host to mount an effective immune response. The approaches of implementing an effective vaccine to prevent infection and inhibition of immune activation with breakage of viral latency followed by vaccination should lead to an HIV-free generation.


OBJECTIVES: Methods to develop core outcome sets, the minimum outcomes that should be measured in research in a topic area, vary. We applied social network analysis methods to understand outcome co-occurrence patterns in human immunodeficiency virus (HIV)/AIDS systematic reviews and identify outcomes central to the network of outcomes in HIV/AIDS.

STUDY DESIGN AND SETTING: We examined all Cochrane reviews of HIV/AIDS as of June 2013. We defined a tie as two outcomes (nodes) co-occurring in >/=2 reviews. To identify central outcomes, we used normalized node betweenness centrality (nNBC) (the extent to which connections between other outcomes in a network rely on that outcome as an intermediary). We conducted a subgroup analysis by HIV/AIDS intervention type (i.e., clinical management, biomedical prevention, behavioral prevention, and health services). RESULTS: The 140 included reviews examined 1,140 outcomes, 294 of which were unique. The most central outcome overall was all-cause mortality (nNBC = 23.9). The most central and most frequent outcomes differed overall and within subgroups. For example, "adverse events (specified)" was among the most central but not among the most frequent outcomes, overall. CONCLUSION: Social network analysis methods are a novel application to identify central outcomes, which provides additional information potentially useful for developing core outcome sets.


BACKGROUND: After adjustment for cardiovascular risk factors and despite higher mortality, those with human immunodeficiency virus (HIV+) have a greater risk of acute myocardial infarction (AMI) than uninfected individuals. METHODS: We included HIV+ individuals who started combination antiretroviral therapy (cART) in the Veterans Aging Cohort Study (VACS) from 1996 to 2012. We fit multivariable proportional hazards models for baseline, time-updated and cumulative measures of HIV-1 RNA, CD4 counts, and the VACS Index. We used the trapezoidal rule to build the following cumulative measures: viremia copy-years, CD4-years, and VACS Index score-years, captured 180 days after cART initiation until AMI, death, last clinic visit, or 30 September 2012. The primary outcomes were incident AMI (Medicaid, Medicare, and Veterans Affairs International Classification of Diseases-9 codes) and death. RESULTS: A total of 8168 HIV+ individuals (53 861 person-years) were analyzed with 196 incident AMIs and 1710 deaths. Controlling for known cardiovascular risk factors, 6 of the 9 metrics predicted AMI and all metrics predicted mortality. Time-updated VACS Index had the lowest Akaike information criterion among all models for both outcomes. A time-updated VACS Index score of 55+ was associated with a hazard ratio (HR) of 3.31 (95% confidence interval [CI], 2.11-5.20) for AMI and a HR of 31.77 (95% CI, 26.17-38.57) for mortality. CONCLUSIONS: Time-updated VACS Index provided better AMI and
mortality prediction than CD4 count and HIV-1 RNA, suggesting that current health determines risk more accurately than prior history and that risk assessment can be improved by biomarkers of organ injury.


BACKGROUND & AIMS: Universal one-time antibody testing for hepatitis C virus (HCV) infection has been recommended by the centers for disease control (CDC) and the United States preventative services task force (USPSTF) for Americans born 1945-1965 (birth cohort). Limited data exists addressing national HCV testing practices. We studied patterns and predictors of HCV testing across the U.S. within the birth cohort utilizing data from the national corporate data warehouse of the U.S. Veterans Administration (VA) health system. METHODS: Testing was defined as any HCV test including antibody, RNA or genotype performed during 2000-2013. RESULTS: Of 6,669,388 birth cohort veterans, 4,221,135 (63%) received care within the VA from 2000-2013 with two or more visits. Of this group, 2,139,935 (51%) had HCV testing with 8.1% HCV antibody and 5.4% RNA positive. Significant variation in testing was observed across centers (range: 7-83%). Older, male, African-Americans, with established risk factors and receiving care from urban centers of excellence were more likely to be tested. Among veterans free of other established risk factors (HIV negative, HBV negative, ALT 40U/L, FIB-4 1.45, or APRI <0.5), HCV antibody and RNA were positive in 2.8% and 0.9%, respectively, comparable to established national average. At least 2.4-4.4% of veterans had scores suggesting advanced fibrosis (APRI 1.5 or FIB-4 >3.25) with >30-43% having positive HCV RNA but >16-20% yet to undergo testing for HCV. CONCLUSIONS: Significant disparities are observed in HCV testing within the United States VA health system. Examination of the predictors of testing and HCV positivity may help inform national screening policies. LAY SUMMARY: Analysis of United States Veterans Administration data show significant disparities in hepatitis C virus testing of veterans born 1945-1965 (birth cohort). A fifth of those not tested had evidence of advanced liver fibrosis. Our data suggests some predictors for this disparity and will potentially help inform future policy measures in the era of universal birth cohort testing for HCV.


HIV/AIDS has been an extremely difficult pandemic to control. However, with the advent of antiretroviral therapy (ART), HIV has now been transformed into a chronic illness in patients who have continued treatment access and excellent long-term adherence. Existing indications for ART initiation in asymptomatic patients were based on CD4 levels; however, recent evidence has broken the shackles of CD4 levels. Early initiation of ART in HIV patients irrespective of CD4 counts can have profound positive impact on morbidity and mortality. Early initiation of ART has been found not only beneficial for patients but also to community as it reduces the risk of transmission. There have been few financial concerns about providing ART to all HIV-positive people but various studies have proven that early initiation of ART not only proves to be cost-effective but also contributes to economic and social growth of community. A novel multidisciplinary approach with early initiation and availability of ART at its heart can turn the tide in our favor in future. Effective preexposure prophylaxis and postexposure prophylaxis can also lower transmission risk of HIV in community. New understanding of HIV pathogenesis is opening new vistas to cure and prevention. Various promising candidate vaccines and drugs are undergoing aggressive clinical trials, raising optimism for an ever-elusive cure for HIV. This review describes various facets of tectonic shift in management of HIV.


BACKGROUND: HIV infection has been associated with early menopausal onset, which may have adverse long-term health consequences. Antimullerian hormone, a biomarker of ovarian reserve and gonadal aging, is reduced in HIV-infected women. OBJECTIVE: We sought to assess the relationship of antimullerian hormone to age of menopause onset in HIV-infected women. STUDY DESIGN: We used antimullerian hormone levels measured in plasma in 2461 HIV-infected participants from the Women’s Interagency HIV Study to model the age at final menstrual period. Multivariable normal mixture models for censored data were used to identify factors associated with age at final menstrual period. RESULTS: Higher antimullerian hormone at age 40 years was associated with later age at final menstrual period, even after multivariable adjustment for smoking, CD4 cell count, plasma HIV RNA, hepatitis C infection, and history of clinical AIDS. Each doubling of antimullerian hormone was associated with a 1.5-year increase in the age at final menstrual period. Median age at final menstrual period ranged from 45 years for those in the 10th percentile of antimullerian hormone to 52 years for those in the 90th percentile. Other factors independently associated with earlier age at final menstrual period included smoking, hepatitis C infection, higher HIV RNA levels, and history of clinical
AIDS. CONCLUSION: Antimullerian hormone is highly predictive of age at final menstrual period in HIV-infected women. Measuring antimullerian hormone in HIV-infected women may enable clinicians to predict risk of early menopause, and potentially implement individualized treatment plans to prevent menopause-related comorbidities and to aid in interpretation of symptoms.


The present study addresses older adults' developmental regulation when faced with progressive and irreversible vision loss. We used the motivational theory of life span development as a conceptual framework and examined changes in older adults' striving for control over everyday goal achievement, and their association with affective well-being, in a sample of 364 older adults diagnosed with age-related macular degeneration. Using longitudinal data from 5 occasions at 6-month intervals, we examined intraindividual change in control strategies, and how it was related to change in affective well-being, in terms of self-rated happiness and depressive symptoms. Mixed model analyses confirmed our hypotheses that (a) intraindividual change, particularly in selective primary control and in compensatory secondary control (CSC), predict change toward higher happiness ratings and lower depression; and (b) as functional abilities (instrumental activities of daily living) declined, CSC became increasingly predictive of better affective well-being. Overall, the findings suggest that CSC strategies are essential for maintaining affective well-being when physical functioning declines. Intensified selective primary control striving may be effective to achieve goals that have become difficult to reach but are not associated with affective well-being, possibly because struggling with difficulties undermines the experience of enjoyable mastery. In contrast, goal adjustments and self-protective thinking may help to find pleasure even from restricted daily activities.


Major depressive disorder is often comorbid with diabetes and associated with worse glycemic control. Exercise improves glycemic control and depression, and thus could be a parsimonious intervention for patients with comorbid diabetes and major depression. Because patients with diabetes and comorbid depression are often sedentary and lack motivation to exercise, we developed a group exercise intervention that integrates strategies from behavioral activation therapy for depression to increase motivation for and enjoyment of exercise. We conducted a 6-month pilot randomized controlled trial to test the feasibility of the behavioral activation exercise intervention (EX) for women with diabetes and depression. Of the 715 individuals who contacted us about the study, 29 participants were randomized to the EX condition or an enhanced usual care condition (EUC), which represents 4.1% of participants who initially contacted us. Inclusion criteria made recruitment challenging and limits the feasibility of recruiting women with diabetes and depression for a larger trial of the intervention. Retention was 96.5% and 86.2% at 3 and 6 months. Participants reported high treatment acceptability; use of behavioral activation strategies and exercise class attendance was acceptable. No condition differences were observed for glycemic control, depressive symptoms, and physical activity, though depressive symptoms and self-reported physical activity improved over time. Compared to participants in the EUC condition, participants in the EX condition reported greater exercise enjoyment and no increase in avoidance behavior over time. Using behavioral activation strategies to increase exercise is feasible in a group exercise setting. However, whether these strategies can be delivered in a less intensive manner to a broader population of sedentary adults, for greater initiation and maintenance of physical activity, deserves further study.


Improved survival with combination antiretroviral therapy has led to a dramatic increase in the number of human immunodeficiency virus (HIV)-infected individuals 50 years of age or older such that by 2020 more than 50% of HIV-infected persons in the United States will be above this age. Recent studies confirm that antiretroviral therapy should be offered to all HIV-infected patients regardless of age, symptoms, CD4+ cell count, or HIV viral load. However, when compared with HIV-uninfected populations, even with suppression of measurable HIV replication, older individuals are at greater risk for cardiovascular disease, malignancies, liver disease, and other comorbidities.

OBJECTIVE: HIV-infected older adults (HOA) are at risk of functional decline. Interventions promoting physical activity that can attenuate functional decline and are easily translated into the HOA community are of high priority. We conducted a randomized, controlled clinical trial to evaluate whether a physical activity counseling intervention based on self-determination theory (SDT) improves physical function, autonomous motivation, depression and the quality of life (QOL) in HOA. METHOD: In total, 67 community-dwelling HOA with mild-to-moderate functional limitations were randomized to 1 of 2 groups: a physical activity counseling group or the usual care control group. We used SDT to guide the development of the experimental intervention. Outcome measures that were collected at baseline and final study visits included a battery of physical function tests, levels of physical activity, autonomous motivation, depression, and QOL. RESULTS: The study participants were similar in their demographic and clinical characteristics in both the treatment and control groups. Overall physical performance, gait speed, measures of endurance and strength, and levels of physical activity improved in the treatment group compared to the control group (p < .05). Measures of autonomous regulation such as identified regulation, and measures of depression and QOL improved significantly in the treatment group compared with the control group (p < .05). Across the groups, improvement in intrinsic regulation and QOL correlated with an improvement in physical function (p < .05). CONCLUSION: Our findings suggest that a physical activity counseling program grounded in SDT can improve physical function, autonomous motivation, depression, and QOL in HOA with functional limitations. (PsycINFO Database Record)


BACKGROUND: The recently updated White House National HIV/AIDS Strategy (NHAS) includes specific progress indicators to improve the HIV care continuum in the USA, but the economic and epidemiological effect of achieving those indicators remains unclear. We aimed to project the impact of achieving NHAS goals on HIV incidence, prevalence, mortality, and costs among adults in the USA over 10 years. METHODS: We constructed a dynamic transmission model of HIV progression and care engagement based on literature sources and the most recent published US Centers for Disease Control and Prevention data. We specifically considered achievement of the 2020 targets set forth in NHAS progress indicator 1 (90% awareness of serostatus), indicator 4 (85% linkage within 1 month), and indicator 5 (90% of diagnosed individuals in care). FINDINGS: At current rates of engagement in the HIV care continuum, we project 524,000 (95% uncertainty range 442,000-712,000) new HIV infections and 375,000 deaths (364,000-578,000) between 2016 and 2025. Achievement of NHAS progress indicators 1 and 4 has modest epidemiological effect (new infections reduced by 2.0% and 3.9%, respectively). By contrast, increasing the proportion of diagnosed individuals in care (NHAS indicator 5) averts 52% (95% UR 47-56) of new infections. Achievement of all NHAS targets resulted in a 58% reduction (95% UR 52-61) in new infections and 128,000 lives saved (106,000-223,000) at an incremental health system cost of US$105 billion. INTERPRETATION: Achievement of NHAS progress indicators for screening, linkage, and particularly improving retention in care, can substantially reduce the burden of HIV in the USA, but continued and increased financial investment will be required. FUNDING: The National Institutes of Health, the B Frank and Kathleen Polk Assistant Professorship in Epidemiology, Emory University CFAR, Johns Hopkins University CFAR, and CDC/NCHSTP Epidemiological and Economic Modeling Agreement (SU38PS004646).


Prospective memory (PM) is associated with antiretroviral (ARV) adherence in HIV, but little is known about how pill burden and age might affect this association. One hundred seventeen older (> = 50 years) and 82 younger (< 50 years) HIV-infected adults were administered a measure of PM in the laboratory and subsequently were monitored for ARV adherence for 30 days using the Medication Event Monitoring System. In the older group, better time-based PM performance was associated with higher likelihood of adherence, irrespective of pill burden. Within the younger sample, time-based PM was positively related to adherence only in participants with lower pill burdens. Younger HIV-infected individuals with higher pill burdens may overcome the normal effects of time-based PM on adherence through compensatory medication-taking strategies, whereas suboptimal use of these strategies by younger HIV-infected individuals with lower pill burdens may heighten their risk of ARV nonadherence secondary to deficits in time-based PM.


INTRODUCTION: Given the chronic nature of HIV infection and the need for life-long antiretroviral therapy (ART), maintaining long-term optimal adherence is an important strategy for maximizing treatment success. In order to understand
better the dynamic nature of adherence behaviors in India where complex cultural and logistic features prevail, we assessed the patterns, trajectories and time-dependent predictors of adherence levels in relation to virological failure among individuals initiating first-line ART in India. METHODS: Between July 2010 and August 2013, eligible ART-naive HIV-infected individuals newly initiating first-line ART within the national program at three sites in southern India were enrolled and monitored for two years. ART included zidovudine stavudine/tenofovir plus lamivudine plus nevirapine/efavirenz. Patients were assessed using clinical, laboratory and adherence parameters. Every three months, medication adherence was measured using pill count, and a structured questionnaire on adherence barriers was administered. Optimal adherence was defined as mean adherence >/=95%. Statistical analysis was performed using a bivariate and a multivariate model of all identified covariates. Adherence trends and determinants were modeled as rate ratios using generalized estimating equation analysis in a Poisson distribution. RESULTS: A total of 599 eligible ART-naive patients participated in the study, and contributed a total of 921 person-years of observation time. Women constituted 43% and mean CD4 count prior to initiating ART was 192 cells/mm3. Overall mean adherence among all patients was 95.4%. The proportion of patients optimally adherent was 75.6%. Predictors of optimal adherence included older age (/=40 years), high school-level education and beyond, lower drug toxicity-related ART interruption, full disclosure, sense of satisfaction with one's own health and patient's perception of having good access to health-care services. Adherence was inversely proportional to virological failure (IRR 0.55, 95%CI 0.44-0.69 p<0.001). Drug toxicity and stigma-related barriers were significantly associated with virological failure, while forgetfulness was not associated with virological failure. CONCLUSION: Our study highlights the overall high level of medication adherence among individuals initiating ART within the Indian national program. Primary factors contributing towards poor adherence and subsequent virological failure in the proportion of individuals with poor adherence included drug toxicity, perceived stigma and poor access to health care services. Strategies that may contribute towards improved adherence include minimizing drug interruptions for medical reasons, use of newer ART regimens with better safety profiles and increasing access with more link ART centers that decentralize ART dispensing systems to individuals.


OBJECTIVE: The report of the 'Mississippi baby' who was initiated on antiretroviral therapy (ART) within 30 h of birth and maintained viral suppression off ART for 27 months has increased interest in the timing of ART initiation early in life. We examined associations between age at ART initiation and virological outcomes in five cohorts of HIV-infected infants and young children who initiated ART before 2 years of age in Johannesburg, South Africa. METHODS: We compared those who initiated ART early (<6 months of age) and those who started ART late (6-24 months of age). Two primary outcomes were examined: initial response to ART in three cohorts and later sustained virological control after achieving suppression on ART in two cohorts. RESULTS: We did not observe consistent differences in initial viral suppression rates by age at ART initiation. Overall, initial viral suppression rates were low. Only 31, 40.1, and 26.5% of early-treated infants (<6 months of age) in the three cohorts, respectively, were suppressed less than 50 copies/ml of HIV RNA 6 months after starting ART. We did observe better sustained virologic control after achieving suppression on ART among infants starting ART early compared with late. Children who started
ART early were less likely to experience viral rebound (>50 copies/ml or >1000 copies/ml) than children who started late in both cohorts. CONCLUSION: These findings provide additional support for early initiation of ART in HIV-infected infants.


BACKGROUND: Hepatitis B virus (HBV) has a detrimental effect on human immunodeficiency virus (HIV) natural course, and HBV vaccination is less effective in the HIV infected. We examine the protective effect of dually active antiretroviral therapy (DAART) for HIV/HBV (tenofovir, lamivudine, and emtricitabine) in a large cohort encompassing heterosexuals, men who have sex with men, and intravenous drug users who are HIV infected yet susceptible to HBV, with comprehensive follow-up data about risky behavior and immunological profiles. METHODS: We defined an incident HBV infection as the presence of any of HBV serological markers (hepatitis B surface antigen, anti-hepatitis B core antibodies, or HBV DNA) after a negative baseline test result for anti-hepatitis B core antibodies. Patients with positive anti-hepatitis B surface antigen serology were excluded. METHODS: We analyzed 1716 eligible patients from the Swiss HIV Cohort Study with 177 incident HBV cases. DAART was negatively associated with incident HBV infection (hazard ratio [HR], 0.4; 95% confidence interval [CI], .2-.6). This protective association was robust to adjustment (HR, 0.3; 95% CI, .2-.5) for condomless sex, square-root-transformed CD4 cell count, drug use, and patient demographics. Condomless sex (HR, 1.9; 95% CI, 1.4-2.6), being a man who has sex with men (2.7; 1.7-4.2), and being an intravenous drug user (3.8; 2.4-6.1) were all associated with a higher hazard of contracting HBV. CONCLUSIONS: Our study suggests that DAART, independently of CD4 cell count and risky behavior, has a potentially strong public health impact, including pre-exposure prophylaxis of HBV coinfection in the HIV infected.


INTRODUCTION: Using National HIV surveillance system data, we estimated life expectancy and average years of life lost (AYLL) among persons diagnosed with HIV infection during 2008-2011. METHODS: Population-based surveillance data, restricted to persons with diagnosed HIV infection aged 13 years or older, from all 50 states and Washington, D.C. were used to estimate life expectancy after HIV diagnosis using the life table method. Generated estimates were compared with life expectancy in the general population in the same calendar year to calculate AYLL. Life expectancy and AYLL were also estimated for subgroups by age, sex, and race/ethnicity. RESULTS: The overall life expectancy after HIV diagnosis in the United States increased by 3.43 years from 25.43 (95% CI: 25.37 to 25.49) in 2008 to 28.86 (95% CI: 28.80 to 28.92) in 2011. Improvements were observed irrespective of sex, race/ethnicity, transmission category, and stage of disease at diagnosis, though the extent of improvement varied by different characteristics. Based on the life expectancy in the general population, in 2010, the AYLL were 12.8 years for males and 16.5 years for females. By race/ethnicity, on average, blacks (13.3 years) and whites (13.4 years) had fewer AYLL than Hispanics/Latinos (14.7). CONCLUSIONS: Despite improvements in life expectancy among people diagnosed with an HIV infection during 2008-2011, disparities by sex and by race/ethnicity persist. Targeted efforts should continue to further reduce disparities and improve life expectancy after HIV diagnosis.


People living with HIV (PLWH) who survive to older adulthood risk developing multiple chronic medical conditions. Health policymakers recognize the role of early palliative care and advance care planning in improving health quality for at-risk populations, but misperceptions about palliative care, hospice, and advance care planning are common. Before testing a program of early palliative care for PLWH and other chronic conditions, we conducted focus groups to elicit perceptions of palliative care, hospice, and advance care planning in our target population. Overall, participants were unfamiliar with the term palliative care, confused concepts of palliative care and hospice, and/or associated hospice care with dying. Participants misunderstood advance care planning, but valued communication about health care preferences. Accepting palliative care was contingent on distinguishing it from hospice and historical memories of HIV and dying. Provision of high-quality, comprehensive care will require changing public perceptions and individuals' views in this high-risk population.


We investigated the effect of changes to state AIDS Drug Assistance Programs (ADAP) policies, which govern access to antiretroviral therapy (ART), on clinical and economic outcomes among low-income people living with HIV/AIDS. Retrospective analyses of ART access were conducted on state ADAP policies, using data from ADAP Monitoring Reports and Kaiser Family Foundation from 2006 to 2010. We found stricter eligibility requirements reduce the number of HIV-positive individuals with ART access through ADAP, and decreased ART use increases mortality by 2.67 quality-adjusted life years (QALYs) per beneficiary. If the ADAP income eligibility cutoff were decreased by 50 percentage points in each state, 4,626 individuals would lose ART access nationwide. Based on a $22,143 cost/QALY, this policy would save $274 million in health care expenditures (2012 dollars), but result in 12,352 QALYs lost, valued at $1.2 billion. Therefore, states should exercise caution in restricting programs that increase ART access for low-income people living with HIV/AIDS.


OBJECTIVES: To analyze the impact of late presentation (LP) on overall mortality and causes of death and describe LP trends and risk factors (2004-2013). METHODS: Cox models and logistic regression were used to analyze data from a nation-wide cohort in Spain. LP is defined as being diagnosed when CD4 < 350 cells/ml or AIDS. RESULTS: Of 7165 new HIV diagnoses, 46.9% (CI95%:45.7-48.0) were LP, 240 patients died. First-year mortality was the highest (aHRLP.vs.nLP = 10.3[CI95%:5.5-19.3]); between 1 and 4 years post-diagnosis, aHRLP.vs.nLP = 1.9[1.2-3.0]; and >4 years, aHRLP.vs.nLP = 1.5[0.7-3.1]. First-year’s main cause of death was HIV/AIDS (73%); and malignancies among those surviving >4 years (32%). HIV/AIDS-related deaths were more likely in LP (59.2% vs. 25.0%; p < 0.001). LP declined from 55.9% (2004-05) to 39.4% (2012-13), and reduced in 46.1% in men who have sex with men (MSM) and 37.6% in heterosexual men, but increased in 22.6% in heterosexual women. Factors associated with LP: sex (ORMEN.vs.WOMEN = 1.4[1.2-1.7]); age (OR31-40.vs.<30 = 1.6[1.4-1.8], OR41-50.vs.<30 = 2.2[1.8-2.6], OR>50.vs.<30 = 3.6[2.9-4.4]); behavior (OR InjectedDrugUse.vs.MSM = 2.8[2.0-3.8]; OR Heterosexual-vs.MSM = 2.2[1.7-3.0]); education (OR PrimaryEducation-vs.University = 1.5[1.1-2.0], OR LowerSecondary-vs.University = 1.3[1.1-1.5]); and geographical origin (OR Sub-Saharan-vs.Spain = 1.6[1.3-2.0], OR Latin-American-vs.Spain = 1.4[1.2-1.8]). CONCLUSIONS: LP is associated with higher mortality, especially short-term and HIV/AIDS-related mortality. Mid-term, but not long-term mortality, remained also higher in LP than nLP. LP decreased in MSM and heterosexual men, not in heterosexual women. The groups most affected by LP are low educated, non-Spanish and heterosexual women.


BACKGROUND: Involving community in development of clinical practice guidelines (CPGs) can decrease the gap between patient preferences and research evidence. OBJECTIVE: To incorporate meaningful participation of people living with human immunodeficiency virus (HIV; people living with HIV [PHAs]) in the development of evidence informed recommendations for rehabilitation practice. METHODS: PHAs were involved in a process to develop practice recommendations internally as members of a project team and externally through formal endorsement of the recommendations. LESSONS LEARNED: Lessons learned include 1) providing time to develop as a team and understand the roles, biases, and expertise of each member, 2) engaging community in initial discussions to determine the most meaningful involvement, 3) realizing that participation in research may trigger anxiety and stress in community members, 4) developing terms of reference to clarify roles and expectations, 5) providing opportunities for skill development, and 6) conducting formal evaluation of the process and satisfaction of community. CONCLUSION: Meaningful inclusion of community can improve the quality of practice guidelines.


In recent years, the HIV care provider workforce has not kept pace with an expanding HIV epidemic. To effectively address this HIV workforce shortage, a multipronged approach is needed that includes high-quality, easily accessible, up-to-date HIV education for trainees and practicing providers. Toward this objective, the University of Washington, in collaboration with the AIDS Education and Training Center National Coordinating Resource Center, is developing a modular, dynamic curriculum that addresses the entire spectrum of the HIV care continuum. Herein, we outline the general principles, content, organization, and features of this federally funded National HIV Curriculum, which allows for longitudinal, active, self-directed learning, as well as
real-time evaluation, tracking, and feedback at the individual and group level. The online curriculum, which is in development, will provide a free, comprehensive, interactive HIV training and resource tool that can support national efforts to expand and strengthen the United States HIV clinical care workforce.


OBJECTIVE: This study aimed to describe disparities and temporal trends in the level of perceived patient-provider communication quality (PPPCQ) in the United States, and to identify sociodemographic and health-related factors associated with elements of PPCQ. METHODS: A cross-sectional analysis was conducted using nationally-representative data from the 2011-2013 iterations of the Health Information National Trends Survey (HINTS). Descriptive statistics, multivariable linear and logistic regression analyses were conducted to examine associations. RESULTS: PPCQ scores, the composite measure of patients' ratings of communication quality, were positive overall (82.8; 95% CI: 82.1-83.5). However, less than half (42-46%) of respondents perceived that providers always addressed their feelings, spent enough time with them, or helped with feelings of uncertainty about their health. Older adults and those with a regular provider consistently had higher PPCQ scores, while those with poorer perceived general health were consistently less likely to have positive perceptions of their providers' communication behaviors. CONCLUSIONS: Disparities in PPCQ can be attributed to patients' age, race/ethnicity, educational attainment, employment status, income, healthcare access and general health. PRACTICE IMPLICATIONS: These findings may inform educational and policy efforts which aim to improve patient-provider communication, enhance the quality of care, and reduce health disparities.


The aim of this paper is to use a scoping review to investigate the extent, range, and nature of research on rehabilitation interventions for adults living with HIV. Electronic databases (MEDLINE, EMBASE, CINAHL, AMED, and PsychINFO) and reference lists of the included articles were searched. Authors were emailed when possible for unavailable articles. A total of 897 titles and abstracts were retrieved. Thirty-three articles were included. There were 27 different rehabilitation interventions delivered by 18 professions. The studies were completed in four different countries. Most studies were published in 2008. A randomized-controlled trial was the most used method. The nature of the studies was analyzed according to the three-core concepts of the International Classification of Functioning, Disability and Health: 28 studies addressed impairments; six studies addressed activity limitations; and 14 studies addressed participation restrictions. This scoping study advances the knowledge of research on rehabilitation interventions for adults living with HIV. More research on rehabilitation interventions is needed in sub-Saharan Africa and other low-income and middle-income countries to ensure that these individuals are receiving the best possible care. There is a need for the HIV field to recognize the important contribution of rehabilitation toward the HIV care continuum.


INTRODUCTION: HIV drug treatment has greatly improved life expectancy, but increased risk of cardiovascular disease remains, potentially due to the additional burdens of infection, inflammation and antiretroviral treatment. The Mediterranean Diet has been shown to reduce cardiovascular risk and mortality in the general population, but no evidence exists for this effect in the HIV population. This study will explore the feasibility of a randomised controlled trial (RCT) to examine whether a Mediterranean-style diet that incorporates a portfolio of cholesterol-lowering foods, reduces cardiovascular risk in people with HIV dyslipidaemia. METHODS AND ANALYSIS: 60 adults with stable HIV infection on antiretroviral treatment and low-density lipoprotein cholesterol >3 mmol/L will be recruited from 3 West Midlands HIV services. Participants will be randomised 1:1 to 1 of 2 dietary interventions, with stratification by gender and smoking status. Participants allocated to Diet1 will receive advice to reduce saturated fat intake, and those to Diet2 on how to adopt the Mediterranean Portfolio Diet with additional cholesterol-lowering foods (nuts, stanols, soya, oats, pulses). Measurements of fasting blood lipids, body composition and arterial stiffness will be conducted at baseline, and month 6 and 12 of the intervention. Food intake will be assessed using the Mediterranean Diet Score, 3-day food diaries and metabolomic biomarkers. Questionnaires will be used to assess quality of life and process evaluation. Qualitative interviews will explore barriers and facilitators to making dietary changes, and participant views on the intervention. Qualitative data will be analysed using the Framework Method. Feasibility will be assessed in terms of trial recruitment, retention, compliance to study visits and the intervention. SD of outcomes will inform the power calculation of the definitive RCT. ETHICS: The West Midlands Ethics Committee has approved this study and informed consent forms. This trial is the first to test cholesterol-lowering foods in adults with HIV. TRIAL REGISTRATION NUMBER: ISRCTN32090191; Pre-results.

The aim of this study was to assess whether baseline body composition was associated with incomplete immune response after highly active antiretroviral therapy in Chinese HIV-infected adults. The clinical efficiency of related factors was evaluated by the receiver operating characteristic (ROC) curve. Total-body composition was measured by dual-energy X-ray absorptiometry in HIV-infected adults. In this study, lean mass index (LMI), fat mass index, and bone mineral content/height ratio, which were adjusted by height from the original data, were analyzed. The patients were divided into 2 groups, according to whether they appeared to have incomplete immune responses (CD4 count <350 cells/µL): the complete immune response (≥350 cells/µL) group and the incomplete immune response (<350 cells/µL) group, respectively. Multiple logistic regression analysis was used to assess factors associated with incomplete immune response in patients with sustained viral suppression. The ROC curve was used to evaluate the clinical efficiency of related factors. Baseline LMI (odds ratio 0.557, 95% confidence interval 0.341–0.910; p = 0.019) was significantly associated with incomplete immune response. The optimal cutoff value for baseline LMI was 15.77 kg/m², corresponding to a sensitivity of 55.56% and a specificity of 80.0% in the ROC curve. Higher baseline LMI, especially >15.77 kg/m², was less likely to have an incomplete immune response compared with lower baseline LMI.


Introduction Complementary and alternative medicine (CAM) is often used within the sphere of chronic disease management. Exploring the beliefs and practices of CAM use among People Living with HIV/AIDS (PLWHA) could be vital, since some of these therapies may adversely affect the outcomes of the conventional HIV treatment.

Methods A phenomenological methodology was adopted. In depth patient interviews were performed with Malaysian patients over the age of 18 diagnosed with HIV/AIDS using a semi structured topic guide. Prior to each interview both written and verbal consents were taken. Saturation was reached after the 13th interview, with no further newly emerging information. All interviews were audio-recorded and subjected to a thematic content analysis framework.

Results Beliefs in the effectiveness of CAM, types of CAM and reasons for CAM use emerged from the data as themes. A majority of the participants had a strong faith in the effectiveness and safety of CAM due to their natural origin. Perceived immune boosting effects, devoid of any toxicities and strong cultural influences appeared to be vital driving forces towards CAM use. Remarkably, participants were generally of the view that CAM can always be used either with conventional HIV medicines or until one’s CD4 cell counts drop significantly.

Conclusions Despite the possible underlying adherence and therapeutic challenges towards taking ARTs; CAM use in contemporary HIV-care may provide a proactive means of engaging PLWHA, and generate self-care practises that promote positive health behaviours, including proper use of ARTs. Therefore, patient-healthcare provider communications are critical.


Older adults are the fastest growing segment of the US population and the majority of older adults are women. Primary care for the older adult patient requires a wide variety of skills, reflecting the complexity and heterogeneity of this patient population. Individualizing care through consideration of patients' goals, medical conditions, and prognosis is paramount. Quality care for the older adult patient requires familiarity with common geriatric syndromes, such as dementia, falls, and polypharmacy. In addition, developing the knowledge and communication skills necessary for complex care and end-of-life care planning is essential.

Human immunodeficiency virus (HIV)-associated neurocognitive disorder (HAND) is found in 30%-50% of individuals with HIV infection. To date, no HIV+ individual has been reported to have a positive amyloid PET scan. We report a 71-year-old HIV+ individual with HAND. Clinical and neuropsychologic evaluations confirmed a progressive mild dementia. A routine brain MRI was normal for age. [18F]Fluorodeoxyglucose-PET revealed mild hypermetabolism in bilateral basal ganglia and hypometabolism of bilateral parietal cortex including the posterior cingulate/precuneus. Resting state functional MRI revealed altered connectivity as found with individuals with mild AD. CSF examination revealed a low Abeta42/tau index but a low phospho-tau. An amyloid PET/CT with [18F]florbetaben revealed pronounced cortical radiotracer deposition. This case report suggests that progressive dementia in older HIV+ individuals may be due to HAND, AD, or both. HIV infection does not preclude CNS Abeta/amyloid deposition. Amyloid PET imaging may be of value in distinguishing HAND from AD pathologies.


The aim of this study was to explore the pre- and postsurgical journey to correct severe abdominal lipodystrophy of a woman living as AIDS defined for over 23 years. It utilized interpretative phenomenological analysis (IPA) and a single-case-study approach to capture the subjective understanding and sense-making of this surgical process. Verbatim transcripts of seven semi-structured interviews, three participant-created word boards of words or phrases clipped from magazines, field notes, and a reflexive journal were collected as data. Analysis revealed two superordinate themes: the unknown and the unanticipated. These themes simultaneously manifest with shared and nuanced meanings, including the unknown and unanticipated of surviving AIDS and discovering lipodystrophy, the unknown and the unanticipated of the surgical intervention itself, and finally the unknown and the unanticipated of postsurgical complications and experiences within outpatient and inpatient medical settings.


BACKGROUND: Few HIV antiretroviral adherence interventions target patients before they start treatment, assess adherence readiness to determine the timing of treatment initiation, or tailor the amount of adherence support. The Supporting Treatment Adherence Readiness through Training (START) intervention, based on the information-motivation-behavioral skills model of behavior change, is designed to address these gaps with the inclusion of (1) brief pill-taking practice trials for enhancing pretreatment adherence counseling and providing a behavioral criterion for determining adherence readiness and the timing of treatment initiation and (2) a performance-driven dose regulation mechanism to tailor the amount of counseling to the individual needs of the patient and conserve resources. The primary aim of this randomized controlled trial is to examine the effects of START on antiretroviral adherence and HIV virologic suppression. METHODS/DESIGN: A sample of 240 patients will be randomized to receive START or usual care at one of two HIV clinics. Primary outcomes will be optimal dose-taking adherence (>85 % prescribed doses taken), as measured with electronic monitoring caps, and undetectable HIV viral load. Secondary outcomes will include dose-timing adherence (>85 % prescribed doses taken on time) and CD4 count. Primary endpoints will be month 6 (short-term effect) and month 24 (to test durability of effect), though electronic monitoring will be continuous and a fully battery of assessments will be administered every 6 months for 24 months. DISCUSSION: If efficacious and cost-effective, START will provide clinicians with a model for assessing patient adherence readiness and helping patients to achieve and sustain readiness and optimal treatment benefits. TRIAL REGISTRATION: ClinicalTrials.gov identifier NCT02329782 . Registered on 22 December 2014.


This is the protocol for a review and there is no abstract. The objectives are as follows: Our primary objective is to assess the effects of professional-led and mixed-led (combining both professional and lay input) community-based chronic disease self-management (CDSM) interventions compared with usual care, for increasing participation in life activities for adults 65 years of age and older who have at least one chronic condition. Our secondary objective is to examine factors which could modify the effects of the CDSM intervention such as the following intervention characteristics: whether the program is (a) generic versus disease-specific, (b) specific to older adults or not, (c) professionally-led or mixed. In addition to these objectives, we also intend to communicate implementation and evaluation information to practitioners and healthcare decision makers.
As people living with HIV age, they face increasing self-management work related to HIV infection plus the prevention and mitigation of multiple chronic health conditions, including daily health practices (i.e., physical activity, nutrition), engaging in a supportive community, and accepting the chronicity of HIV. Our purpose was to describe the relationship between HIV self-management practices and mental wellness (depressive symptoms, perceived stress). Ninety-three adult people living with HIV on antiretroviral therapy were enrolled and completed a survey. We used descriptive statistics to summarize variables, and Spearman rank correlation and quantile regression to study associations between variables. Participants’ average age was 48.6 years, 56% were male, and 87% were African American. Daily self-management practices were associated with depressive symptoms ($r = -0.19; p \leq .01$) and perceived stress ($r = -0.14; p = .06$); engaging with a supportive community and accepting the chronicity of HIV were not associated with mental wellness ($all p > .05$).


PURPOSE: To describe the associations among three social resource variables (social belonging, social support networks, and social capital) and two health promotion behaviors, HIV medication adherence and physical activity, and quality of life among persons living with HIV (PLHIV). METHOD: We conducted a cross-sectional analysis in 102 adult PLHIV. Social resource variables and quality of life were assessed using validated and widely-used instruments. Physical activity was assessed using a daily physical activity diary and medication adherence was abstracted from the participant’s medical record. Spearman correlations and descriptive statistics were used to analyze associations among variables. RESULTS: Fifty-four participants (54%) were male and most were African American (84%), single (69%), and living in poverty (82%). Participants had been living with HIV for an average of 13.6 years (+/-7) and most were living with at least one non-AIDS comorbidity (80%). Social belonging was significantly associated with HIV medication adherence ($rho=0.25, p=0.02$), overall functioning ($rho=0.48, p<0.01$) and life satisfaction quality of life ($rho=0.50, p<0.01$). Social capital was also associated with HIV medication adherence ($rho=0.17, p=0.10$) and life satisfaction quality of life ($rho=0.29, p<0.01$). CONCLUSIONS: We found that there are distinctions among various, widely-used social resource constructs. By describing these unique associations and distinctions, our study helps identify which social resources should be targeted in the development of interventions to improve health promotion and the quality of life of members of this marginalized population.


For persons living with HIV/AIDS, the relationship between stress and clinical outcomes has received little attention in current research, yet represents an important area for future research and intervention. Chronic illness has been theorized to place additional demands on a person that may exceed their ability to cope with daily life, leading to long-term stress, which then increases the risk for negative health outcomes in persons already at risk. This paper reviews the existing global literature to answer two main questions: (1) how is stress conceptualized in research with persons living with HIV/AIDS? and (2) what are the current findings linking stress to clinical outcomes? Twenty-three articles are included in the final review. Findings reveal that researchers conceptualize stress in multiple ways for persons living with HIV/AIDS, including depressive symptomology, post-traumatic stress, life events, emotions linked to stress, and biological markers (such as cortisol levels and autonomic nervous system activity). Further, findings related to the link between stress and clinical outcomes are mixed; however, stress was shown to be related to lower CD4 cell counts, higher viral load, and disease progression. Several studies also showed a link between stress and poorer treatment adherence. Implications and directions for future research are discussed, including further thought into how we conceptualize stress for persons living with HIV, future research that is necessary to elucidate current mixed findings on the link between stress and clinical outcomes, and preliminary suggestions for intervention to prevent and alleviate stress in this population.


BACKGROUND: Over half of human immunodeficiency virus (HIV) infections in the United States occur among men who have sex with men (MSM). Among MSM, 16% of estimated new infections in 2010 occurred among black MSM <25 years old. METHODOLOGY: We analyzed National HIV Behavioral Surveillance data on MSM from 20 cities. Poisson models were used to
test racial disparities, by age, in HIV prevalence, HIV awareness, and sex behaviors among MSM in 2014. Data from 2008, 2011, and 2014 were used to examine how racial/ethnic disparities changed across time. RESULTS: While black MSM did not report greater sexual risk than other MSM, they were most likely to be infected with HIV and least likely to know it. Among black MSM aged 18-24 years tested in 2014, 26% were HIV positive. Among white MSM aged 18-24 years tested in 2014, 3% were HIV positive. The disparity in HIV prevalence between black and white MSM increased from 2008 to 2014, especially among young MSM. CONCLUSIONS: Disparities in HIV prevalence between black and white MSM continue to increase. Black MSM may be infected with HIV at younger ages than other MSM and may benefit from prevention efforts that address the needs of younger men.


The human immunodeficiency virus (HIV) is a retrovirus that causes an infection within the immune system and can lead to acquired immunodeficiency syndrome (AIDS) if not properly addressed. While this disease specifically attacks the immune system, it also affects other systems, such as the brain. One major relationship we will be investigating is between HIV status and the Veterans Aging Cohort Study (VACS) index, which includes race, sex and other biomarkers such as CD4 count, viral load, hepatitis C infection, and hemoglobin. We hypothesize that there will be a strong correlation between the VACS index and frailty in those with HIV; we also predict there will be changes in cognition and brain volumes. Ninety-seven individuals between the ages of 50 and 77 completed neuropsychological testing and neuroimaging. The mean age for males is 57.2 (54% AA) and females is 56.11 (78% AA). The mean years of education for men is 13.8, and 12.4 for women. Individuals were divided into 3 groups based on their severity of frailty (Non-Frail, Pre-Frail, and Frail (N=19). In the present study, we propose to examine potential differences in neuropsychological scores and structural neuroimaging between these groups. Additionally, we will examine whether the VACS index is predictive of more severe frailty and worse cognitive outcomes and structural neuroimaging. Previous studies have shown that the VACS index is more predictive of mortality risks and frailty in older adults than HIV biomarkers alone. We plan to investigate if these indices are correlated to neuropsychological measures and neuroimaging.


The move to integrate HIV treatment and care into primary care is a major obstacle for the current U.S. health care workforce. Many HIV specialty providers will soon retire, while few primary care clinicians have been adequately trained in the diagnosis, care, and treatment of people living with HIV. The Health Resources and Services Administration (HRSA) has supported the development of a Doctor of Nursing Practice (DNP) program with an HIV specialty at Rutgers, the State University of New Jersey, to assure successful transition to an HIV primary care workforce. The Rutgers School of Nursing has been at the forefront of the DNP education movement and is among the first to develop an HIV-focused DNP program. Thirty-seven students have enrolled in the 3-year program, and two have graduated from the first cohort. Here we discuss the planning, implementation, successes, and recommendations of the new program.


There is a critical need to examine protective and risk factors of anxiety and depressive symptoms among people living with HIV in order to improve quality of life. Structural equation modeling was used to examine the associations between HIV-related shame, sexual abuse-related shame, posttraumatic growth, and anxiety and depressive symptoms among a cohort of 225 heterosexual women and men who have sex with men (MSM) living with HIV who have experienced childhood sexual abuse (CSA). Higher sexual abuse-related shame was related to more anxiety and depressive symptoms for heterosexual women. Higher posttraumatic growth predicted less anxiety symptoms for only heterosexual women. Higher posttraumatic growth predicted less depressive symptoms for heterosexual women and MSM, but the magnitude of this effect was stronger for heterosexual women than MSM. Psychosocial interventions may need to be tailored to meet the specific needs of heterosexual women and MSM living with HIV and CSA.

Experiencing sexual violence in childhood or adolescence is highly prevalent among some women living with HIV, often resulting in anxiety and depression symptoms in adulthood. Anxiety and depression have been associated with HIV medication nonadherence, yet little research has assessed distinct components of anxiety and depression as risk factors of HIV medication nonadherence. The current study examined distinct symptom components of anxiety and depression as predictors of HIV medication non-adherence among women living with HIV and childhood sexual abuse enrolled in a coping intervention. This secondary analysis included a sample of 85 women living with HIV and childhood sexual abuse and being prescribed antiretroviral medication who completed measures on anxiety, depression, and medication adherence. Results from a logistic regression analysis suggest that distinct components of anxiety may be related to medication nonadherence among this population. Targeted mental health interventions for this population may increase adherence to antiretroviral medication.


Symptoms guide disease management, and patients frequently report HIV-related symptoms, but HIV symptom patterns reported by patients have not been described in the era of improved antiretroviral treatment. The objectives of our study were to investigate the prevalence and burden of symptoms in people living with HIV and attending an outpatient clinic. The prevalence, burden, and bothersomeness of symptoms reported by patients in routine clinic visits during 2011 were assessed using the 20-item HIV Symptom Index. Principal component analysis was used to identify symptom clusters and relationships between groups using appropriate statistic techniques. Two main clusters were identified. The most prevalent and bothersome symptoms were muscle aches/joint pain, fatigue, and poor sleep. A third of patients had seven or more symptoms, including the most burdensome symptoms. Even with improved antiretroviral drug side-effect profiles, symptom prevalence and burden, independent of HIV viral load and CD4+ T cell count, are high.


Human immunodeficiency virus has been affecting the human population for more than 30 years. During this time period, more effective, safe, simple, and tolerable pharmacologic agents have been developed. To date, there are 26 antiretroviral agents available that are used either as a single agent or a coformulation in an antiretroviral regimen. The goal of these medications is to achieve viral suppression in individuals infected with human immunodeficiency virus. Evidence continues to support the most effective combinations. It is important that clinicians are knowledgeable of updates so as to provide the best possible medical regimen for this population.
F. Prevention & Sexual Health - Testing


This article reports on older women’s experiences and advice on condom use, male-female relationships, HIV risk, and prevention education. It reports on findings from five written, open-ended questions with 110 ethnically and economically diverse women, 40-80 years old. Analysis revealed four themes: (a) Gap between condom use advice and condom use behavior; (b) invisibility with age; (c) negative expectations of men; and (d) desire for education that breaks the silence on sex. The article discusses the meaning of the findings as they relate to current knowledge about HIV prevention education and midlife and older women and offers recommendations for research and education.


Using the General Social Survey (GSS) 2012, a national household-based probability sample of non-institutionalized U.S. adults, this study examined the association of social capital and sexual risk behaviors among older adults aged 55 years and older. Of the 547 respondents, 87% reported not using condoms during their last intercourse, and nearly 15% reported engaging in sexual risk behaviors, such as casual sex, paid sex, male to male sex, and drug use. Binary logistic regression results showed that age, gender, marital status, education, race, sexual orientation, and sexual frequencies were significant predictors of older adults' unprotected sex. Social capital was not a predictor of unprotected sex but was positively associated with other human immunodeficiency virus/sexually transmitted disease (HIV/STD) risk behaviors such as sex with strangers, having multiple sex partners, injecting drugs, and having male to male sex. Findings of this study highlight the importance of HIV/STD prevention programs for older adults.


The article presents the author's views on the "HIV and the right not to know," an article by researchers Jonathan Youngs and Joshua Simmonds in which they have discussed about the right of adult people to reject their HIV test. Author further discussed various topics including difference between communicable and genetic diseases and psychological depression caused by the results of genetic testing.


The article investigates the sexual activity of seniors living with HIV, as well as their domestic and social situation. The sexual activity of HIV-positive seniors is a major concern because the HIV-positive population is rapidly ageing. Being sexually active is assumed to be one dimension of well-being and social integration. More or less closely associated with conjugality, it also provides information on possible caregivers to the HIV-positive older population as and when the need arises. A sample of 125 HIV-positive individuals, monitored by one of the hospitals of the COREVIH Vallée-du-Rhone (one of the donors of the research program), have been questioned, of whom 80 answered a questionnaire and 45 gave in-depth interviews. In total, 80 seniors (50 years or more) were studied and compared to 45 HIV-positives of younger age. Respondents were selected randomly according to their hospital appointments, but the response rate was too low to consider the sample as representative. However, it has been possible to form four sub-groups with distinct features: heterosexual men tend to continue living within their family circle (wife, children, and sometimes grandchildren), but in conflict and without sexual activity. Heterosexual women mostly live on their own, as they did at the time of infection, but they remain on good terms with their children. MSM often live in a harmonious and affectionate, but rarely sexual, seroconcordant relationship formed after the HIV diagnosis. Finally, bisexual men often live on their own, without any sexual activity and in conflict with their children and ex-partners. They turn out to be the most isolated and psychologically fragile sub-group of the survey.

Introduction Sexuality and the desire for affection and intimacy are important human features across the lifespan. Aims To evaluate and synthesize the existing literature on factors associated with continued sexual activity in adults at least 60 years of age. Methods Three databases were used to select articles, 57 of which met the selection criteria. Methodologic quality was assessed and data were extracted from these studies by two independent reviewers according to standards proposed by the Cochrane Collaboration. Main Outcome Measures Studies were evaluated for quality, included sexual activities, and identified associated factors.

Results Sexual activity was positively associated with past frequency of sexual behavior and partner's interest in sexual activity. Decreased sexual activity (and/or cessation) was associated with the presence of erectile dysfunction and partner's illness. Noteworthy were significant inconsistencies of findings across studies and contrasting findings of generally assumed factors associated with sexual activity in later years (eg, physical and mental health). However, increasing methodologic quality was observed in studies that were more recent. Probable reasons for disparate findings are discussed and recommendations for methodologic improvements are outlined, focusing on population diversity, construct definitions, measurement, and sampling techniques.

Conclusion The literature on sexual activity in older adults is vastly heterogeneous with methodologic caveats and inconsistent results evidenced across studies. Vigilant attention to methodology is essential because sexual activity in later life is multidetermined with amplified individual variability in older vs younger cohorts.


The sexuality of people living with HIV (PLHIV) is a key issue in the fight against HIV, as it influences both the dynamic of the epidemic and the quality of life of PLHIV. The present study examined the factors associated with cessation of sexual relations after HIV diagnosis among men and women in five countries: Mali, Morocco, Democratic Republic of the Congo, Romania and Ecuador. A community-based cross-sectional study was implemented by a mixed consortium [researchers/community-based organizations (CBO)]. Trained CBO members interviewed 1500 PLHIV in contact with CBOs using a 125-item questionnaire. A weighted multivariate logistic regression and a separate gender analysis were performed. Among the 1413 participants, 471 (33%) declared that they stopped having sexual relations after their HIV diagnosis, including 318 women (42%) and 153 men (23%) (p < .001). Concerning women, variables associated with the cessation of sexual relations in the final multivariate model were mainly related with relational factors and the possibility of getting social support (e.g., needing help to disclose HIV serostatus, feeling lonely every day, not finding support in CBOs, not being in a couple). Men’s sexual activity was more associated with their representations and their perception of the infection (e.g., thinking they will have their HIV infection for the rest of their life, perceiving the HIV infection as a mystery, perceiving the infection as serious). Furthermore, the following variables were associated with both men and women sexual behaviours: being older, having suffered from serious social consequences after serostatus disclosure and not being able to regularly discuss about HIV with their steady partner. Results suggested clear differences between men and women regarding cessation of sexual relations and highlighted the importance of implementing gender-based tailored interventions that promote safe and satisfying sexuality, as it is known to have a positive impact on the overall well-being of PLHIV.


BACKGROUND: Post-traumatic stress disorder (PTSD) in Veterans is associated with increased sexual risk behaviors, but the nature of this association is not well understood. Typical PTSD measurement deriving a summary estimate of symptom severity over a period of time precludes inferences about symptom variability, and whether momentary changes in symptom
severity predict risk behavior. METHODS: We assessed the feasibility of measuring daily PTSD symptoms, substance use, and high-risk sexual behavior in Veterans using ecological momentary assessment (EMA). Feasibility indicators were survey completion, PTSD symptom variability, and variability in rates of substance use and sexual risk behavior. Nine male Veterans completed web-based questionnaires by cell phone three times per day for 28 days. RESULTS: Median within-day survey completion rates maintained near 90%, and PTSD symptoms showed high within-person variability, ranging up to 59 points on the 80-point scale. Six Veterans reported alcohol or substance use, and substance users reported use of more than one drug. Eight Veterans reported 1 to 28 high-risk sexual events. Heightened PTSD-related negative affect and externalizing behaviors preceded high-risk sexual events. Greater PTSD symptom instability was associated with having multiple sexual partners in the 28-day period. LIMITATIONS: These results are preliminary, given this small sample size, and multiple comparisons, and should be verified with larger Veteran samples. CONCLUSIONS: Results support the feasibility and utility of using of EMA to better understand the relationship between PTSD symptoms and sexual risk behavior in Veterans. Specific antecedent-risk behavior patterns provide promise for focused clinical interventions.


BACKGROUND: Genital, anal, and oral injuries sustained from sexual intercourse may explain HIV transmission among women. We determined the variability in genitoanal injury frequency and prevalence in women after consensual sexual intercourse, exploring the role of menstrual phase and hormonal birth control. METHODS: We used a longitudinal observational design with a convenience sample of 393 women aged 21 years and older. Participants had a baseline interview with gynecological examination, followed by consensual sexual intercourse with a male partner and a second gynecological examination. We analyzed injury prevalence with logistic regression and injury frequency with negative binomial regression among women who were (1) menstrual, not using hormonal birth control, (2) menstrual, using hormonal birth control, or (3) menopausal. We also compared injury among menstrual women in the follicular, ovulatory, and luteal phases. FINDINGS: Women using hormonal birth control had 38% more external genitalia injuries [adjusted rate ratio (ARR) = 1.38, P = 0.030] and more than twice the anal injuries (ARR = 2.67, P = 0.005) as the nonhormonal birth control menstruating group. Menopausal women had more than 3 times the anal injuries (ARR = 3.36, P = 0.020) than those in the nonhormonal menstrual group. Among menstrual women, those in the follicular phase had a greater prevalence and frequency of external genitalia injuries than those in other phases. INTERPRETATION: Increased rates of postcoital genitoanal injuries are noted among women using hormonal birth control and/or in the follicular phase of menstruation. Biological factors that influence women's risk for HIV warrant further investigation.


BACKGROUND: Incarceration history is associated with lower rates of condom use and increased HIV risk. Less is known about duration of incarceration and multiple incarcerations’ impact on condom use post-release. METHODS: In the current study, we surveyed 1,416 adults in Mississippi about their incarceration history and sexual risk behaviors. Generalized estimating equations (GEE) were used to test associations between duration of incarceration, multiple incarcerations, socio-demographic factors, substance use, sexual behavior, and event level condom use at last sex. RESULTS: After adjusting for covariates, having been incarcerated for at least 6 months two or more times remained significantly associated with condomless sex. CONCLUSIONS: This study found a strong, independent relationship between condom use and multiple, long-term incarceration events among patients in an urban STI clinic in the Deep South. The results suggest that duration of incarceration and multiple incarcerations have significant effects on sexual risk behaviors, underscoring the deleterious impact of long prison or jail sentences on population health. Our findings also suggest that correctional health care professionals and post-release providers might consider
offering comprehensive sexual and reproductive health services and those providing community care should consider screening for previous incarceration as a marker of risk.


OBJECTIVE: Intravaginal practices—including behaviors such as intravaginal cleansing and insertion of products—have been linked to a number of adverse reproductive health outcomes, including increased risk for bacterial vaginosis, sexually transmitted infections, and HIV. Currently, little is known about the motivations for intravaginal practices among women in the United States. The objective of this study was to identify and describe motivations for intravaginal washing and intravaginal insertion of products among women of differing ages and racial/ethnic groups. METHODS: Between 2008 and 2010, we enrolled a convenience sample of sexually active women aged 18-65 years living in Los Angeles recruited through community education and outreach activities in HIV/AIDS service organizations, women’s health clinics, community-based organizations, and HIV testing sites. At the enrollment visit, women completed a self-administered, computer-assisted questionnaire covering demographics, sexual behaviors, intravaginal practices, and motivations for intravaginal practices over the past month and past year. RESULTS: We enrolled 141 women; 34% of participants were Caucasian, 40% African American, and 26% Latina. Peri-sexual intravaginal washing was common in all groups, whether to clean up after sex (70%) or to prepare for sex (54%). African American women were more likely to report learning to wash intravaginally from their mothers compared to Latina or Caucasian women (70% vs. 49%, P = 0.04). Sixty-one percent of African American women reported using a douching device over the past year compared to 41% of Latina and 40% of Caucasian women (p = 0.02). Younger women were more likely to report that their male partners wanted them to wash intravaginally than older women (77% vs. 24%, P<0.01), and more likely to report the removal of odors as a motive than older women (65% vs. 40%, P = 0.04). The most commonly used intravaginal products included sexual lubricants, petroleum jelly, body lotions, oils, and wet wipes. Use of these products varied by race, and motives given included increasing lubrication, preparing for sex, smelling good, and preventing sexually transmitted infections. CONCLUSION: Women’s intravaginal practices and motivations for these practices differ across race and age. Motivations for use also vary by type of intravaginal product used. Given that some intravaginal practices have been shown to be harmful, interventions, programs and counseling messages to encourage less harmful practices are needed, and should consider underlying motivations that influence women’s vaginal practices. Practitioners may use these results to better support women in achieving vaginal health.


Jamaica is home to over 10% of the Caribbean’s HIV-positive population. Men who have sex with men (MSM) have a higher prevalence of HIV compared to the general public. Thus, the purpose of this study is to assess characteristics associated with HIV, such as condom use and number of sexual partners, comparing young, those aged 18-24, to older, aged 25 and older, MSM in Jamaica. We hypothesised, and found support for the notion, that younger MSM would have a lower rate of some risky behaviours associated with HIV seropositivity. Service data for 160 self-selected MSM aged 18-62, from Kingston, Jamaica were analysed. The majority identified as homosexual (compared to bisexual), over half of respondents completed a tertiary level of education (e.g. any post-high school training), and 59.1% were employed. Almost all participants reported agreeing to use a condom when requested (93.6%). Prevalence of HIV was 17.8%, much lower than the 32% found in national studies, and is likely an underestimation reflecting patterns of this self-selected sample. Additionally, over one-third reported experiencing sexual abuse. Statistically significant relationships were found between age group and tertiary education, employment status, condom use with a regular partner, and sexual abuse. Younger MSM were more likely to have been sexually abused and were more likely to always wear a condom with their regular partner. A limitation of this study was the extent of missing data, restricting generalisability. However, by acknowledging the heterogeneity of the Jamaican MSM population, and subsequently evaluating behaviours across age groups, nuances emerge which highlight behavioural diversity. Findings may inform public health practitioners in developing targeted interventions.
Butler, C. R. and A. M. O'Hare (2016). "Considerations in Applying the Results of Randomized Controlled Clinical Trials to the Care of Older Adults With Kidney Disease in the Clinical Setting: The SHARP Trial." Adv Chronic Kidney Dis 23(1): 29-35.

The Study of Heart and Renal Protection (SHARP) found that treatment with ezetemibe and low-dose simvastatin reduced the incidence of major atherosclerotic events in patients with kidney disease. Due to the paucity of evidence-based interventions that lower cardiovascular morbidity in this high-risk population, the SHARP trial will likely have a large impact on clinical practice. However, applying the results of clinical trials conducted in select populations to the care of individual patients in real-world settings can be fraught with difficulty. This is especially true when caring for older adults with complex comorbidity and limited life expectancy. These patients are often excluded from clinical trials, frequently have competing health priorities, and may be less likely to benefit and more likely to be harmed by medications. We discuss key considerations in applying the results of the SHARP trial to the care of older adults with CKD in real-world clinical settings using guiding principles set forth by the American Geriatrics Society's Expert Panel on the Care of Older Adults with Multimorbidity. Using this schema, we emphasize the importance of evaluating trial results in the unique context of each patient's goals, values, priorities, and circumstances.


INTRODUCTION: Globally, transgender women sex workers have a high prevalence of HIV and condomless receptive anal intercourse with male clients (CRAIMC). We investigated the prevalence of CRAIMC and factors associated with CRAIMC among transgender women sex workers in China. METHODS: In 2014, we anonymously interviewed 220 transgender women sex workers face to face in Shenyang, China. Those who self-reported as HIV negative or as having unknown HIV serostatus were invited to take up free, anonymous HIV rapid testing (n=183); 90 did so. Using CRAIMC in the last month as the dependent variable, three types of associated factors were investigated, in addition to background factors: feminizing medical interventions, sex work and perceptions related to condom use. Univariate and multiple logistic regression models were fitted. RESULTS: Of the participants, 16.8% self-reported as HIV positive and 9.1% were detected to be HIV positive through free HIV testing; 26.8% had had CRAIMC in the last month, 45.5% had performed sex work in other Chinese cities (last year), and 23.2% had had condomless anal intercourse with men who were non-clients. In the adjusted analysis, significant factors associated with CRAIMC (last month) included the following: 1) any feminizing medical intervention performed (adjusted odds ratio, AOR: 2.22); 2) sex-work-related factors, including recruitment of male clients most often at hotels (AOR: 5.02) and charge per episode of transactional sex (201 to 400 RMB, AOR: 0.27; reference group: </=100 RMB); and 3) perceptions related to condom use, including perceived transgender identity's impact on condomless sex such as wearing feminine attire, concern about exposing their status as a transgender woman to male clients (AOR: 1.20) and perceived self-efficacy of consistent condom use with male clients (AOR: 0.56). Perceived self-efficacy of consistent condom use with male clients fully mediated the association between perceived transgender identity's impact on condomless sex and CRAIMC. CONCLUSIONS: HIV prevalence among transgender women sex workers was high but probably underestimated. The high prevalence of condomless anal intercourse with male non-clients and high mobility in sex work among this population in China are causes for concern. Risk factors for CRAIMC were multidimensional and should be considered when designing interventions targeting transgender women sex workers. Such interventions are urgently needed.


Although there are practices other than condomless anal intercourse that may result in HIV transmission among gay and bisexual men, very little is known about these 'uncommon' transmission explanations. To address this topic, the free text survey responses from 465 HIV positive gay men in Australia were thematically analysed; 123 participants offered uncommon explanations for their seroconversion. Men described several sexual acts they believed led to infection, categorised as adventurous sex (e.g., fisting) and foreplay (e.g., oral sex). Participants also identified mediating factors associated with their seroconversion, either internal (e.g., cum/pre-cum) or external (e.g., sores, illness) to sex. Finally, contextual forces associated with infection were also explored, namely physical spaces (e.g., sex on premises venues) or mental states (e.g., depression). While some uncommon explanations are unlikely to have resulted in HIV transmission, these accounts reveal the diverse and intersecting ways that men attempt to make sense of their seroconversion.
Youth carry the highest incidence of HIV infection in the United States. Understanding adolescent and young adult (AYA) perspectives on HIV transmission risk is important for targeted HIV prevention. We conducted a mixed methods study with HIV-infected and uninfected youth, ages 18-24 years, from Atlanta, GA. We provided self-administered surveys to HIV-infected and HIV-uninfected AYAs to identify risk factors for HIV acquisition. By means of computer-assisted thematic analyses, we examined transcribed focus group responses on HIV education, contributors to HIV transmission, and pre-sex HIV status disclosure. The 68 participants had the following characteristics: mean age 21.5 years (standard deviation: 1.8 years), 85% male, 90% black, 68% HIV-infected. HIV risk behaviors included the perception of condomless sex (Likert scale mean: 8.0) and transactional sex (88% of participants); no differences were noted by HIV status. Qualitative analyses revealed two main themes: (1) HIV risk factors among AYAs, and (2) barriers to discussing HIV status before sex. Participants felt the use of social media, need for immediate gratification, and lack of concern about HIV disease were risk factors for AYAs. Discussing HIV status with sex partners was uncommon. Key reasons included: fear of rejection, lack of confidentiality, discussion was unnecessary in temporary relationships, and disclosure negatively affecting the mood. HIV prevention strategies for AYAs should include improving condom use frequency and HIV disclosure skills, responsible utilization of social media, and education addressing HIV prevention including the risks of transactional sex.

Research has suggested that men who have sex with men and who have older sexual partners are at increased risk of HIV infection. However, while several studies have explored risk among men in age-discrepant non-primary partnerships, only two have explored age discrepancy and risk in primary same-sex male relationships. We used data from semi-structured in-depth interviews to explore sexual behaviour and HIV risk among 14 Black, white and interracial (Black/white) same-sex male couples with an age difference of 10 or more years. Most couples regularly used condoms, and sexual positioning tended to lead to lower risk for younger partners. Some serodiscordant couples abstained from anal sex, while others used seropositioning to avoid transmission within the relationship. Within some couples, older partners acted as mentors on HIV prevention and broader life lessons. Future studies should further explore the potential risks and benefits of large age differences in same-sex male primary relationships.

This study tested the hypothesis that greater alcohol involvement will predict number of sexual partners to a greater extent for women than for men, and that the hypothesized sex-specific, alcohol-sexual partner associations will hold when controlling for alternative sex-linked explanations (i.e., depression and drug use). We recruited 508 patients (46 % female, 67 % African American) from a public sexually transmitted infections (STI) clinic. Participants reported number of sexual partners, drinks per week, maximum drinks per day, frequency of heavy drinking; they also completed the AUDIT-C and a measure of alcohol problems. As expected, men reported more drinking and sexual partners. Also as expected, the association between alcohol use and number of partners was significant for women but not for men, and these associations were not explained by drug use or depression. A comprehensive prevention strategy for women attending STI clinics might include alcohol use reduction.

OBJECTIVES: To evaluate the rates and types of sexually transmitted infections (STIs) in patients infected with the human immunodeficiency virus (HIV) attending a public STI clinic in Miami, Florida as compared with HIV-uninfected patients attending the same clinic. METHODS: This was a retrospective review of medical records of individuals attending the Miami-Dade County
Health Department STI clinic from March 2012 to May 2012. Demographic and clinical information was abstracted and transferred to an electronic database. Consecutive age-matched HIV-infected and HIV-uninfected patients were identified during the study period. Demographics, risk factors, and history and rates of STIs for HIV-infected and HIV-uninfected patients and for those with newly diagnosed and previously diagnosed HIV infection were compared. RESULTS: A total of 175 medical records were reviewed (89 HIV-infected patients and 86 HIV-uninfected patients). The median age was 37 years. A history of STIs, including syphilis, was more common in HIV-infected than in HIV-uninfected patients. Individuals with a prior diagnosis of HIV were more likely to be older (older than 37 years of age, chi(2) = 15.3, P < 0.01), male (chi(2) = 4.74, P = 0.05), to have a new STI (chi(2) = 5.83, P = 0.01), to have a new diagnosis of syphilis (chi(2) = 5.15, P = 0.01), and to be under medical care (chi(2) = 31.19, P < 0.001) than those newly diagnosed as having HIV. CONCLUSIONS: HIV-infected individuals who attended this urban STI clinic had high rates of new and past STIs, suggesting the persistence of high-risk sexual behaviors. STI clinics could be a premier site to identify individuals with HIV and high-risk sexual behaviors who could benefit from additional targeted interventions.


BACKGROUND: Sex-related alcohol expectancies reflect the degree to which a person believes alcohol will affect her or his sexual behavior. Sex-related alcohol expectancies have been found to be predictors of drinking in sexual situations and engagement in risky sexual behavior after drinking. However, less is known about individual characteristics that may moderate these associations. Building upon recent evidence that steep delay discounting is associated with alcohol-related sexual risk taking, this study aimed to test the hypothesis that the associations between sex-related alcohol expectancies and alcohol-related sexual risk taking would be stronger among individuals who discount delayed rewards more steeply. METHODS: The current sample comprised 126 Emergency Department patients (Mage = 27.37; 55% male) who reported high-risk alcohol use and sexual behavior during the past 3 months. Sex-related alcohol expectancies were assessed in 3 behavioral domains: increased riskiness, decreased nervousness, and enhanced sexuality. RESULTS: All 3 expectancy domains were associated with quantity and frequency of alcohol use, as well as percentage of alcohol-related condomless sex. Delay discounting moderated 2 of these relationships, such that the associations between expectancies for alcohol-induced sexual risk taking and the enhancement of sexuality and percentage of alcohol-related sexual risk-taking were significantly stronger in individuals who exhibited steeper delay discounting. CONCLUSIONS: These findings suggest that individuals who both discount delayed rewards more steeply and hold strong sex-related alcohol expectancies are a particularly high-risk population. Such individuals may benefit from a combination of novel preventive strategies targeting sex-related alcohol expectancies and impulsive decision making.


The purpose of this study is to assess whether different sexual risk behavior exists among young Black men who have sex with men (YBMSM) as a function of age. A total of 382 YBMSM completed a computer-assisted self-interview at a sexual health clinic. The frequency/prevalence of fifteen sexual risk behaviors was compared between three groups (ages 16-19, 20-25, and 26-29, respectively) in the 90 days prior to enrollment in the study. Regression models were used to control for the confounding influence of Human Immunodeficiency Virus (HIV) status. One hundred seven participants were HIV-infected at study enrollment. Of the 15 measures assessed, none significantly differed among the groups. These null findings did not change in multivariate analyses. Our findings suggest that there is no differential sexual risk based on age among YBMSM and that this group should be considered a homogenous population with regards to intervention strategies that aim to reduce the sexual risk behaviors of YBMSM.


The HIV testing, disclosure, and sexual practices of ethnic minority men suggest that addressing sexual risk behavior and the underlying reasons for not receiving HIV testing or disclosing HIV-infection status-unique to differing populations—would improve public health interventions. Descriptive behaviors and underlying perspectives reported in our study suggest that public
health interventions for HIV-infected Latino men who self-identify as heterosexual should explicitly identify substance use, needle sharing, and unprotected sex to current partners as behaviors placing both oneself and one’s partners at high risk for contracting HIV. However, diversity of sexual behavior among gay, straight, and bisexual HIV-infected Latino men in our study ultimately suggested that clinicians should not rely on simplistic conceptions of sexuality in assessment of self-care needs. Care in presentation and discussion of self-identified sexual preference and sexual behavior is indicated, as these do not determine actual sexual orientation or behavior and vice versa.


INTRODUCTION: Despite the efficacy of pre-exposure prophylaxis (PrEP) in preventing HIV transmission, few studies have evaluated PrEP use and retention in care outcomes in real-world settings outside of clinical trials. METHODS: Data were collected from PrEP clinical care programmes in three mid-size US cities: Providence, Rhode Island (RI); Jackson, Mississippi (MS); and St. Louis, Missouri (MO). We assessed the demographic and social characteristics of patients prescribed PrEP and documented their insurance and copayment experiences. We assessed retention in PrEP care at three and six months. Multivariate analyses were used to predict retention in care among men who have sex with men (MSM). HIV acquisition among the cohort was also assessed. RESULTS: A total of 267 (RI: 117; MS: 88; MO: 62) patients were prescribed PrEP; 81% filled prescriptions (RI: 73%; MS: 82%; MO: 94%; p<0.001). Patients in MS and MO were more commonly African American than in RI (72% and 26% vs. 7%, respectively), but less frequently Latino (2% and 3% vs. 24%, respectively). More patients reported living below the federal poverty line in MS (52%) compared to MO (23%) and RI (26%). Most patients were MSM (RI: 92%; MS: 88%; MO: 84%). The majority of MSM reported recent condomless anal sex (RI: 70%; MS: 65%; MO: 75%). Among 171 patients prescribed PrEP at least six months beforehand, 72% were retained in care at three months (RI: 68%; MS: 70%; MO: 87%; p=0.12) and 57% were retained in PrEP care at six months (RI: 53%; MS: 61%; MO: 63%; p=0.51). Insurance status and medication costs were not found to be significant barriers for obtaining PrEP. Three patients became infected with HIV during the six-month period after being prescribed PrEP (1.1%; 3/267), including one in RI (suspected acute HIV infection), one in MO (confirmed poor adherence) and one in MS (seroconverted just prior to initiation). CONCLUSIONS: PrEP initiation and retention in care differed across these distinct settings. In contrast, retention in PrEP care was consistently suboptimal across sites. Further research is needed to identify the individual, social and structural factors that may impede or enhance retention in PrEP care.


Clients of female sex workers (CFSWs) are a bridge population for the spread of HIV and syphilis to low or average risk heterosexuals. Most studies have examined the point prevalence of these infections in CFSWs. Limited evidence suggests that older age CFSWs are at a higher risk of acquiring sexually transmitted diseases compared with younger clients. Thus, we sought to describe long-term trends in HIV, syphilis, and hepatitis C (HCV) to better understand how these infections differ by sex worker classification and client age. We also examined trends in HIV, syphilis, and HCV among categories of female sex workers (FSWs). We conducted serial cross-sectional studies from 2010 to 2015 in Guangxi autonomous region, China. We collected demographic and behavior variables. FSWs and their clients were tested for HIV, syphilis, and HCV antibodies. Positive HIV and syphilis serologies were confirmed by Western blot and rapid plasma regain, respectively. Clients were categorized as middle age (40-49 years) and older clients (>/=50 years). FSWs were categorized as high-tier, middle-tier, or low-tier based on the payment amount charged for sex and their work venue. Chi-square test for trends was used for testing changes in prevalence over time. By 2015, low-tier FSWs (LTFSWs) accounted for almost half of all FSWs; and they had the highest HIV prevalence at 1.4%. HIV prevalence declined significantly for FSWs (high-tier FSW, P = 0.003; middle-tier FSWs; P = 0.021; LTFSWs, P < 0.001). Syphilis infections significantly declined for FSWs (P < 0.001) but only to 7.3% for LTFSWs. HCV and intravenous drug use were uncommon in FSWs. HIV prevalence increased for older age clients (1.3%-2.0%, P = 0.159) while syphilis prevalence remained stable. HCV infections were halved among older clients in 3 years (1.7%-0.8%, P < 0.001). Condom use during the last sexual encounter increased for FSWs and CFSWs. Few clients reported sex with men or intravenous drug use. Clients preferred LTFSWs, especially
older clients (81.9%). Our results suggest that HIV and syphilis infections are increasing in older clients who prefer LTFSWs. HIV and syphilis are likely increasing in Guangxi Province through heterosexual transmission.


The Food and Drug Administration approved pre-exposure prophylaxis (PrEP) to prevent HIV infection, and the Centers for Disease Control and Prevention has presented PrEP as a prevention option for groups at high risk such as men who have sex with men (MSM). Intervention data provide some information on how PrEP affects sexual behavior of MSM in trials, open label extensions, or clinics. However, it is unclear whether sexual risk and preventive behavioral patterns are changing in the population as a whole as PrEP becomes more widely available, whether due to PrEP use or other factors. We examined trends in PrEP use, numbers of condomless anal sex partners, consistent condom use, and seroadaptive strategies in San Francisco—a city which has actively promoted PrEP—using data from National HIV Behavioral Surveillance (NHBS). NHBS recruited 1211, 383, 373, and 268 HIV-negative MSM in 2004, 2008, 2011, and 2014, respectively. PrEP use increased from zero in 2004, 2008, and 2011 to 9.6 % in 2014. The proportion of men with no condomless anal sex partners dropped from 60.6 % in 2004, to 58.2 % in 2008, to 54.2 % in 2011, to 40.2 % in 2014. Consistent condom use decreased from 36.8 % in 2004, and 30.5 % in 2008 and 2011, to 18.3 % in 2014. PrEP’s introduction and scale-up enters in a pre-existing trend of decreasing condom use and increasing sexually transmitted infections among MSM which may be accelerating in recent years. While PrEP use should be scaled up as a prevention option among those who would benefit most, we believe that public health officials need to be realistic about the possibility that condom use could very well continue to decline as PrEP use increases, and to an extent that may not be directly or indirectly offset by PrEP.


High levels of HIV stigma are one of the main difficulties in engaging African-American and Latino men who have sex with men (MSM) in HIV testing. The availability of home HIV test and the possibility of self-testing in private may improve uptake and counteract stigma. This paper sought to determine the correlates of requesting home HIV test kits among a sample of MSM social media users. The odds of participants requesting a test kit were significantly associated with using social networks to seek sexual partners (aOR: 2.47, 95% CI: 1.07-6.06) and thinking it is easier to use social networks for seeking sexual partners (1.87, 1.2-3.12), uncertain HIV status (4.29, 1.37-14.4), and having sex under the influence of alcohol (2.46, 1.06-5.77). Participants who had not been tested for more than 6 months were more likely to request a test kit than those who were tested in the past 6 months (2.53, 1.02-6.37). Participants who frequently talked to others about having sex with men online were less likely to request a test kit (0.73, 0.56-0.92). By reaching people over social media and offering them access to test kits, we were able to reach at-risk individuals who were uncertain about their HIV status and had not been regularly tested. The findings of the study will help to inform future HIV testing interventions.


To determine whether sexual minorities have an earlier mortality than do heterosexuals, we investigated associations between sexual orientation assessed in the 2001 to 2010 National Health and Nutrition Examination Surveys (NHANES) and mortality in the 2011 NHANES-linked mortality file. Mortality follow-up time averaged 69.6 months after NHANES. By 2011, 338 individuals had died. Sexual minorities evidenced greater all-cause mortality than did heterosexuals after adjusting for demographic confounding. These effects generally disappeared with further adjustment for NHANES-detected health and behavioral differences.

The present study compared the self-reported quality of emotional experiences on sexual occasions that differed in levels of alcohol consumption to determine whether widely held beliefs about alcohol’s positive effects on sex are borne out in people’s everyday sexual experience. Multilevel models were estimated using data from 7442 discrete sexual events collected over a 10+ year period from a community sample of 1946 Black and White young adults. Tests of between-person differences revealed that beliefs that drinking both enhances and disinhibits sexual experience are widely endorsed, and that those who hold strong expectancies for enhancement drink significantly more on sexual occasions than those who do not. Nevertheless, tests of within-person differences revealed that people’s sexual experiences were generally less positive on drinking than sober occasions, even after controlling for a host of individual difference and event-level characteristics. Moreover, cross-level expectancy x alcohol interaction tests showed that even those who strongly endorsed alcohol’s positive effects failed to report more positive sexual experiences on drinking versus sober occasions, with a single exception: Those with strong expectancies for sexual enhancement reported greater arousal at high consumption levels, whereas those with weak enhancement expectancies reported lower arousal. In short, drinking on sexual occasions failed to deliver any benefit for the majority of individuals across the majority of outcomes. Why positive beliefs are maintained in the face of largely contradictory experience, and how this information can be used to inform intervention and prevention is explored.


This study determined whether YBMSM endorsing serosorting are less likely to use condoms. A questionnaire assessed men’s attitudes towards serosorting with a three-item scale; various sexual risk behaviours were measured using a 90-day recall period. Favourable attitudes toward serosorting were associated with a greater likelihood of condomless sex as a top (P<0.001) and as a bottom (P<0.001), as well as a lower likelihood of using condoms with main partners (P=0.003). Findings suggest that YBMSM having favourable attitudes toward serosorting may be more likely to report condomless sex than their counterparts without favourable attitudes.


For almost two decades, researchers have explored the relationship between online partner seeking (OPS) and HIV/STI transmission risk behavior among men who have sex with men (MSM), including gay- and bisexual-identified men. A dichotomy has emerged with some findings that OPS is associated with greater sexual risk behavior, and a sparser but emerging literature that men may use OPS for sexual risk reduction. This study examined the association between proportion of partners met online and sexual risk behavior in a sample of 170 HIV-positive gay- and bisexual-identified men. Participants completed assessments including psychosocial factors and a comprehensive assessment of sexual behavior, including total number of male partners, and condomless insertive and receptive anal sex with HIV-negative/unknown serostatus partners or HIV-positive male partners. Our findings support taking a dialectical stance and indicate that OPS may impact risk differently given different individual and contextual circumstances.


OBJECTIVES: Pre-exposure prophylaxis (PrEP) has proven biological efficacy in reducing the risk of sexual acquisition of HIV. Healthcare providers’ (HCPs) knowledge of and attitudes to PrEP will be key to successful implementation. In England, PrEP is only available to men who have sex with men (MSM) through the open-label randomized PROUD pilot study of immediate or deferred use. METHODS: In September 2013, a cross-sectional survey of UK HCPs distributed through sexual health clinics (219) and professional societies’ email lists (2599) and at a conference (80) asked about knowledge of, attitudes to and practice of PrEP.
RESULTS: Overall, 328 of 2898 (11%) completed the survey, of whom 160 of 328 (49%) were doctors, 51 (16%) sexual health advisers (SHAs), 44 (14%) nurses and 73 (22%) unspecified. Over a quarter (83 of 311; 27%) were involved in PROUD. Most respondents (260 of 326; 80%) rated their knowledge of PrEP as medium or high. Over half of respondents (166 of 307; 54%) thought PrEP should be available outside of a clinical trial. The main barriers to supporting PrEP availability outside a clinical trial were concerns about current evidence (odds ratio [OR] 0.13), lack of UK-specific guidance (OR 0.35), concerns about adherence (OR 0.38) and risk of sexual or physical coercion for patients to have condomless or higher risk sex (OR 0.42 in multivariate regression). Just over half (147 of 277; 53%) had been asked about PrEP by patients in the past year, including almost half of those working in a clinic not involved in the PROUD study (86 of 202; 43%). CONCLUSIONS: There is support for PrEP availability outside a clinical trial, but HCPs have residual concerns about its effectiveness and negative consequences, and the absence of UK-specific implementation guidance.


Substance-abusing pregnant and postpartum women are less likely to maintain consistent condom use and drug and alcohol abstinence, which is particularly concerning in high HIV-prevalence areas. Data from 224 pregnant and postpartum women in substance abuse treatment were analyzed to examine effects of history of substance use, child abuse, and mental health problems on current substance use and condom-use barriers. Mediators were depression, relationship power and social support. Most participants (72.9 %) evidenced current depression. Less social support (-0.17, p < 0.05) and relationship power (-0.48, p < 0.001), and greater depression (-0.16, p < 0.05) predicted more condom-use barriers. History of mental health problems predicted condom-use barriers, mediated by recent depression and relationship power (0.15, p < 0.001). These findings suggest depression and diminished relationship power limit highest-risk women's ability to negotiate condom use and abstain from substance use, increasing their risk of acute HIV infection and vertical transmission.


Sexuality is a dimension that concerns human health with profound implications not only in the biological and psychological aspects, but also in the social and cultural dimensions, affecting all ages of life. Sexuality in old age is still conditioned by biases, prejudices and from a stereotyped vision, which considered older people as “asexual”, in spite of several studies and surveys showing that older persons have sexual potential to express. In population surveys, a fair number of men and women aged over 60 years reported having sex at least once a month. The most influential predictor of sexual activity seems to be the physical health in older men, and the quality of the relationship in older women. The most common sexual disorders are erectile dysfunction and delayed ejaculation in older men, and reduced sexual interest, arousal disorder, female orgasmic disorder, genitopelvic pain and ailments of penetration in older women. A careful evaluation can identify the presence and severity of disorders in different phases of the sexual response cycle. The management of sexual dysfunction in older people may include reassurance, education, sex therapy and/or the use of drugs in specific cases. Sexuality in patients with dementia may arise as inappropriate sexual behaviour (ISB) due to behavioural disinhibition. Manifestations of ISB can be very distressing for family members and other caregivers and can present substantial challenges for staff and health care providers in long term care. Although there is no established treatment algorithm for dementia-related ISB, there are various non-pharmacological and pharmacological treatments, which can help in the management of these patients.


Geosocial-networking smartphone applications ("apps") are widely used by gay, bisexual, and other men who have sex with men (MSM) and facilitate connections between users based on proximity and attraction. MSM have sexual encounters and relationships of varying degrees of emotional and physical intimacy with app-met individuals, potentially placing them at risk for intimate partner violence (IPV). The purpose of the current study was to utilize a geosocial-networking application to investigate relationships between experiences of IPV victimization as it relates to substance use and sexual risk behaviors in a sample of
MSM. Participants (n = 175) were recruited by means of broadcast advertisements on an application widely used by MSM (Grindr) to seek sexual partners. Multivariable regression models were fit to examine associations between IPV, substance abuse, and sexual risk behaviors. Lifetime experiences of IPV victimization were common, where 37.7% of respondents reported having experienced at least one form of IPV. While a marginally significant positive association between IPV and substance abuse was detected in multivariable models (p = .095), individual forms of IPV were strongly associated with substance abuse. For example, sexual IPV victimization was associated with an increase in substance abuse in the preceding month (p = .004). Experiences of IPV victimization were associated with higher numbers of partners for both condomless receptive and insertive anal intercourse (p < .05). Given the relatively high prevalence of IPV victimization and its associations with substance abuse and sexual risk behaviors, these findings suggest that IPV screening and prevention programs may reduce substance abuse and sexual risk behaviors in this population.


Targeting couples is a promising behavioral HIV risk-reduction strategy, but the mechanisms underlying the effects of such interventions are unknown. We report secondary analyses testing whether Social-Cognitive-Theory variables mediated the Eban HIV-risk-reduction intervention's effects on condom-use outcomes. In a multisite randomized controlled trial conducted in four US cities, 535 African American HIV-serodiscordant couples were randomized to the Eban HIV risk-reduction intervention or attention-matched control intervention. Outcomes were proportion condom-protected sex, consistent condom use, and frequency of unprotected sex measured pre-, immediately post-, and 6 and 12 months post-intervention. Potential mediators included Social-Cognitive-Theory variables: outcome expectancies and self-efficacy. Mediation analyses using the product-of-coefficients approach in a generalized-estimating-equations framework revealed that condom-use outcome expectancy, partner-reaction outcome expectancy, intention, self-efficacy, and safer-sex communication improved post-intervention and mediated intervention-induced improvements in condom-use outcomes. These findings underscore the importance of targeting outcome expectancies, self-efficacy, and safer-sex communication in couples-level HIV risk-reduction interventions.


OBJECTIVES: Judgements of attractiveness have been shown to influence the character of social interactions. The present study sought to better understand the relationship between perceived attractiveness, perceived sexual health status and condom use intentions in a heterosexual male population. SETTING: The study employed an electronic questionnaire to collect all data, during face-to-face sessions. PARTICIPANTS: 51 heterosexual, English-speaking men aged between 18 and 69 years. OUTCOME MEASURES: Men were asked to rate the attractiveness of 20 women on the basis of facial photographs, to estimate the likelihood that each woman had a sexually transmitted infection (STI) and to indicate their willingness to have sex with or without a condom with each woman. RESULTS: The more attractive a woman was judged to be on average, the more likely participants would be willing to have sex with her (p<0.0001) and the less likely they were to intend to use a condom during sex (p<0.0001). Multivariate analysis revealed that higher condom use intentions towards a particular woman were associated with lower ratings of her attractiveness (p<0.0005), higher ratings of her STI likelihood (p<0.0001), the participant being in an exclusive relationship (p=0.002), having a less satisfactory sex life (p=0.015), lower age (p=0.001), higher number of sexual partners (p=0.001), higher age at first intercourse (p=0.002), higher rates of condomless sex in the last 12 months (p<0.043) and lower confidence in their ability to assess whether or not a woman had an STI (p=0.001). The more attractive a participant judged himself to be, the more he believed that other men like him would engage in condomless sex (p=0.001) and the less likely he was to intend to use a condom himself (p=0.02). CONCLUSIONS: Male perceptions of attractiveness influence their condom use intentions; such risk biases could profitably be discussed during sex education sessions and in condom use promotion interventions.

PURPOSE OF REVIEW: This article describes the use of tenofovir/emtricitabine (Truvada) as prevention for exposure to HIV [preexposure prophylaxis (PrEP)] infection in the USA. The use of PrEP and the challenges of implementation are very instructive as other countries adopt this intervention and it becomes a fundamental part of worldwide efforts for HIV prevention and much can be learned from the first 3 years in the USA. RECENT FINDINGS: Randomized trials and demonstration projects have shown the benefits of PrEP for men and women who are at risk for HIV. Numerous studies have showed that the level of prevention is excellent when the drug is taken at least four times weekly, once adequate levels are obtained. However, adherence remains a critical issue as well as tailoring delivery models for specific populations. Six recent studies are discussed, that support excellent efficacy and significantly support PrEP as a means of prevention. These projects have shown high acceptance of PrEP with excellent adherence by individuals demonstrated by those at risk remaining free of HIV over extended periods of time. SUMMARY: The USA faces three significant challenges in scaling up PrEP. The first challenge in implementation in the USA is to get individuals to recognize the actual risks that their behaviors represent and to engage with providers to address these issues. The second challenge is getting a population of providers to recognize the exact same issues and offer PrEP in a compassionate, nonjudgmental fashion. The third challenge is identifying the set of providers and locations to scale-up the response in a timely, cost-effective fashion.


Receiving an HIV-positive test result is associated with reduced condomless anal sex (CAS), but little is known about negative test results. The recent development of the Inventory of Reactions to Testing HIV Negative confirmed that there are diverse reactions to receiving a negative test result, which have implications for risk behaviour. The goals of the current study were to validate the measure in a sample of young men who have sex with men who recently tested HIV-negative (N = 1113) and to examine its associations with CAS. Factor analysis identified four factors, three of which were the same as the original factors (Reinforced Safety, Luck, and Invulnerability) and one that was novel (Reinforced Risk). Construct validity was demonstrated with associations between subscales and constructs from the IMB model of HIV prevention. Lower Reinforced Safety and higher Luck and Reinforced Risk were associated with more CAS. Associations between Reinforced Safety and Luck with CAS were stronger for those who reported more lifetime HIV tests. Findings highlight the importance of reactions to testing HIV-negative and suggest that they become more important with repeated testing.


Violence experience can increase HIV risk behaviors; however, literature is scarce on violence among male sex workers (MSWs) globally. In 2014, 210 Peruvian MSWs (median age 24.9) were interviewed about their experience of physical, emotional, and sexual violence and condom use with non-paying intimate partners and clients and were tested for HIV. Multivariable models examined relationships between violence in the past 6 months, condomless anal intercourse (CLAI) in the past 3 months and HIV infection. HIV infection (24 %), CLAI (43 %), being a violence victim (42 %) and perpetrator (39 %) were common. In separate multivariable models, being a violence victim [adjusted prevalence ratio aPR = 1.49 (95 % CI 1.09-2.03)] and perpetrator [aPR = 1.39 (1.03-1.87)] were associated with CLAI. Further, being a victim [aPR = 1.65 (1.04-2.62)] was associated with HIV infection. Violence, which was significantly associated with CLAI and HIV infection, is common among Peruvian MSWs, reinforcing the importance of violence awareness and prevention as HIV risk-reduction strategies.


Highly intoxicated versus sober women were evaluated using multi-group path analyses to test the hypothesis that sexual victimization history would interact with partner pressure to forgo condom use, resulting in greater condom-decision.
abdication—letting the man decide whether or not to use a condom. After beverage administration, community women \((n = 408)\) projected themselves into a scenario depicting a male partner exerting high or low pressure for unprotected sex. Mood, anticipated negative reactions from the partner, and condom-decision abdication were assessed. In both control and alcohol models, high pressure increased anticipated negative partner reaction, and positive mood was associated with increased abdication. In the alcohol model, victimization predicted abdication via anticipated negative partner reaction, and pressure decreased positive mood and abdication. In the control model, under high pressure, victimization history severity was positively associated with abdication. Findings implicate condom-decision abdication as an important construct in understanding how women's sexual victimization histories may exert sustained impact on sexual interactions.


Renal toxicity in a 73-year-old male, using tenofovir/emtricitabine as preexposure prophylaxis, is described. Reduced renal reserve, a higher exposure to comedinations and comorbidities can present a challenge when assessing the risks and benefits of tenofovir-based preexposure prophylaxis in the ageing population.


Once HIV prevention programs have proven efficacy in research settings, it is important that ongoing data are collected to demonstrate effects in public health applications, yet such evaluations are rare in the published literature. This project describes the adaptation, implementation, and outcome evaluation of the Keep It Up! (KIU!) online HIV prevention intervention as a prevention service delivered in a community-based organization. Compared to pilot research examining KIU! feasibility and efficacy, intervention outcomes were robust to service delivery and client characteristics. In a sample of ethnically and racially diverse young men who have sex with men \((N = 343)\), the intervention produced significant decreases in condomless anal sex acts with casual male partners at the 3-month follow-up compared to baseline \((p < .05)\). In both qualitative and quantitative measures, participants reported that the intervention was highly acceptable and valuable to their sexual health needs.


BACKGROUND: Gay and bisexual men are at elevated risk for Neisseria gonorrhoeae and Chlamydia trachomatis \((GC/CT)\). Rectal GC/CT symptoms may be less obvious than urethral, increasing opportunities for undiagnosed rectal GC/CT. METHODS: A US national sample of 1071 gay and bisexual men completed urethral and rectal GC/CT testing and an online survey. RESULTS: In total, 6.2% were GC/CT positive \((5.3\% \text{ rectal, } 1.7\% \text{ urethral})\). We calculated adjusted \((\text{for education, race, age, relationship status, having health insurance, and income})\) ratios for factors associated with rectal and urethral GC/CT diagnoses. Age was inversely associated with urethral and rectal GC/CT. Compared with white men, Latinos had significantly greater odds of rectal GC/CT. Among men who reported anal sex, those reporting only insertive sex had lower odds of rectal GC/CT than did men who reported both insertive and receptive. There was a positive association between rectal GC/CT and number of male partners \((<12 \text{ months})\), the number of anal receptive acts, receptive condomless anal sex \((CAS)\) acts, and insertive CAS acts. Compared with those who had engaged in both insertive and receptive anal sex, those who engaged in only receptive anal sex had lower odds of urethral GC/CT. The number of male partners \((<12 \text{ months})\) was associated with increased odds of urethral GC/CT. CONCLUSIONS: Rectal GC/CT was more common than urethral and associated with some demographic and behavioral characteristics. Our finding that insertive CAS acts was associated with rectal GC/CT highlights that providers should screen patients for GC/CT via a full range of transmission routes, lest GC/CT go undiagnosed.

Racial homophily (partnering with those of the same race) has been suggested as contributing to racial disparities in HIV among gay and bisexual men (GBM). Using a daily diary study, we examined racial homophily and its role in anal sexual behaviors in a sample of highly sexually active Black, White, and Latino GBM (N = 294, n = 3107 sexual events). In general, (1) men tended to partner with others of the same race, (2) HIV was more prevalent among men of color, and (3) race acted independent of whether one would engage in behaviors that would put them at highest risk for transmitting HIV (i.e., no main or interaction effects for insertive condomless anal sex (CAS) among HIV-positive men, and no main or interaction effects for receptive CAS among HIV-negative men). There were some main and interactive effects observed for lower risk behaviors (receptive CAS among HIV-positive men and insertive CAS among HIV-negative). Our findings suggest that racial disparities in HIV may be due to a higher exposure frequency (i.e., the frequency with which one comes into contact with a partner where a transmission could occur). However, men were also less likely to have anal sex when having sex with someone of the same race—a finding that works against the premise of higher exposure frequency. Future researchers should examine both racial homophily as well as variation in sexual behavior based on same-race or different-race partnerships.


Late diagnosis (LD) of human immunodeficiency virus (HIV) infection continues to be a significant problem that increases disease burden both for patients and for the public health system. Guidelines have been updated in order to facilitate earlier HIV diagnosis, introducing "indicator condition-guided HIV testing". In this study, we analysed the frequency of LD and associated risk factors. We retrospectively identified those cases that could be considered missed opportunities for an earlier diagnosis. All patients newly diagnosed with HIV infection who attended Hospital La Princesa, Madrid (Spain) between 2007 and 2014 were analysed. We collected epidemiological, clinical and immunological data. We also reviewed electronic medical records from the year before the HIV diagnosis to search for medical consultations due to clinical indicators. HIV infection was diagnosed in 354 patients. The median CD4 count at presentation was 352 cells/mm³. Overall, 158 patients (50%) met the definition of LD, and 97 (30.7%) the diagnosis of advanced disease. LD was associated with older age and was more frequent amongst immigrants. Heterosexual relations and injection drug use were more likely to be the reasons for LD than relations between men who have sex with men. During the year preceding the diagnosis, 46.6% of the patients had sought medical advice owing to the presence of clinical indicators that should have led to HIV testing. Of those, 24 cases (14.5%) were classified as missed opportunities for earlier HIV diagnosis because testing was not performed. According to these results, all health workers should pursue early HIV diagnosis through the proper implementation of HIV testing guidelines. Such an approach would prove directly beneficial to the patient and indirectly beneficial to the general population through the reduction in the risk of transmission.


OBJECTIVES: Sexuality remains important to older people and should be recognised as an important part of their overall care. However, this appears to be poorly understood and addressed by many healthcare professionals. This systematic review reports on knowledge and attitudes of health professionals towards sexuality and sexual health of older people, including factors that impact knowledge and perceptions. REVIEW METHODS AND DATA SOURCES: The review, conducted using Joanna Briggs Institute methods, included 23 studies of varied methodology published between January 2004 and January 2015. RESULTS: Findings indicated that healthcare professionals often consider older people’s sexuality as outside their scope of practice and there is lack of knowledge and confidence in this area. Cultural norms and taboos, length of time spent working with older people, familiarity with the older person, previous training and degree of exposure to people who are not heterosexual were all identified as factors that impact knowledge and attitude. CONCLUSIONS: Better role modelling and education are needed to improve knowledge and attitudes toward later life sexuality.

Data from a cross-sectional study of gay, bisexual, and other men who have sex with men who were active methamphetamine users were analyzed to assess temporal relations between HIV seroconversion and initiation of methamphetamine use. Of the 100 men, 58 reported being HIV-positive. Most HIV-positive participants (65%) initiated methamphetamine use after seroconverting. Among those who initiated use before seroconversion, 8 years elapsed between onset of use and time of infection. Findings suggest the need to develop nuanced and targeted interventions aimed at disentangling the "meth-sex" link in this population. Findings also suggest use of the drug as a coping mechanism for those living with HIV.


BACKGROUND: The Investment Framework Enhanced (IFE) proposed in 2013 by the Joint United Nations Programme on HIV/AIDS (UNAIDS) explored how maximizing existing interventions and adding emerging prevention options, including a vaccine, could further reduce new HIV infections and AIDS-related deaths in low- and middle-income countries (LMICs). This article describes additional modeling which looks more closely at the potential health impact and cost-effectiveness of AIDS vaccination in LMICs as part of UNAIDS IFE. METHODS: An epidemiological model was used to explore the potential impact of AIDS vaccination in LMICs in combination with other interventions through 2070. Assumptions were based on perspectives from research, vaccination and public health experts, as well as observations from other HIV/AIDS interventions and vaccination programs. Sensitivity analyses varied vaccine efficacy, duration of protection, coverage, and cost. RESULTS: If UNAIDS IFE goals were fully achieved, new annual HIV infections in LMICs would decline from 2.0 million in 2014 to 550,000 in 2070. A 70% efficacious vaccine introduced in 2027 with three doses, strong uptake and five years of protection would reduce annual new infections by 44% over the first decade, by 65% the first 25 years and by 78% to 122,000 in 2070. Vaccine impact would be much greater if the assumptions in UNAIDS IFE were not fully achieved. An AIDS vaccine would be cost-effective within a wide range of scenarios. INTERPRETATION: Even a modestly effective vaccine could contribute strongly to a sustainable response to HIV/AIDS and be cost-effective, even with optimistic assumptions about other interventions. Higher efficacy would provide even greater impact and cost-effectiveness, and would support broader access. Vaccine efficacy and cost per regimen are critical in achieving cost-effectiveness, with cost per regimen being particularly critical in low-income countries and at lower efficacy levels.


Background: Even in the presence of promising biomedical treatment as prevention, HIV incidence among men who have sex with men has not always decreased. Counseling interventions, therefore, continue to play an important role in reducing HIV sexual transmission behaviors among gay and bisexual men and other men who have sex with men. The present study evaluated effects of a small-group counseling intervention on psychosocial outcomes and HIV sexual risk behavior. Method: HIV-positive (HIV+) peer counselors administered seven 2-hour counseling sessions to groups of 5 to 8 HIV+ gay and bisexual men. The intervention employed information provision, motivational interviewing, and behavioral skills building to reduce sexual transmission risk behaviors. Results: There was a significant reduction in condomless anal sex (CAS) with HIV-negative and unknown HIV-status partners, from 50.0% at baseline to 28.9% of the sample at 3-month follow-up. Findings were robust even when controlling for whether the participant had an undetectable viral load at baseline. Significant reductions were also found in the two secondary psychosocial outcomes, loneliness and sexual compulsivity. Conclusions: The findings provide preliminary evidence that this intervention may offer an efficient way of concurrently reducing CAS and mental health problems, such as sexual compulsivity and loneliness, for HIV+ gay and bisexual men. Trial Registration: ClinicalTrials.gov

This article focuses on the West German gay subculture and its early reactions to the HIV/AIDS epidemic. It analyses how gay men coped with an uncertain epistemological situation in which the medical, social and political status of HIV/AIDS was far from being evident, and in which the ambivalent connection of AIDS, risk and gay sexuality became the object of strong scientific and public interest. The article argues that gay men distinguished between two dimensions of AIDS risk: risky sex and risky language. On the one hand, they developed a strong awareness for the riskiness of their sexual behaviour, resulting in the will to consider AIDS as a disease of their own. On the other hand, they were irritated by the ambiguity of the public AIDS discourse. Its imagery went far beyond AIDS as a medical entity and was believed to conceal antigay politics behind medical facts. In analysing the emerging gay risk strategies, the article points out that gay activists and organisations critically adopted virological knowledge and promoted Safer Sex practices, both strategies which eventually empowered them to represent their interests within the emerging expert networks of AIDS politics since 1985/6. Central to these strategies was the attempt to disentangle a sphere of politics and morality from a sphere of the natural world of viruses, an attempt which was aimed at ending the supposed dangerous spread of antigay AIDS metaphors in the public. The article concludes in trying to interpret the HIV/AIDS controversies as reactions to the general epistemological uncertainties of "risk societies" in the late 20th century.


Human immunodeficiency virus (HIV) is steadily increasing among the baby boom population. Among this population, there is a gap between knowledge and behavioral choices. HIV risk perception is multifaceted and shaped by different sociodemographic factors. Baby boomers’ perception of risk and sociocognitive determinates that impact their decision to practice safe sex was examined using a correlational study design. A hierarchical multiple linear regression (HMLR) model from 48 participants aged 50–70 living in the South revealed that level of education, acquired immune deficiency syndrome (AIDS) prevention behavioral skills, and HIV prevention information predicted the intent to practice safe sex. Findings account for 58.3% of the total amount of the variance explained by the two model predictors. The results are consistent with findings in the literature that suggest older adults who have more HIV prevention information and behavioral skills are more inclined to practice safe sex. ABSTRACT FROM AUTHOR


BACKGROUND: Alcohol use disorders (AUDs) may enhance the likelihood of risky sexual behaviors and the acquisition of sexually transmitted infections (STIs). Associations between AUDs with condomless anal intercourse (CAI) and STI/HIV prevalence were assessed among men who have sex with men (MSM) and transgender women (TW) in Lima, Peru. METHODS: MSM and TW were eligible to participate based on a set of inclusion criteria which characterized them as high-risk. Participants completed a bio-behavioral survey. An AUDIT score >/=8 determined AUD presence. Recent STI diagnosis included rectal gonorrhea/chlamydia, syphilis, and/or new HIV infection within 6 months. Prevalence ratios (PR) were calculated using Poisson regression. RESULTS: Among 312 MSM and 89 TW, 45% (181/401) had an AUD. Among those with an AUD, 164 (91%) were hazardous/harmful drinkers, and 17 (9%) had alcohol dependence. Higher CAI was reported by participants with an AUD vs. without, (82% vs. 72% albeit not significant). Reporting anal sex in two or more risky venues was associated with screening AUD positive vs. not (24% vs. 15%, p=0.001). There was no difference in recent STI/HIV prevalence by AUD status (32% overall). In multivariable analysis, screening AUD positive was not associated with CAI or recent STI/HIV infection. CONCLUSIONS: In our sample AUDs were not associated with CAI or new HIV infection/recent STI. However higher prevalence of CAI, alcohol use at last sex, and anal sex in risky venues among those with AUDs suggests that interventions to reduce the harms of alcohol should be aimed toward specific contexts.


Heterosexual anal intercourse (HAI) is not an uncommon behavior and it confers a higher risk of HIV transmission than vaginal intercourse. We examined data from heterosexuals recruited in 20 US cities for the 2013 National HIV Behavioral
Surveillance system. We assessed correlates of reporting HAI in the previous year. Then, among people reporting HAI in the past year, we assessed what event-level factors are associated with having HAI at last sex. Thirty percent of women and 35% of men reported HAI in the past year. Among people who had HAI in the past year, those who had HAI at last sex were more likely to have a partner who was HIV-positive or of unknown status or to have exchanged money or drugs for sex at last sex. Information that highlights the risk of HIV transmission associated with HAI would complement existing HIV prevention messages focused on heterosexuals in the U.S.


A large body of research has found that nonheterosexual methamphetamine users engage in substantially higher levels of risky sex compared to nonusers. Considerably fewer studies have examined methamphetamine use and high-risk sex among heterosexuals. The present study is a meta-analysis of the empirical literature on methamphetamine use and high-risk sexual behavior among heterosexual individuals. Four risky sex outcomes were examined: unprotected vaginal intercourse, unprotected anal sex, inconsistent condom use, and sex with multiple partners. Analysis of 24 studies (26 independent samples) including 286,781 individuals found that the pooled mean weighted odds ratios ranged from 1.37 (unprotected vaginal intercourse) to 1.72 (inconsistent condom use), indicating that the odds of engaging in risky sex for heterosexual methamphetamine users is, on average, between 37% and 72% greater than for nonmethamphetamine users. Date of publication, percentage of White Caucasian respondents, and sample size were significant moderators of effect size magnitude. Moreover, symmetry plots revealed little direct evidence for publication bias. It is recommended that future research explore additional categorical and continuous variables as potential moderators of effect size strength. (PsycINFO Database Record


Antiretroviral pre-exposure prophylaxis (PrEP) is recommended to prevent HIV infection among high-risk men who have sex with men (MSM) though not available in Brazil where the HIV epidemic persists unabated in this group. This cross-sectional study describes PrEP awareness and willingness and associated factors among MSM and transvestite/transgender women (trans women) pre-screened for the PrEP Brasil study. Awareness was reported by 61.3% of the participants and was associated with age, education, site, study period and prior HIV testing. Most participants (82.1%) were willing to use PrEP, which was associated with site, study period, number of male condomless anal sexual partners and anal sex with HIV positive/unknown partners. PrEP information is need among young and less educated individuals. Willingness to use PrEP was high and future studies should be conducted to confirm PrEP acceptability and the characteristics of the population who chose to adopt this intervention.


Approximately 80% of new HIV infections in the United States occur in men. Four out of five men diagnosed with HIV infection are men who have sex with men (MSM), with an increasing proportion of young MSM (i.e. <24 years of age). We performed a retrospective analysis 11,873 cisgender men participating in a community based HIV screening program in San Diego between 2008 and 2014 to characterize the HIV prevalence and sexual risk behaviors among young men. In young heterosexual men HIV prevalence was lower compared to heterosexual men between 25 and 49 years of age (0.3% vs. 1.4%, p = 0.043). Among young MSM, HIV prevalence was 5.5%, per test positivity rate 3.6%, and HIV incidence 3.4 per 100 person years (95% CI 2.2-5.4). Per test positivity rate (p = 0.008) and incidence (p < 0.001) were significantly higher among young MSM than among MSM above 24-years of age. Young MSM diagnosed with HIV infection reported significantly more serodiscordant condomless anal intercourse, bacterial sexually transmitted infections, and higher rates of methamphetamine and gamma hydroxybutyrate use when compared to young MSM who tested negative. In conclusion, young MSM are particularly vulnerable to HIV infection and may represent ideal candidates for targeted prevention interventions that increase testing uptake and/or decrease the risk of acquiring HIV infection.

We investigated pre-exposure prophylaxis (PrEP) uptake, adherence, and discontinuation among young app-using men who have sex with men in California (N = 761). Approximately, 9.7% of participants had ever used PrEP; 87% of those deemed good candidates for screening (indicated by a Centers for Disease Control and Prevention risk index score >= 10) were not current or past users. PrEP use was associated with higher income [adjusted odds ratio (aOR): 4.13; confidence interval (CI): 1.87 to 9.12], receptive condomless anal sex (aOR: 3.41; CI: 1.71 to 6.78), HIV-positive sex partners (aOR: 2.87; CI: 1.53 to 5.38), popper use (aOR: 3.47; CI: 1.96 to 6.13), and recent sexually transmitted infection diagnosis (aOR: 2.90; CI: 1.64 to 5.13). Some users (41.5%) wanted help remembering to take PrEP. The top reason for discontinuation was concern about long-term side effects (33.0%). Young men who have sex with men app users are prime candidates for PrEP, despite low uptake. Apps may be useful tools for PrEP information dissemination, adherence monitoring, and support.


Background: In Australia, the preventative use of antiretroviral drugs [pre-exposure prophylaxis (PrEP) and treatment as prevention] is being embraced to protect individuals at high risk of HIV and reduce onward transmission. Methods: The adaptation of a behavioural surveillance system, the Gay Community Periodic Surveys, was reviewed to monitor the uptake and effect of new prevention strategies in Australia’s primary HIV-affected population (gay and bisexual men, GBM). The national trends in key indicators during 2000-15 were reviewed and a new measure to take account of antiretroviral-based prevention was developed. Results: Between 2000 and 2015, there were significant increases (P<0.001) in annual HIV testing (56.1-64.8%), condomless sex with casual partners (26.8-38.8%) and the proportion of HIV-positive men on HIV treatment (72.5-88.4%) and with an undetectable viral load (73.7-94.7%). The proportion of casual partners who were HIV negative, not on PrEP and who engaged in receptive condomless sex also increased between 2000 and 2015 from 12.8 to 19.3%. Two scenarios anticipating the effect of PrEP highlighted the need to target GBM who engage in receptive condomless sex while also sustaining condom use at a population level. Conclusions: Behavioural surveillance can be successfully adapted to follow the effect of antiretroviral-based prevention. It is anticipated that HIV testing and HIV treatment will continue to increase among Australian GBM, but to prevent new infections, intervention in the growing proportion of GBM who have condomless sex with casual partners is needed. For PrEP to have its desired effect, condom use needs to be sustained.


We surveyed Australian gay and bisexual men, assessing belief in HIV treatment as prevention (TasP) and support for early treatment. We identified the characteristics of participants who believed in TasP and supported early treatment using multivariate logistic regression. In 2013, 1316 men participated; 1251 participated in 2015. Belief in TasP increased from 2.6 % in 2013 to 13.1 % in 2015 (p < 0.001). The increase was most noticeable among HIV-positive men (from 9.7 % to 46.2 %). Support for early treatment increased from 71.8 % to 75.3 % (p = 0.02). Belief in TasP was associated with being HIV-positive, having a tertiary education, having recent condomless anal intercourse with casual male partners, and ever having taken post-exposure prophylaxis. Support for early HIV treatment was associated with being younger, living in New South Wales and being in paid employment. We recommend continued monitoring of the growing gap in belief about TasP between HIV-positive men and HIV-negative/untested men.

We assessed the effects of beliefs about state HIV criminal law on condomless anal sex (CAS < 3 months) among men who have sex with men (MSM) residing in 16 US states (n = 2013; M = 36 years old; 75% White; 82% HIV-negative) completing an online survey in 2010 and stratified by residency in a state with any or sex-specific HIV criminal law(s) or where a HIV-related arrest, prosecution, or sentence enhancement (APSE) had occurred. Three-quarters of MSM reported that they were unsure of the law in their state. Men who believed there was a HIV law in their state but lived in states without any or a sex-specific HIV criminal law(s) had higher probabilities of CAS compared to those who were unsure of their state’s law; men who believed there was a HIV law in their state and lived in a state where an APSE had occurred had higher probabilities of CAS compared to those who were unsure of their state’s law. Correct knowledge of state law was not associated with CAS. Findings suggest that HIV criminal laws have little or counter-productive effects on MSM's risk behavior.


BACKGROUND: Young men who have sex with men (YMSM) are a key population for implementation of preexposure prophylaxis (PrEP) interventions. This open-label study examined adherence to PrEP and assessed sexual behavior among a diverse sample of YMSM in 12 US cities. METHODS: Eligible participants were 18- to 22-year-old HIV-uninfected MSM who reported HIV transmission risk behavior in the previous 6 months. Participants were provided daily tenofovir disoproxil fumarate/emtricitabine (Truvada). Study visits occurred at baseline, monthly through week 12, and then quarterly through week 48. Dried blood spots were serially collected for the quantification of tenofovir diphosphate (TFV-DP). RESULTS: Between March and September 2013, 2186 individuals were approached and 400 were found to be preliminarily eligible. Of those 400, 277 were scheduled for an in-person screening visit and 200 were enrolled (mean age = 20.2; 54.5% black, 26.5% Latino). Diagnosis of sexually transmitted infections, including urethral and rectal chlamydial/gonococcal infection and syphilis, at baseline was 22% and remained high across visits. At week 4, 56% of participants had TFV-DP levels consistent with >/=4 pills per week. By week 48, 34% of participants had TFV-DP levels consistent with >/=4 pills per week, with a noticeable drop-off occurring at week 24. Four HIV seroconversions occurred on study (3.29/100 person-years). Condomless sex was reported by >80% of participants, and condomless anal sex with last partner was associated with higher TFV-DP levels. CONCLUSIONS: Acceptability of PrEP was high, and most participants achieved protective drug levels during monthly visits. As visit frequency decreased, so did adherence. YMSM in the United States may need PrEP access in youth-friendly settings with tailored adherence support and potentially augmented visit schedules.


Men who have sex with men (MSM) are the group at highest risk for HIV in China. Researchers have used various recruitment methods to reach this population hidden from the hetero-normative culture. To inform future recruitment strategies, we compared estimates of socio-demographic characteristics, HIV risk behaviors, depression, and intimate partner violence (IPV) across three samples of MSM and money boys in Shanghai, China. Data were collected from three community-based samples of MSM and money boys (n = 1352) recruited via respondent-driven sampling (RDS) (n = 404), community popular opinion leaders (CPOL) (n = 385), and Internet and venue-based sampling (VBS) (n = 546). Different recruitment methods generated samples with statistically significant differences among a number of socio-demographic characteristics, sexual behaviors, drug use, depression scores, and exposure to IPV. Specifically, RDS participants had lower education (p = .002), income levels (p < .001), and were more likely to report condomless sex with a woman (p < .001). CPOL participants were younger (p < .001), more likely to report lifetime condomless anal sex (p = .009), more than 10 male partners in the past 30 days (p < .001), and were less likely to experience violence by a male intimate partner (p = .001). VBS participants had lowest depression score (p = .005) and were more likely to report lifetime drug use (p = .003). Our findings reinforce that each recruitment method may reach a sub-group of MSM with a specific risk profile, so multiple methods may be needed to obtain a representative sample of MSM. Interventions may use specific recruitment methods to target certain segments of the MSM population.

INTRODUCTION: Pre-exposure prophylaxis (PrEP) is an effective tool to reduce HIV transmission. The primary objective of this study was to assess awareness of PrEP by individuals living with HIV (HIV+) and acceptance of its use for their HIV negative (HIV-) partners. METHODS: A cross-sectional survey was conducted among individuals living with HIV who received care at an urban HIV clinic between January 2013 and June 2013. The survey examined knowledge, attitudes, and acceptability of PrEP, and perception of transmission risk of HIV. Chi-Square test and Fisher’s Exact test were used to compare proportions. RESULTS: Among 206 subjects living with HIV, 15.3% (32) had heard of PrEP. Men who have sex with men (MSM) were more likely to be aware of PrEP than all others (p = 0.003). Once educated about PrEP those who believed PrEP would reduce their partner’s risk for HIV were more likely to recommend PrEP to their partner (p<0.001). 92% of all respondents said they would be "extremely likely/likely" to discuss PrEP use with their provider. Of 159 subjects whose main partner was HIV-, MSM (p = 0.007), male participants (p = 0.044), and those who were consistently taking meds (p = 0.049) were more likely to be aware of PrEP. Those who perceived they were at risk of transmitting HIV (p<0.001) and those who were consistently taking meds (0.049) were more likely to agree that PrEP could reduce the risk of HIV to their partners. CONCLUSION: This study illustrates a low awareness of PrEP but once educated the willingness of a cohort of individuals living with HIV to recommend PrEP to their partners. Our findings demonstrate the importance of providers informing their patients living with HIV about PrEP, as these persons are an underutilized link to support the uptake of PrEP by their HIV- partners.


BACKGROUND: Monetary delay discounting is a measure of impulsivity associated with substance use and abuse, problem gambling, and other health-related outcomes. More recently, delay discounting has been shown to be associated with risky sexual behavior. We analyzed survey data from men who have sex with men who completed a monetary discounting task and reported sexual behaviors in the previous 12 months. FINDINGS: Monetary delay discounting was associated with condomless anal intercourse among young (18-24 years), but not older, men who have sex with men. CONCLUSIONS: Monetary delay discounting may identify young men at increased risk of engaging in HIV risk behaviors.


OBJECTIVES: Prior research has shown that Dutch general practitioners (GPs) do not always offer HIV testing and the number of undiagnosed HIV patients remains high. We aimed to further investigate the frequency and reasons for (not) testing for HIV and the contribution of GPs to the diagnosis of HIV infections in the Netherlands. DESIGN: Observational study. SETTING: (1) Dutch primary care network of 42-45 sentinel practices where report forms during sexually transmitted infection (STI)-related consultations were routinely collected, 2008-2013. (2) Dutch observational cohort with medical data of HIV-positive patients in HIV care, 2008-2013. OUTCOME MEASURES: The proportion of STI-related consultations in patients from high-risk groups tested for HIV, with additional information requested from GPs on HIV testing preconsultation or postconsultation for whom HIV testing was indicated, but not performed. Next, information was collected on the profile of HIV-positive patients entering specialised HIV care following diagnosis by GPs. RESULTS: Initially, an HIV test was reported (360/907) in 40% of STI-related consultations of persons from high-risk groups, which is lower than previously reported. Risk-based testing has intrinsic limitations and implementation of new additional strategies in primary care is warranted.
Antiretroviral therapy (ART) improves the health of people living with HIV and can reduce infectiousness, preventing HIV transmission. The potential preventive benefits of ART are undermined by beliefs that it is safe to have condomless sex when viral load is below levels of detection (infectiousness beliefs and risk perceptions). In this study, we hypothesized that infectiousness beliefs and HIV transmission risk perceptions would prospectively predict people living with HIV engaging in more condomless sex with HIV-negative and unknown HIV status sex partners. Sexually active HIV-positive men (n = 538, 76%) and women (n = 166, 24%) completed computerized interviews of sexually transmitted infection (STI) symptoms and diagnoses, unannounced pill counts for medication adherence, medical chart-abstracted HIV viral load, and 28 daily cell-phone-delivered prospective sexual behavior assessments. Results showed that a total of 313 (44%) participants had engaged in condomless sex with HIV-negative/unknown status sex partners, and these individuals demonstrated higher rates of STI symptoms and diagnoses. Two-thirds of participants who had condomless sex with HIV-negative/unknown status partners had not disclosed their HIV status. Multivariable logistic regression models showed that beliefs regarding viral load and HIV infectiousness and perceptions of lower risk of HIV transmission resulting from HIV viral suppression predicted condomless sex with potentially uninfected partners over and above sex behaviors with HIV-positive partners and STI symptoms/diagnoses. Interventions that address HIV status disclosure and aggressively treat STI in sexually active people living with HIV should routinely accompany the use of HIV treatments as prevention.


Disclosure of HIV-positive status to sex partners is critical to protecting uninfected partners. In addition, people living with HIV often risk criminal prosecution when they do not inform sex partners of their HIV status. The current study examined factors associated with nondisclosure of HIV status by men living with HIV in Atlanta, GA (92% African American, mean age = 43.8), who engage in condomless sex with uninfected sex partners. Sexually active HIV-positive men (N = 538) completed daily electronic sexual behavior assessments over the course of 28 days and completed computerized interviews, drug testing, medication adherence assessments, and HIV viral load retrieved from medical records. Results showed that 166 (30%) men had engaged in condomless vaginal or anal intercourse with an HIV-uninfected or unknown HIV status sex partner to whom they had not disclosed their HIV status. Men who engaged in nondisclosed condomless sex were less adherent to their HIV treatment, more likely to have unsuppressed HIV, demonstrated poorer disclosure self-efficacy, enacted fewer risk reduction communication skills, and held more beliefs that people with HIV are less infectious when treated with antiretroviral therapy. We conclude that undisclosed HIV status is common and related to condomless sex with uninfected partners. Men who engage in nondisclosed condomless sex may also be more infectious given their nonadherence and viral load. Interventions are needed in HIV treatment as prevention contexts that attend to disclosure laws and enhance disclosure self-efficacy, improve risk reduction communication skills, and increase understanding of HIV infectiousness.


OBJECTIVES: We examined correlates of condomless anal intercourse with nonmain sexual partners among African American men who have sex with men (MSM). METHODS: We recruited social networks composed of 445 Black MSM from 2012 to 2014 in Milwaukee, Wisconsin; Cleveland, Ohio; and Miami Beach, Florida. Participants reported past-3-month sexual behavior, substance use, and background, psychosocial, and HIV-related characteristics. RESULTS: Condomless anal intercourse outside main concordant partnerships, reported by 34.4% of MSM, was less likely in the case of no alcohol and marijuana use in
the past 30 days, and higher risk-reduction behavioral intentions. High frequency of condomless anal intercourse acts with nonmain partners was associated with high gay community participation, weak risk-reduction intentions, safer sex not being perceived as a peer norm, low condom-use self-efficacy, and longer time since most recent HIV testing. CONCLUSIONS: Condomless anal intercourse with nonmain partners among Black MSM was primarily associated with gay community participation, alcohol and marijuana use, and risk-reduction behavioral intentions.


BACKGROUND: Tools using local HIV data to help jurisdictions estimate future demand for medical and support services are needed. We present an interactive prevalence projection model using data obtainable from jurisdictional HIV surveillance and publically available data. METHODS: Using viral load data from Georgia's enhanced HIV/AIDS Reporting System, state level death rates for people living with HIV and the general population, and published estimates for HIV transmission rates, we developed a model for projecting future HIV prevalence. Keeping death rates and HIV transmission rates for undiagnosed, in care/viral load >200, in care/viral load<200, and out of care (no viral load for 12 months) constant, we describe results from simulations with varying inputs projecting HIV incidence and prevalence from 2014 to 2024. RESULTS: In this model, maintaining Georgia's 2014 rates for diagnosis, transitions in care, viral suppression (VS), and mortality by sub-group through 2020, resulted in 85% diagnosed, 59% in care, and 44% VS among diagnosed (85%/58%/44%) with a total of 67 815 PLWH, 33 953 in care, and more than 1000 new cases per year by 2020. Neither doubling the diagnosis rate nor tripling rates of re-engaging out of care PLWH into care alone were adequate to reach 90/90/80 by 2020. We demonstrate a multicomponent scenario that achieved NHAS goals and resulted in 63 989 PLWH, 57 546 in care, and continued annual prevalence increase through 2024. CONCLUSIONS: Jurisdictions can use this HIV prevalence prediction tool, accessible at https://dph.georgia.gov/hiv-prevalence-projections to assess local capacity to meet future HIV care and social services needs. In this model, achieving 90/90/80 by 2020 in Georgia slowed but did not reverse increases in HIV prevalence, and the number of HIV-infected persons needing care and support services more than doubled. Improving the HIV care infrastructure is imperative.


BACKGROUND: While routine HIV testing in the general population is a national recommendation, actual practice may vary. Purpose: To determine risk factors associated with HIV testing after the adoption of a New York State law in 2010 mandating that health care providers offer HIV testing in all clinical settings. Methods: Survey data from Monroe County, New York, were collected in 2012 for adults aged 18-64 years and analyzed in 2014. Logistic regression was used to identify risk factors independently associated with HIV testing and high-risk behavior. Results: Among adults aged 18-34, fewer Whites were offered HIV testing in the past year by their doctors compared with Blacks (34% vs 64%) despite having similar rates of any HIV high-risk behavior (20% overall). For adults aged 35-64 years, fewer Whites than Blacks were ever tested for HIV (42% vs 71%), offered HIV testing in past year (17% vs 40%), and reported any HIV high-risk behavior (3% vs 13%). Latinos showed intermediate levels. With logistic regression analysis, ever tested for HIV was independently associated with only race/ethnicity; offered HIV testing in the past year was associated with females, Blacks and Latinos, aged 18-34 years, and having a routine health checkup in past year; any HIV high-risk behavior was associated with only younger age. Conclusions: To improve HIV testing rates as well as compliance with state laws and national guidelines, targeted efforts should be considered that improve perceptions of risk and emphasize the value of routine HIV screening, including those directed at White adults and their health care providers.


BACKGROUND: Serosorting among men who have sex with men (MSM) is common, but recent data to describe trends in serosorting are limited. How serosorting affects population-level trends in HIV and other sexually transmitted infection (STI) risk is largely unknown. METHODS: We collected data as part of routine care from MSM attending a sexually transmitted disease
clinic (2002-2013) and a community-based HIV/sexually transmitted disease testing center (2004-2013) in Seattle, WA. MSM were asked about condom use with HIV-positive, HIV-negative, and unknown-status partners in the prior 12 months. We classified behaviors into 4 mutually exclusive categories: no anal intercourse (AI); consistent condom use (always used condoms for AI); serosorting [condom-less anal intercourse (CAI) only with HIV-concordant partners]; and nonconcordant CAI (CAI with HIV-discordant/unknown-status partners; NCCAI). RESULTS: Behavioral data were complete for 49,912 clinic visits. Serosorting increased significantly among both HIV-positive and HIV-negative men over the study period. This increase in serosorting was concurrent with a decrease in NCCAI among HIV-negative MSM, but a decrease in consistent condom use among HIV-positive MSM. Adjusting for time since last negative HIV test, the risk of testing HIV positive during the study period decreased among MSM who reported NCCAI (7.1%-2.8%; P = 0.02), serosorting (2.4%-1.3%; P = 0.17), and no CAI (1.5%-0.7%; P = 0.01). Serosorting was associated with a 47% lower risk of testing HIV positive compared with NCCAI (adjusted prevalence ratio = 0.53; 95% confidence interval: 0.45 to 0.62). CONCLUSIONS: Between 2002 and 2013, serosorting increased and NCCAI decreased among Seattle MSM. These changes paralleled a decline in HIV test positivity among MSM.


Most HIVpositive men who have sex with men (MSM) ages 50 and older feel a responsibility to protect their sex partners from HIV transmission risk. For some, this is enacted through HIV disclosure, while for others it is realized through reduced risk behaviors. To examine this, we analyzed interviews of 23 HIVpositive MSM ages 50 and older. We identified several contextual, relational, and psychosocial factors that served as either barriers or facilitators to HIV disclosure. Our findings suggest HIV status disclosure is multifaceted and continues to impact sexual communication in the lives of MSM as they enter middle age.


Healthy aging includes a healthy sexuality. In this article we argue for sexual health policy to support aging sexuality. Government sexual health policies focus on reproduction, not sexuality, and exclude older adults. There is a stereotype that older people are not sexual. This is not supported by scholarly and anecdotal evidence or a growing popular media on older adult sexuality. This article explores Australian policy and includes reference to the United Kingdom (UK) and the United States of America (USA). We examine research on older adult sexual behaviours and beliefs. Despite the growing body of evidence of older adult sexuality—including surveillance reporting of increasing sexually transmissible infections (STIs)—there is limited political support to manage the health implications of a sexually active older population. Given societal expectations of positive aging, we advocate that the sexuality and relationships of older adults be included in mainstream government sexual health policy. This would have practical and psychosocial benefits. A policy would enable preventative health measures. Clinical conversations would be easier and more likely to occur, leading to suitable interventions and health promotion. This in turn will reduce social and financial costs of burden-of-disease. Improved sexual health and better understanding of relationship diversity will increase the wellbeing of older people.


BACKGROUND: HIV Pre-Exposure Prophylaxis (PrEP) has been found to be efficacious in preventing HIV acquisition among seronegative individuals in a variety of risk groups, including men who have sex with men and people who inject drugs. To date, however, it remains unclear how socio-cultural norms (e.g., attitudes towards HIV; social understandings regarding HIV risk practices) may influence the scalability of future PrEP interventions. The objective of this study is to assess how socio-cultural norms may influence the implementation and scalability of future HIV PrEP interventions in Vancouver, Canada. METHODS: We conducted 50 interviews with young men (ages 18-24) with a variety of HIV risk behavioural profiles (e.g., young men who inject drugs; MSM). Interviews focused on participants’ experiences and perceptions with various HIV interventions and policies, including PrEP. RESULTS: While awareness of PrEP was generally low, perceptions about the potential personal and public health gains associated with PrEP were interconnected with expressions of complex and sometimes conflicting social norms. Some accounts characterized PrEP as a convenient form of reliable protection against HIV, likening it to the female birth control pill.
Other accounts cast PrEP as a means to facilitate ‘socially unacceptable’ behaviour (e.g., promiscuity). Stigmatizing rhetoric was used to position PrEP as a tool that could promote some groups’ proclivities to take ‘risks’. CONCLUSION: Stigma regarding ‘risky’ behaviour and PrEP should not be underestimated as a serious implementation challenge. Pre-implementation strategies that concomitantly aim to improve knowledge about PrEP, while addressing associated social prejudices, may be key to effective implementation and scale-up.


BACKGROUND: Practising unprotected anal intercourse (UAI) with high numbers of partners is associated with increased risk for acquiring and transmitting HIV and other sexually transmitted infections. Our aim was to describe factors associated with UAI with multiple partners in a large sample of MSM from 38 European countries recruited for an online survey in 2010.

METHODS: Data are from the European Men-Who-Have-Sex-With-Men Internet Survey (EMIS). The analysis was restricted to men who reported any anal sex with a non-steady partner in the past 12 months, and who were either never diagnosed with HIV, or who had been diagnosed with HIV more than 12 months ago, reported a detectable viral load and did not exclusively serosort (n = 91,477). Multivariable logistic regression was used to compare men reporting UAI with four or more (4+) non-steady partners to two comparison groups: a) no UAI with non-steady partners, and b) UAI with 1-3 non-steady partners.

RESULTS: Overall, 9.6% of the study population reported UAI with 4+ partners in the past 12 months. In both models, factors consistently associated with this behaviour were: having been diagnosed with HIV, lower educational levels, use of nitrite inhalants, drugs associated with sex and parties, or erectile dysfunction drugs in the past 4 weeks, using sex-on-site venues in the past 4 weeks, buying or selling sex in the past 12 months, having experienced physical violence due to sexual attraction to men in the past 12 months, reporting sexual happiness, being out to all or almost all of one’s acquaintances, and knowing that ART reduces HIV transmissibility.

CONCLUSIONS: Effective antiretroviral treatment drastically reduces HIV transmission for men diagnosed with HIV, irrespective of partner numbers. Apart from reducing partner numbers or increasing condom use no other recommendations are currently in place to reduce the risk of HIV acquisition and onward transmission for HIV-negative men practicing UAI with multiple partners. A range of factors were identified as associated with UAI with four or more partners which allow the strengthening and targeting of prevention strategies to reduce HIV transmission risks resulting from condomless anal intercourse with multiple partners.


INTRODUCTION: Use of pre-exposure prophylaxis (PrEP) among people who inject drugs (PWID) has been shown to be effective in preventing HIV transmission. We examined correlates of the willingness to use PrEP among community-recruited older PWID in Washington, DC. METHODS: PWID were recruited using respondent-driven sampling (RDS) and completed a behavioral interview for the National HIV Behavioral Surveillance system in 2012. Participants reported on willingness to use PrEP and how it might affect their drug use and sexual behaviors. We reported RDS-weighted proportions and multivariable correlates of being willing to use PrEP. RESULTS: Among 304 participants, 69% were male, and the majority was aged >/=50 and black. Only 13.4% had ever heard of using anti-HIV medication to prevent HIV; none had ever used PrEP or knew anyone who used it in the past year. Forty-seven percent were very likely and 24% were somewhat likely to take PrEP if it were available without cost; 13% agreed they would not need to sterilize/clean needles or use condoms if taking PrEP. Correlates of being very likely to use PrEP included being younger (<50years), sharing cookers, cotton or water in the past year, and believing they would no longer need to use clean needles. CONCLUSION: Nearly half of PWID reported being very willing to use PrEP if it were available without cost. Younger PWID and those at higher risk of sharing cookers, cotton or water were more willing to use PrEP, suggesting a focus on these groups to explore PrEP use among PWID.


We present results from a cross-sectional, clinic-based survey of border-region Latino men who have sex with men (MSM) and who also are living with HIV in the El Paso-Ciudad Juarez area. Among the 66 participants who reported
serodiscordant anal or vaginal intercourse, we examined levels of psychological distress and substance use and the association of these variables with condomless sex. Bivariate analyses indicated that MSM who reported condomless sex with a serodiscordant partner were more likely to report higher scores on measures of anxiety, depression, and trauma. These men were also more likely to report more days of alcohol use to the point of intoxication. In multivariate logistic regression, no variables were independently associated with sexual risk behavior, but symptoms of anxiety trended toward statistical significance. Our study is one of few reports aimed at understanding the HIV epidemic among Latino MSM living with HIV in the El Paso-Ciudad Juarez border region. Although we found no evidence of a relation between our measures of psychological distress and substance use and sexual risk behavior in multivariate analyses, psychological distress and problematic alcohol use were common in the sample and are important targets for intervention in their own right.


This study assessed the prevalence of exchanging sex for money or drugs among men who have sex with men (MSM) in the 2011 US National HIV Behavioral Surveillance system. Prevalence of HIV, being HIV-positive but unaware (HIV-positive-unaware), risk behaviors and use of services were compared between MSM who did and did not receive money or drugs from one or more casual male partners in exchange for oral or anal sex in the past 12 months. Among 8411 MSM, 7.0 % exchanged sex. MSM who exchanged sex were more likely to be non-Hispanic black, live in poverty, have injected drugs, have multiple condomless anal sex partners, be HIV-positive and be HIV-positive-unaware. In multivariable analysis, exchange sex was associated with being HIV-positive-unaware (aPR 1.34, 95 % CI 1.05-1.69) after adjusting for race/ethnicity, age, education, poverty, and injecting drugs. MSM who exchange sex represent an important group to reach with HIV prevention, testing, and care services as they were more likely to report behavioral risk factors that put them at risk of HIV.


To assess, among people with HIV, the association of self-reported antiretroviral treatment (ART) and viral load status with condomless sex with an HIV-serodifferent partner (CLS-D). Cross-sectional study of 3258 HIV-diagnosed adults in the United Kingdom, 2011-2012. CLS-D in the past 3 months and self-reported ART/viral load were ascertained by questionnaire. Clinic-recorded viral load was documented. HIV-transmission risk sex (CLS-D-HIV-risk) was defined as CLS-D together with either not on ART or clinic-recorded viral load more than 50 copies/ml. Of 3178 participants diagnosed more than 3 months ago, 2746 (87.9%) were on ART, of whom self-reported viral load was '50 copies/ml or less/undetectable' for 78.4%; 'more than 50 copies/ml/detectable' for 8.3%; 'do not know/missing' for 13.3. CLS-D prevalence was 14.9% (326/2189), 6.4% (23/360) and 10.7% (67/629) among men who have sex with men, heterosexual men and women, respectively. Among men who have sex with men, CLS-D prevalence was 18.8% among those not on ART; 15.2% among those on ART with undetectable self-reported viral load; 9.8% among those on ART without undetectable self-reported viral load. Compared with 'on ART with undetectable self-reported viral load', prevalence ratios (95% confidence interval) adjusted for demographic/HIV-related factors were: 0.66 (0.45, 0.95) for 'on ART without undetectable self-reported viral load', and 1.08 (0.78, 1.49) for 'not on ART' (global P = 0.021). Among heterosexual men and women (combined), ART/self-reported viral load was not associated with CLS-D [corresponding adjusted prevalence ratios: 1.14 (0.73, 1.79) for 'on ART without undetectable self-reported viral load'; 0.88 (0.44, 1.77) for 'not on ART', P = 0.77]. CLS-D-HIV-risk prevalence was 3.2% among all participants; 16.1% for 'not on ART'; 0.6% for 'on ART with undetectable self-reported viral load; 4.2% for 'on ART without undetectable self-reported viral load.' Use of ART was not associated with increased prevalence of CLS-D, and was associated with greatly reduced prevalence of HIV-transmission risk sex.


Antiretroviral therapy (ART) can minimize HIV transmission. Prevention benefits may be compromised by barriers to virologic suppression, and by increased condomless sex among those initiating ART. We evaluated condomless sex in a cohort of HIVinfected US individuals poised to initiate ART in a clinical trial. We assessed partner and sex act type, condom use, and perception of infectiousness. Six percent of participants reported as not infectious; men who have sex with men were more likely
to perceive high infectivity. Prevalence of condomless sex was 44%; 74% of those also reported homosexual acquisition of HIV. Predictors of increased risk of condomless sex included greater numbers of lifetime partners, recent stimulant drug use and an HIV-positive or unknown serostatus partner. In the context of serodifferent partners, lower perception of infectiousness was also associated with a higher risk of condomless sex. Results highlight opportunities for prevention education for HIV infected individuals at ART initiation.


   Accomplishments in biomedical research and technology, combined with innovative community and clinically based interventions, have expanded HIV testing globally. However, HIV screening and receipt of results remains a challenge in some areas. To optimize the benefits of HIV screening, it is imperative that there is a better understanding of the barriers to and motivators of testing for HIV infection. This study is a meta-synthesis of the qualitative literature on HIV screening and receipt of results; 128 unique publications had implications for HIV screening and receipt of results. A socioecological perspective provided an appropriate approach for synthesizing the literature. Three levels of influence emerged: individual attributes, interpersonal attributes, and broader patterns of influence. Findings were reviewed and found to have implications for continued engagement in the HIV treatment cascade. Recommendations to enhance HIV screening and to ensure receipt of results are proposed and discussed.


   Characterization of structural barriers that impede the receipt of HIV prevention and care services is critical to addressing the HIV epidemic among Black men who have sex with men (BMSM). This study investigated the utilization of HIV prevention and general care services among a non-clinic-based sample of BMSM who reported at least one structural barrier to engagement in care. Proportions of participants who had received HIV prevention services and general care services in different settings were compared using Fisher’s exact test and correlates of service receipt were assessed using logistic regression. Among 75 BMSM, 60% had accessed a community-based clinic, 21% had accessed a primary care setting, and 36% had accessed an acute care setting in the last 6 months. Greater proportions of participants who had accessed community-based clinics received HIV prevention services during these visits (90%) compared to those who had accessed primary care (53%) and acute care (44%) settings (p = .005). Opportunities for BMSM to receive HIV prevention interventions differed by care setting. Having access to health care did not necessarily facilitate the uptake of HIV prevention interventions. Further investigation of the structurally rooted reasons why BMSM are often unable to access HIV prevention services is warranted.


   Gay men’s health researchers in North America have recently attended to sexual and mental health issues affecting ethnic minority men, many of whom are also immigrants. Most of this work is grounded in epidemiological models that focus on relationships between individual HIV risk and sexual behaviors. Consequently, they frame the sexual health of gay and bisexual immigrants as the product of cultural issues (for example, family and religious homophobia, lack of health education) or gay community issues (prevalence of drug use and casual sex) that lead to self-devaluation, depression, and unprotected sex with multiple partners. Few studies, however, examine these phenomena through the lens of migration and resettlement. Using the narratives from twelve in-depth interviews with settlement and AIDS Service Organization (ASO) workers in Toronto, Ottawa, and London, Ontario, Canada, this article examines four types of post-migration urban encounters that influence sexual health: negotiations of resettlement-related stress, encounters with the urban gay community, encounters with the online gay community, and encounters with sexual health promotion itself. The findings suggest that these encounters are important intervening events that mediate the relationship between the attributes of the immigrant and his sexual health behaviors and outcomes.
African-American men who have sex with men and women (MSMW) are among those most heavily impacted by HIV in the United States, and those who have histories of incarceration are at further risk of infection. The Men in Life Environments (MILE) HIV prevention intervention was developed to provide culturally appropriate skills-based education and support for African-American MSMW with recent histories of incarceration. The MILE’s conceptual framework was informed by three theories: Theory of Reasoned Action and Planned Behavior, Critical Thinking and Cultural Affirmation Model, and Empowerment Theory. The theory-based framework posits that improving racial pride is crucial in building self-efficacy and intentions that in turn promote health-protective behaviors. Therefore, our study aimed to assess whether baseline associations between racial pride and condom use self-efficacy, intentions, and behaviors among African-American MSMW with histories of incarceration align with our conceptual model. We report data on 212 participants recruited from Los Angeles County Sheriff’s Department Men’s Central Jail and the local community. Using structural equation modeling, we tested two separate models: one with female sexual partners and one with male sexual partners, while stratifying by participant’s HIV status. Only among HIV-negative participants was greater racial pride associated with less condomless intercourse with men. In this group, greater self-efficacy and intentions—but not racial pride—predicted less condomless intercourse with women. Our findings suggest that racial pride is an important factor to address in HIV prevention interventions for post-incarcerated African-American MSMW.


Using nationally representative data, we assessed the prevalence of erectile dysfunction medication (EDM) prescription, and its association with insertive condomless anal intercourse (CAI) with an HIV-serodiscordant partner among sexually-active HIV-infected men who have sex with men (MSM) receiving medical care in the United States. Overall, 14 % (95 % CI 12-16) were prescribed EDM and 21 % (95 % CI 19-23) engaged in serodiscordant CAI. MSM who were prescribed EDM were more likely to engage in insertive CAI with a serodiscordant casual partner than those not prescribed EDM after adjusting for illicit drug use before or during sex (adjusted prevalence ratio = 1.38; 95 % CI 1.01-1.88). We found no association with main partners. Only 40 % (95 % CI 36-44) of MSM prescribed EDM received risk-reduction counseling from healthcare professionals. Risk-reduction counseling should be provided at least annually to all HIV-infected persons as recommended, especially at the time of EDM prescription.


IMPORTANT: Several randomized clinical trials have demonstrated the efficacy of preexposure prophylaxis (PrEP) in preventing human immunodeficiency virus (HIV) acquisition. Little is known about adherence to the regimen, sexual practices, and overall effectiveness when PrEP is implemented in clinics that treat sexually transmitted infections (STIs) and community-based clinics serving men who have sex with men (MSM). OBJECTIVE: To assess PrEP adherence, sexual behaviors, and the incidence of STIs and HIV infection in a cohort of MSM and transgender women initiating PrEP in the United States. DESIGN, SETTING, AND PARTICIPANTS: Demonstration project conducted from October 1, 2012, through February 10, 2015 (last date of follow-up), among 557 MSM and transgender women in 2 STI clinics in San Francisco, California, and Miami, Florida, and a community health center in Washington, DC. Data were analyzed from December 18, 2014, through August 8, 2015. INTERVENTIONS: A combination of daily, oral tenofovir disoproxil fumarate and emtricitabine was provided free of charge for 48 weeks. All participants received HIV testing, brief client-centered counseling, and clinical monitoring. MAIN OUTCOMES AND MEASURES: Concentrations of tenofovir diphosphate in dried blood spot samples, self-reported numbers of anal sex partners and episodes of condomless receptive anal sex, and incidence of STI and HIV acquisition. RESULTS: Overall, 557 participants initiated PrEP, and 437 of these (78.5%) were retained through 48 weeks. Based on the findings from the 294 participants who underwent measurement of tenofovir diphosphate levels, 80.0% to 85.6% had protective levels (consistent with >/=4 doses/wk) at follow-up visits. African American participants (56.8% of visits; P = .003) and those from the Miami site (65.1% of visits; P < .001) were less
likely to have protective levels, whereas those with stable housing (86.8%; P = .02) and those reporting at least 2 condomless anal sex partners declined during follow-up from 10.9 to 9.3, whereas the proportion engaging in condomless receptive anal sex remained stable at 65.5% to 65.6%. Overall STI incidence was high (90 per 100 person-years) but did not increase over time. Two individuals became HIV infected during follow-up (HIV incidence, 0.43 [95% CI, 0.05-1.54] infections per 100 person-years); both had tenofovir diphosphate levels consistent with fewer than 2 doses/wk at seroconversion. CONCLUSIONS AND RELEVANCE: The incidence of HIV acquisition was extremely low despite a high incidence of STIs in a large US PrEP demonstration project. Adherence was higher among those participants who reported more risk behaviors. Interventions that address racial and geographic disparities and housing instability may increase the impact of PrEP.


Chinese men who have sex with men (MSM) are disproportionately affected by HIV and sexually transmitted infections (STIs), but little is known about the role of current marital status and living arrangements in shaping their HIV/syphilis risk. A cross-sectional study was conducted among MSM in Beijing, China to assess their sociodemographic/behavioral characteristics between married and single MSM, and test the hypothesis that currently married MSM have a lower odds of being HIV- and/or syphilis-infected. Participants were recruited via short message services, peer referral, internet, and community outreach. Data collection was based on a questionnaire survey and self-report. Infection status was lab-confirmed. Multivariable logistic regression modeling was used to assess the association of marital status and living arrangement with HIV/syphilis risk. Of the 3588 MSM, infection prevalence was high (HIV = 12.7%; syphilis = 7.5%). Compared to single MSM living with their boyfriends or male sex partners, single/alone MSM and married MSM living with wives were less likely to practice condomless insertive (CIAI) or receptive (CRAI) anal intercourse with men; while married MSM living with boyfriends or male sex partner were more likely to practice CIAI and CRAI, and married MSM were more likely to practice condomless vaginal sex. Compared to men living with boyfriends/sexual partners, significantly reduced odds of being HIV-positive were seen among married MSM who were living alone (aOR: 0.52; 95%CI: 0.28, 0.94) or living with their wives (aOR: 0.53; 95%CI: 0.31, 0.89). Similarly, single MSM living alone (aOR: 0.67; 95%CI: 0.48, 0.95) and married MSM living with their wives were comparatively less likely to be syphilis-infected (aOR: 0.43; 95%CI: 0.23, 0.79). Future efforts should consider characteristics of marital status and living arrangements for designing subgroup-specific risk reduction strategies among Chinese MSM.


The dynamic nature of finding male sexual partners (sex-finding) among Chinese men who have sex with men (MSM) may play a substantial role in the HIV epidemic. We compared characteristics and behaviors of MSM who mostly sought sex via the Internet versus traditional venues in a cross-sectional survey among 3588 Chinese MSM. We assessed the sociodemographic predictors and compared high-risk behaviors of using Internet versus traditional venues for sex-finding. Compared to non-Internet MSM, Internet-user MSM were more likely to have been: younger, currently single, better educated, health-insured, with higher income, with Beijing residency ('Hukou'), living longer in the city, HIV-positive, ever using drug and engaging in condomless receptive anal sex. Internet sex-finding users were less likely to be sexually active for longer duration, drink alcohol, drink alcohol before sex, or ever have sex with women. Knowledge of differential characteristics of various sex-finding MSM can help design targeted interventions.


Latinos are more likely to delay HIV testing, present to care with an AIDS defining illness, and die within one year of learning their HIV-positive status than non-Latino blacks and whites. For this paper, we explore the role of partner-relationship characteristics and health behaviors, in predicting HIV testing among Latina adult women who engaged in risky sexual behaviors (i.e., unprotected vaginal and/or anal sex). Data from a convenience sample of 168 Latina adult women who engaged in risky
sexual behavior in the year prior to assessment were analyzed for this paper. Rates and predictors of HIV testing among this sample were assessed after a five-year follow-up. Descriptive and analytical estimates include incidence rates and adjusted odds ratios (AOR) from multilevel models. At five-year follow-up, 63.7% (n = 107) women reported having been tested for HIV, of whom 12.2% (n = 13) were women who never tested before. Main reasons for not having been tested at follow-up included: low risk perception (62.1%) and trusting their partner(s)/being in a monogamous relationship/knowing their partner’s HIV status (17.2%). Predictors of HIV testing included: age (AOR: 0.96; 95% CI = 0.92-0.99), provider endorsement of HIV testing (AOR: 4.59; 95% CI = 1.77-11.95), poor quality of their romantic relationships (AOR: 1.12; 95% CI = 1.03-1.26), and knowing the HIV sero-status of sexual partner (AOR: 3.61; 95% CI = 1.46-8.95). This study characterizes a group of Latina women at high risk for HIV infection and their HIV testing behaviors. Our findings underscore the need of increasing access to quality health-care services and HIV behavioral interventions, and to strengthen the adherence to HIV/sexually transmitted disease testing recommendations and guidelines among local health-care providers serving the Latino community in South Florida.


Most HIV infections among young men who have sex with men (YMSM) occur within primary partnerships. Research on YMSM’s knowledge, motivation, and behavioral skills regarding relationship-related HIV prevention, and how these correspond to HIV risk and partnership characteristics, is limited. We examined links among the Relationship-Oriented Information-Motivation-Behavioral Skills (RELO-IMB) model, relationship characteristics, and HIV risk in 96 YMSM. Condomless sex with a primary partner was associated with low relationship-related HIV preventive information, motivation, and behavioral skills. Lack of HIV testing and alcohol use before sex were associated with low behavioral skills. In multivariate analyses, behavioral skills were the only consistent predictor of these outcomes. Regarding relationship characteristics, feeling trapped in the relationship or being physically abused by a partner was associated with low motivation and behavioral skills. The RELO-IMB model can be used to understand HIV risk in relationships and points to targets for relationship-specific HIV prevention education for YMSM.


HIV/AIDS-related stigma is a key factor impeding patient utilization of HIV testing services. To destigmatize HIV testing, the Centers for Disease Control and Prevention recommended an 'opt-out' screening strategy aimed at all patients in all clinical settings, regardless of HIV risk. This study assessed whether opt-out screening as compared to opt-in screening was associated with increased uptake of HIV testing among patients with HIV/AIDS-related stigma concerns. This study included 374 patients attending two Los Angeles ambulatory care clinics. Stigma items were grouped into three constructs: Blame/isolation, abandonment, and contagion. Individuals endorsing the blame/isolation subscale (AOR = 0.52; 95 % CI 0.29-0.92; p\0.05) and abandonment subscale (AOR = 0.27; 95 % CI 0.13-0.59; p\0.01) were significantly less likely to accept an HIV test. Additionally, the opt-out model did not counter the negative effects of stigma on HIV test acceptance. These findings indicate that stigma remains a barrier to HIV testing, regardless of the opt-out screening approach.


In the United States, rates of human immunodeficiency virus (HIV) infection are highest among Black men who have sex with men (BMSM). Prior research indicates that younger BMSM in particular (i.e., BMSM 29 years of age and younger) are most at risk for HIV infection, and that HIV incidence in this subpopulation has risen in recent years. It remains unclear, however, why younger BMSM, relative to BMSM 30 years of age and older, are at increased risk for HIV infection. For the current study, we surveyed 450 BMSM located in the Atlanta, GA metropolitan and surrounding areas. We assessed BMSM’s depressive symptoms, substance use during sex, psycho-social risk factors (i.e., HIV risk perceptions, condom use self-efficacy, internalized homophobia, and perceived HIV stigmatization), and sexual risk taking (i.e., condomless anal intercourse [CAI]). We found that younger BMSM (YBMSM) and older BMSM (OBMSM) differed with respect to factors associated with CAI. In multivariable models, alcohol use before or during sex, lower educational attainment, and sexual orientation (i.e., bisexual sexual orientation) were significantly
associated with increased CAI for YBMSM, while HIV risk perceptions and internalized homophobia were significantly, negatively associated with CAI among OBMSM. Rates of engaging in CAI were similar across the two age cohorts; however, factors related to CAI varied by these two groups. Findings emphasize the need to consider targeted interventions for different generational cohorts of BMSM.


BACKGROUND: Universal human immunodeficiency virus (HIV) screening remains low in many clinical practices despite published guidelines recommending screening for all patients between ages 13-65. Electronic clinical decision support tools have improved screening rates for many chronic diseases. We designed a quality improvement project to improve the rate of universal HIV screening of adult patients in a Midwest primary care practice using a clinical decision support tool. METHODS: We conducted this quality improvement project in Rochester, Minnesota from January 1, 2014 to December 31, 2014. Baseline primary care practice HIV screening data were acquired from January 1, 2014 to April 30, 2014. We surveyed providers and educated them about current CDC recommended screening guidelines. We then added an HIV screening alert to an existing electronic clinical decision support tool and post-intervention HIV screening rates were obtained from May 1, 2014 to December 31, 2014. The primary quality outcome being assessed was change in universal HIV screening rates. RESULTS: Twelve thousand five hundred ninety-six unique patients were eligible for HIV screening in 2014; 327 were screened for HIV. 6,070 and 6,526 patients were seen before and after the intervention, respectively. 1.80 % of eligible patients and 3.34 % of eligible patients were screened prior to and after the intervention, respectively. 1.80 % of eligible patients and 3.34 % of eligible patients were screened prior to and after the intervention, respectively. Prior to the intervention, African Americans were more likely to have been screened for HIV (OR 3.86 (2.22, 6.71; p < 0.001) than Whites, but this effect decreased significantly after the intervention (OR 1.90 (1.12, 3.21; p = 0.03). CONCLUSIONS: These data showed that an electronic alert almost doubled the rates of universal HIV screening by primary care providers in a Midwestern practice and reduced racial disparities, but there is still substantial room for improvement in universal screening practices. Opportunities for universal HIV screening remain abundant, as many providers either do not understand the importance of screening average risk patients or do not remember to discuss it. Alerts to remind providers of current guidelines and help identify screening opportunities can be helpful.


OBJECTIVE: The objective of this study is to assess the effectiveness of brief clinic-based condom skills interventions that target males. STUDY DESIGN: We searched PubMed, Cumulative Index of Nursing and Allied Health Literature and PsychInfo for studies published from January 1980 through September 2014, using relevant search terms. We included studies if interventions taught about condoms lasting 60 min or shorter, used randomized or quasi-experimental design, were conducted in a clinical setting and targeted males. Two investigators sequentially reviewed abstracts. We abstracted and reviewed data from 16 studies that met the selection criteria. Where outcomes were poolable, we conducted meta-analyses using a random-effects model and I(2) index to assess heterogeneity. Outcome measures included condom knowledge, attitudes, behaviors, sexually transmitted infections (STIs)/human immunodeficiency virus and unintended pregnancy. RESULTS: Across studies, teaching about condoms was nested within sexual risk reduction curricula. Most interventions were one on one and conducted in STI clinics. Pooled analyses indicated that intervention receipt was associated with increases in percent of sex acts with condoms (standardized mean difference=0.29 [0.18, 0.41]; 0.19 [0.06, 0.33]) and reductions in STIs at 12-month follow-up or longer {odds ratio (OR)=0.82 [95% confidence interval: 0.67, 0.99]). One study assessed unintended pregnancy and did not find an intervention effect. CONCLUSIONS: Study findings hold promise for considering brief condom skills interventions in clinical settings that can result in improvements in males’ condom behaviors and possibly biological outcomes.

OBJECTIVE: Syndemic theory has been proposed as a framework for understanding the role of multiple risk factors driving the HIV epidemic among sexual and gender minority individuals. As yet, the framework has been relatively absent in research on Latinos/as. METHODS: We used logistic regression to assess relationships among cumulative syndemic conditions - including clinically significant depression, high-risk alcohol consumption, discrimination, and childhood sexual abuse - engagement with multiple partners and condomless anal intercourse (CAI) in a sample of 176 Latino men who have sex with men (MSM) in New York City. RESULTS: In bivariate analyses, an increase in the number of syndemic factors experienced was associated with an increased likelihood of reporting multiple partners and CAI. In multivariable analyses, participants with 2, 3, and 4 factors were significantly more likely to report multiple partners than those with 0 (aOR=4.66, 95% CI [1.29, 16.85]; aOR=7.28, 95% CI [1.94, 27.28] and aOR=8.25, 95% CI [1.74, 29.24]) respectively; p<0.05. Regarding CAI, only participants with 3 and 4 factors differed from those with 0 (aOR=7.35, 95% CI [1.64, 32.83] and OR=8.06, 95% CI [1.39, 46.73] respectively. CONCLUSIONS: Comprehensive approaches that address syndemic factors, and capitalize on resiliency, are needed to address the sexual health needs of Latino MSM.

Martinez, O., et al. (2016). "Relationship Factors Associated with Sexual Risk Behavior and High-Risk Alcohol Consumption Among Latino Men Who Have Sex with Men: Challenges and Opportunities to Intervene on HIV Risk." Arch Sex Behav.

The HIV epidemic continues to be a major public health concern, affecting communities with varying prevention and treatment needs. In the U.S., Latino men who have sex with men (MSM) bear a disproportionate burden of HIV incidence. While recent studies have highlighted the relevance of relationship factors for HIV transmission among MSM generally, the unique needs and experiences of Latino MSM have received relatively little attention. Consequently, associations between relationship factors and HIV risk among Latino MSM remain unknown. This mixed-method study examined relationship status and dynamics and potential HIV-related risk behaviors among Latino MSM. Quantitative analyses with 240 Latino MSM investigated associations between relationship status and engagement in condomless anal intercourse (CAI). Focus groups with 20 Latino male couples and 10 health service providers explored the impact of relationship dynamics on sexual behaviors, as well as opportunities to intervene on HIV risk. The majority of participants were predominantly Spanish speaking, most screened positive for high-risk alcohol consumption in the past month, more than half engaged in CAI in the past 3 months, and a majority reported multiple sexual partners in this period. Among participants in same-sex relationships (n = 175), approximately half reported multiple partners in the previous 3 months and more than two-thirds reported CAI in this time period. Being in a same-sex relationship was positively associated with high-risk alcohol consumption and being age 30 or older and negatively associated with having multiple partners. Moreover, being in a same-sex relationship significantly increased the likelihood that participants would report engaging in CAI. Qualitative analyses identified themes related to relationship dynamics and sexual behavior, as well as opportunities to intervene on HIV risk. Despite the challenges encountered by Latino male couples, most participants expressed commitment to and support for their partners. As such, prevention efforts involving Latino male couples must address relationship dynamics and the role they play in sexual health, including safer sex practices.


INTRODUCTION: Successful HIV prevention and treatment requires evidence-based approaches that combine biomedical strategies with behavioral interventions that are socially and culturally appropriate for the population or community being prioritized. Although there has been a push for a combination approach, how best to integrate different strategies into existing behavioral HIV prevention interventions remains unclear. The need to develop effective combination approaches is of particular importance for men who have sex with men (MSM), who face a disproportionately high risk of HIV acquisition. MATERIALS AND METHODS: We collaborated with Latino male couples and providers to adapt Connect 'n Unite, an evidence-based intervention for Black male couples, for Latino male couples. We conducted a series of three focus groups, each with two cohorts of couples, and one focus group with providers. A purposive stratified sample of 20 couples (N = 40, divided into two cohorts) and 10 providers provided insights into how to adapt and integrate social, cultural, and biomedical approaches in a couples-based HIV/AIDS behavioral intervention. RESULTS: The majority (N = 37) of the couple participants had no prior knowledge of the following new biomedical strategies: non-occupational post-exposure prophylaxis (nPEP); pre-exposure prophylaxis (PrEP); and HIV self-testing kits. After they were introduced to these biomedical interventions, all participants expressed a need for
information and empowerment through knowledge and awareness of these interventions. In particular, participants suggested that we provide PrEP and HIV self-testing kits by the middle or end of the intervention. Providers suggested a need to address behavioral, social and structural issues, such as language barriers; and the promotion of client-centered approaches to increase access to, adaptation of, and adherence to biomedical strategies. Corroborating what couple participants suggested, providers agreed that biomedical strategies should be offered after providing information about these tools. Regarding culturally sensitive and responsive approaches, participants identified stigma and discrimination associated with HIV and sexual identity as barriers to care, language barriers and documentation status as further barriers to care, the couple-based approach as ideal to health promotion, and the need to include family topics in the intervention. DISCUSSION: We successfully adapted an evidence-based behavioral HIV prevention intervention for Latino male couples. The adapted intervention, called Conectando Latinos en Pareja, integrates social, cultural, behavioral and biomedical strategies to address the HIV epidemic among Latino MSM. The study highlights the promise regarding the feasibility of implementing a combination approach to HIV prevention in this population.


The US HIV/AIDS epidemic is concentrated in the Deep South, yet factors contributing to HIV transmission are not fully understood. We examined relationships between substance use, sexual partnership characteristics, and condom non-use in an African American sample of STI clinic attendees in Jackson, Mississippi. We assessed condom non-use at last intercourse with up to three recent sexual partners reported by participants between January and June 2011. Participant- and partner-level correlates of condom non-use were examined using generalized estimating equations. The 1295 participants reported 2880 intercourse events, of which 1490 (51.7 %) involved condom non-use. Older age, lower educational attainment, reporting financial or material dependence on a sex partner, sex with a primary partner, and higher frequency of sex were associated with increased odds of condomless sex. HIV prevention efforts in the South should address underlying socioeconomic disparities and structural determinants that result in partner dependency and sexual risk behavior.


This study aims to identify enablers or facilitators of HIV testing among Latina immigrant women through qualitative interviews with five community health advocates (CHAs). CHAs act as cultural bridges between Latinos and service providers. We employed a single case-study design using the PEN-3 model as a conceptual framework for situating HIV testing behaviors within cultural and structural contexts of Latina immigrant women’s lives. A cross-case analysis of themes revealed that intrinsic enablers of HIV testing included individual trust, confidentiality, intergenerational family participation, and peers. The extrinsic enablers were local community outreach, bicultural/bilingual testing staff, service location and mass media outlets. These results have implications for the cultural competency of health and social service providers, instituting and revising HIV testing outreach interventions, and the earlier identification of women who may have been infected. They offer important insights for promoting other health behaviors among the Latino communities.


BACKGROUND: Age-disparate partnerships are hypothesized to increase HIV-risk for young women. However, the evidence base remains mixed. Most studies have focused only on unprotected sex among women in the partnership. Consequently, little is known about other risky behaviours, such as transactional sex, alcohol use, and concurrency, as well as the behaviours of the men who partner with young women. We therefore examined differences in various sexual behaviours of both young women and their male partners by partnership age difference. METHODS: We used nationally representative data from South Africa (2012) on partnerships reported by 16-24 year old black African women (n = 818) and by black African men in partnerships with 16-24 year old women (n = 985). We compared sexual behaviours in age-disparate partnerships and age-similar partnerships, using multiple logistic regression to control for potential confounders and to assess rural/urban differences. RESULTS: Young women in age-disparate partnerships were more likely to report unprotected sex than young women in similar-
Men who were five or more years older were more likely to report unprotected sex (aOR:1.92; p<0.01; 95%CI:1.31-2.81), transactional sex (aOR:2.73; p<0.01; 95%CI:1.64-4.56), drinking alcohol before sex (aOR:1.60; p = 0.062; 95%CI:0.98-2.61), and concurrency (aOR:1.39; p = 0.097; 95%CI:0.94-2.07) when their partners were five or more years younger. The association between age-disparate partnerships and transactional sex (aOR:4.14; p<0.01; 95%CI: 2.03-8.46) and alcohol use (aOR:2.24; p<0.013; 95%CI:1.20-4.19) was only found in urban areas. CONCLUSIONS: Results provide evidence that young women’s age-disparate partnerships involve greater sexual risk, particularly through the risky behaviours of their male partners, with the risk amplified for young women in urban areas.


BACKGROUND: Randomised placebo-controlled trials have shown that daily oral pre-exposure prophylaxis (PrEP) with tenofovir-emtricitabine reduces the risk of HIV infection. However, this benefit could be counteracted by risk compensation in users of PrEP. We did the PROUD study to assess this effect. METHODS: PROUD is an open-label randomised trial done at 13 sexual health clinics in England. We enrolled HIV-negative gay and other men who have sex with men who had had anal intercourse without a condom in the previous 90 days. Participants were randomly assigned (1:1) to receive daily combined tenofovir disoproxil fumarate (245 mg) and emtricitabine (200 mg) either immediately or after a deferral period of 1 year. Randomisation was done via web-based access to a central computer-generated list with variable block sizes (stratified by clinical site). Follow-up was quarterly. The primary outcomes for the pilot phase were time to accrue 500 participants and retention; secondary outcomes included incident HIV infection during the deferral period, safety, adherence, and risk compensation. The trial is registered with ISRCTN (number ISRCTN94465371) and ClinicalTrials.gov (NCT02065986). FINDINGS: We enrolled 544 participants (275 in the immediate group, 269 in the deferred group) between Nov 29, 2012, and April 30, 2014. Based on early evidence of effectiveness, the trial steering committee recommended on Oct 13, 2014, that all deferred participants be offered PrEP. Follow-up for HIV incidence was complete for 243 (94%) of 259 patient-years in the immediate group versus 222 (90%) of 245 patient-years in the deferred group. Three HIV infections occurred in the immediate group (1.2/100 person-years) versus 20 in the deferred group (9.0/100 person-years) despite 174 prescriptions of post-exposure prophylaxis in the deferred group (relative reduction 86%, 90% CI 64-96, p=0.0001; absolute difference 7.8/100 person-years, 90% CI 4.3-11.3). 13 men (90% CI 9-23) in a similar population would need access to 1 year of PrEP to avert one HIV infection. We recorded no serious adverse drug reactions; 28 adverse events, most commonly nausea, headache, and arthralgia, resulted in interruption of PrEP. We detected no difference in the occurrence of sexually transmitted infections, including rectal gonorrhoea and chlamydia, between groups, despite a suggestion of risk compensation among some PrEP recipients. INTERPRETATION: In this high incidence population, daily tenofovir-emtricitabine conferred even higher protection against HIV than in placebo-controlled trials, refuting concerns that effectiveness would be less in a real-world setting. There was no evidence of an increase in other sexually transmitted infections. Our findings strongly support the addition of PrEP to the standard of prevention for men who have sex with men at risk of HIV infection. FUNDING: MRC Clinical Trials Unit at UCL, Public Health England, and Gilead Sciences.


INTRODUCTION: As the population of people living with HIV ages, the increase in non-AIDs morbidities is expected to increase in parallel. Maintaining bone health in those with HIV will be an important area of focus for the HIV clinician to prevent the morbidity and mortality associated with fragility fractures, the principal clinical sequela of low bone mineral density (BMD). Rates of fractures and prevalence of low bone mineral density, a risk factor for future fragility fractures, are already increased in the HIV positive population. AREAS COVERED: This review examines the strategies to maintain bone health in those living with HIV from screening through to managing those with established low BMD or fracture, including the role for choice of or modification of antiretroviral therapy to maintain bone health. Expert commentary: The increasing complexity of managing bone health in the age of successful antiretroviral therapy and an aging patient population as well as future perspectives which may help achieve the long term aim of minimising the impact of low BMD in those with HIV are discussed and explored.

Background Although many within-subjects comparisons conducted on samples of men who have sex with men have sought to understand the association between specific situational characteristics (e.g. drug use or location of sex) and sexual risk behaviour, none have considered the ‘clustering’ of patterns of situational characteristics. An initial typology of sexual encounters is derived and the relationship of this typology to condomless anal intercourse (CAI) and pleasure is tested. METHODS: Data from a longitudinal survey of men who have sex with men living in England were used. Multilevel latent class analyses were estimated to determine an optimal class solution on the situational characteristics, and then pseudo-imputation was used to estimate the association between class and both CAI and pleasure. RESULTS: A three-class solution fit the data best, with a scaled relative entropy of 92.4%. Classes were characterised as featuring: regular steady partners in private locations with low drug use (class 1), casual partners with increased probability of sex occurring in a sex-on-premises venue (class 2), and high levels of polydrug use together with increased probability of casual partners (class 3). Encounters were different both in pairwise comparisons and overall on probability of CAI. They were different overall but not necessarily pairwise on pleasure. CONCLUSIONS: These initial findings demonstrate the possibility of understanding sexual encounters in terms of the contexts, or classes, within which they occur. This may have implications for tailoring HIV prevention to specific encounter types. Future research should seek to extend encounter-level typologies to specific drug use variables.


This study determined whether a novel (single-item) measure of poverty is associated with elevated sexual risk among young Black men who have sex with men who reside in a US city with high HIV seroprevalence. A convenience sample of 600 Black men who have sex with men (ages 16-29) completed a computer-assisted self-interview. The questionnaire included an item asking men, 'In the past 12 months have you missed meals because you did not have enough money to eat?' Selected measures of sexual risk and prevalence of chlamydia, gonorrhea, and HIV were assessed as outcomes of this novel measure of poverty. About 22% had missed meals due to lack of money. In age-adjusted analyses, these men were more likely to report: (1) having concurrent sex partners (P = .03), (2) having sex with partners who were generally five or more years older (P = .02), (3) not using condoms the first time they had sex with their most recent new partner (P = .015), (4) having sex with persons not known by name (P = .02), (5) depending on sex partners for food, money, and shelter (P < .0001), and (6) testing positive for Chlamydia at study enrollment (P < .02). Of interest, an association in frequency of recent condomless anal sex as top (P = .04) was observed; however, the association for recent condomless sex as bottom (P = .37) was not significant. For young Black men who have sex with men, a novel method of assessing poverty may be predictive of many sexual risk behaviors. Clinicians may benefit this population by including this question as part of their patient interview and prioritizing services when indicated.


OBJECTIVE: Sexual behavior that incurs increased risk for sexually transmitted infections and HIV incidence is associated with both heavy alcohol and marijuana use. Whereas detrimental effects of alcohol on increased sexual risk have been documented in event-level and laboratory studies, less is known about the combined use of alcohol and marijuana and their relative impact on sexual risk behavior. We examined the degree to which both heavy drinking and marijuana use were associated with condomless sexual intercourse with casual versus main partners in a sample of weekly marijuana smokers. METHOD: Participants reported substance use and sexual activity using a 60-day Timeline Followback interview method (n = 112). RESULTS: Results of generalized estimating equations indicated that both alcohol and marijuana use were independently associated with greater odds of having sexual intercourse but were not associated with greater odds of unprotected sex with a casual partner. Heavy drinking on a given day was associated with increased odds of having casual protected sex. Using both substances synergistically increased the likelihood of unprotected sex with a main partner. CONCLUSIONS: Findings suggest that behaviors posing higher sexual risk (condomless intercourse or sex with casual partners) occur on days when alcohol use exceeds moderate drinking guidelines. Interventions designed to reduce sexual risk behaviors may need to specifically target heavy drinking alone or when used with marijuana.
We conducted a prospective, randomized controlled trial of an internet-based safer-sex intervention to reduce HIV transmission risk behaviors. HIV-infected men who have sex with men (n = 179) were randomized to receive a monthly internet survey alone or a monthly survey plus tailored risk reduction messages over 12 months. The primary outcome was the cumulative sexually transmitted infection (STI) incidence over 12 months. Secondary outcomes included self-reported unprotected sex with an at-risk partner and disclosure of HIV status to partners. In a modified intent to treat analysis, there was no difference in 12-month STI incidence between the intervention and control arms (30 vs. 25%, respectively; p = 0.5). Unprotected sex decreased and disclosure increased over time in both study arms. These improvements suggest that addition of the risk-reduction messages provided little benefit beyond the self-monitoring of risky behavior via regular self-report risk behavior assessments (as was done in both study arms).

The link between depression and sexual risk-taking has received mixed findings in the literature. The current study analyzed the links between depression and recent condomless anal sex (CAS) with casual partners among 1033 HIV-negative, non-PrEP-using, gay and bisexual men. When CAS was dichotomized as either none or some, depression was not associated with the odds of CAS (with receptive and insertive combined) or insertive CAS only, but was positively associated with the odds of receptive CAS. When CAS was tallied as a count variable of events, depression was positively associated with total CAS, receptive CAS, and insertive CAS. With the addition of a quadratic term for depression, a positive quadratic effect was only found for total CAS and receptive CAS, but not for insertive CAS. These findings highlight the utility of using count data for CAS events and treating CAS separately with regard to receptive and insertive positioning when considering the role of depression among gay and bisexual men.

While there is evidence of increasing rates of sexually transmitted infections (STIs) among older men in the United States, there has been little research on older male clients of female sex providers. The purpose of the current study was to understand the sexual risk behaviors and psychosocial correlates among older men hiring sex providers through provider review websites and discussion boards. A convenience sample of 208 male clients ages 60 to 84 completed online surveys about their sexual behavior and psychosocial factors. Participants indicated the most common sexual activities with providers in the past 12 months were receiving condomless fellatio (33.7%) and having penile-vaginal intercourse with a condom (31.7%). Although condomless penile-vaginal sex with a provider in the past 12 months was only reported by 2.9%, about half (51%) of the respondents indicated that they had experienced this at least once during their lifetime. This was associated with a preference for providers who do not require condoms, having been previously diagnosed with an STI, and perceiving one’s HIV risk to be higher, as well as advancing age and having more emotional relationships with providers. Findings demonstrate the need for general and sexual health care practitioners to openly discuss protective measures and strategies for avoiding STIs among their older-to-elderly male patients.

An emerging HIV epidemic can be seen among men who have sex with men (MSM) in Vietnam. There are currently no evidence-based behavioral sexual risk reduction interventions for MSM in this setting. Between October 2012 and June 2013, 100 high-risk MSM from Ho Chi Minh City were enrolled in an open pilot trial to assess feasibility and acceptability of a group-based,
Manualized sexual risk reduction intervention, and to preliminarily examine changes in primary and secondary outcomes. Participants completed a behavioral assessment battery and HIV testing at baseline, 3, and 6 months post-baseline. Over 80.0% of the sample was <25 years old and 77.0% identified as Bong kin ("hidden," masculine-appearing). Feasibility and acceptability of the program was evidenced by 87.0% retention for the intervention sessions, 78.0% completion of the 6 month assessment, and positive responses on evaluation forms and qualitative exit interviews. There was a decline in the number of condomless anal sex acts from baseline (6.32) to 3 month (2.06) and 6 month (2.49) follow-up (p < .0001). These data support the need for further testing of this group-based, behavioral HIV prevention intervention to reduce sexual risk behavior among MSM in Vietnam in a randomized controlled efficacy trial.


Few studies have examined actor-partner effects about male couples’ substance use with sex. Dyadic data from 361 male couples were used to examine these effects regarding engagement in condomless anal sex (CAS) by type of partner and substance. Couples with one or both partners reported using marijuana, amyl nitrates, party drugs, and/or stimulants with sex in their relationship was positively associated with them having had CAS. Actor-partner effects for stimulant use with sex with the main partner were associated with CAS with a casual MSM partner. Only an actor effect for stimulant use with sex with a casual MSM partner was associated with CAS with that partner type, and an actor effect for marijuana use with sex for both partner types was associated with CAS with both partner types. These findings illuminate the need for further inquiry about male couples’ substance use with sex for HIV prevention.


OBJECTIVE: Given the prevalence of co-occurring risky sexual behavior and drinking among emergency department (ED) patients, we developed a motivational intervention (MI) to address both behaviors. This study tested efficacy of a single-session MI compared to brief advice (BA) for reducing heavy drinking and condomless sex in adult ED patients screening positive for both. METHOD: We randomized 372 patients to MI (n = 184) or BA (n = 188). Alcohol and sex risk outcomes were assessed over 9 months. RESULTS: Generalized estimating equations models analyzing 327 patients with follow-up data provided strong support for efficacy of this integrated alcohol and sex-risk MI. Compared to BA, and after controlling for baseline covariates, those in MI reported significantly fewer heavy drinking days, drinks per week, and were less likely to engage in excessive drinking over follow-up (all ps < .05). MI was also favored over BA for reducing sex risk. Compared to BA, those in MI reported significantly fewer days on which they engaged in condomless sex with casual partners, had lower odds of reporting any condomless sex with a casual partner, and reported fewer days of sex under the influence of alcohol/other drugs (all ps < .05). CONCLUSION: This innovative MI was acceptable, feasible, and successfully delivered in 2 community hospitals and thus shows great promise for scalability and dissemination into complex health settings where newly insured at-risk individuals are likely to seek care. (PsycINFO Database Record)


STUDY QUESTION: What is the effect of default test offers--opt-in, opt-out, and active choice--on the likelihood of acceptance of an HIV test among patients receiving care in an emergency department? METHODS: This was a randomized clinical trial conducted in the emergency department of an urban teaching hospital and regional trauma center. Patients aged 13-64 years were randomized to opt-in, opt-out, and active choice HIV test offers. The primary outcome was HIV test acceptance percentage. The Denver Risk Score was used to categorize patients as being at low, intermediate, or high risk of HIV infection. STUDY ANSWER AND LIMITATIONS: 38.0% (611/1607) of patients in the opt-in testing group accepted an HIV test, compared with 51.3% (815/1628) in the active choice arm (difference 13.3%, 95% confidence interval 9.8% to 16.7%) and 65.9% (1031/1565) in the opt-out arm (difference 27.9%, 24.4% to 31.3%). Compared with active choice testing, opt-out testing led to a 14.6 (11.1 to 18.1) percentage point increase in test acceptance. Patients identified as being at intermediate and high risk were more likely to accept...
testing than were those at low risk in all arms (difference 6.4% (3.4% to 9.3%) for intermediate and 8.3% (3.3% to 13.4%) for high risk). The opt-out effect was significantly smaller among those reporting high risk behaviors, but the active choice effect did not significantly vary by level of reported risk behavior. Patients consented to inclusion in the study after being offered an HIV test, and inclusion varied slightly by treatment assignment. The study took place at a single county hospital in a city that is somewhat unique with respect to HIV testing; although the test acceptance percentages themselves might vary, a different pattern for opt-in versus active choice versus opt-out test schemes would not be expected. WHAT THIS PAPER ADDS: Active choice is a distinct test regimen, with test acceptance patterns that may best approximate patients' true preferences. Opt-out regimens can substantially increase HIV testing, and opt-in schemes may reduce testing, compared with active choice testing. FUNDING, COMPETING INTERESTS, DATA SHARING: This study was supported by grant NIA 1RC4AG039078 from the National Institute on Aging. The full dataset is available from the corresponding author. Consent for data sharing was not obtained, but the data are anonymized and risk of identification is low. Trial registration Clinical trials NCT01377857.


Black men who have sex with men (BMSM) are highest risk for HIV seroconversion in the United States. Little attention has been paid to marijuana use among BMSM and potential for HIV risk. A sample of 202 BMSM was generated through respondent driven sampling. The relationship between differential marijuana use and both HIV risk behavior and social network factors were examined using weighted logistic regression. Of the BMSM in this sample 60.4 % use marijuana in general and 20.8 % use marijuana as sex-drug. General marijuana use was significantly associated with participation in group sex (AOR 3.50; 95 % CI 1.10-11.10) while marijuana use as a sex drug was significantly associated with both participation in condomless sex (AOR 2.86; 95% CI 1.07-7.67) and group sex (AOR 3.39; 95% CI 1.03-11.22). Respondents with a moderate or high perception of network members who use marijuana were more likely to use marijuana both in general and as a sex-drug. Network member marijuana use, while not associated with risk behaviors, is associated with individual marijuana use and individual marijuana use in the context of sex is associated with risk practices. Targeting interventions towards individuals and their respective networks that use marijuana as a sex drug may reduce HIV risk.


Objective: Comprehensive information on the facilitators of HIV testing in Latino women (Latinas) in the Southeastern USA is lacking. Efforts to rectify this should include Latina perspectives on the issue. This study aimed to (1) solicit Latina perspectives using qualitative methodology and (2) characterise enablers of HIV testing follow-through. Method: The study used the freelistings interview approach to document the perspectives of Latinas (18?years and older). The purposive sample included HIV-tested (n=21) and non-tested (n=10) women. The setting was Non-Traditional Counseling, Testing and Referral Sites in five counties in Central North Carolina, USA. The protocol was guided by the PEN-3 framework, which aims to take culture into account as part of health education. The focus was on the enablers (i.e. social groups, networks, information channels, systems and environments) of health behaviours. Results: While participants listed 66 enablers, 37 met the criteria for analyses. The top 10 enablers were TV advertisements/commercials, friends, personal health, family wellbeing, children, TV shows, pamphlets, self-interest, knowing someone HIV positive and spouse/partner. The most salient enabler for HIV-tested Latinas was "children." For non-tested Latinas, it was "friends." Conclusion: Freelistings proved to be a simple and effective data collection strategy with literate and low-literate women, providing culturally relevant concepts for inclusion in subsequent quantitative survey instruments. Study participants identified a number of important enablers that could serve as supports or reinforcements for health education outreach and interventions to enhance HIV testing uptake.

Objectives: Social support is an important resource that has been associated with better mental and physical health outcomes among HIV-positive people. However, researchers have not adequately explored how social support functions among HIV-positive African Americans. The purpose of the current study was to understand whether HIV-related support resources are associated with relational functioning and HIV-related problems among a sample of HIV-infected African American dyads.

Method: Exactly 34 HIV-infected (i.e., seroconcordant) dyads comprised of HIV-positive African American adults and their HIV-positive adult “informal supporters” from 3 Midwestern urban cities completed psychosocial questionnaires and a communication task. Using the actor-partner interdependence model, we analyzed dyadic data to determine whether there were actor and/or partner effects within dyadic relationships on measures of conflict and HIV-related problems, communication about these problems, and health symptoms. Results: We found significant negative relationships between perceived support and HIV-related problems and perceptions of problem inequity within dyads and a positive relationship between perceived support and communication about these problems within dyads. Contrary to our expectations, we found no relationship between social support and HIV symptoms, relational conflict, or perceptions about dyadic partners’ HIV-related problems. Conclusions: Although our study precludes drawing causal conclusions, we found evidence of a relationship between the personal experience of HIV-related problems, communication about these problems, and perceptions of social support among a small sample of HIV-infected African American dyads. These findings suggest the need to consider how support-related communication within HIV-infected dyads might influence and be influenced by problem perceptions. (PsycINFO Database Record (c) 2016 APA, all rights reserved). (journal abstract)


OBJECTIVE: Combination antiretroviral therapy (ART) decreases the risk of sexual HIV transmission by suppressing blood and genital HIV RNA concentrations. We sought to determine HIV transmission risk prior to achieving complete viral suppression.

DESIGN: Prospective cohort study. METHODS: Using data from the Partners PrEP Study, a prospective study of 4747 heterosexual HIV-serodiscordant couples in Kenya and Uganda, we examined multiple markers of HIV transmission risk during the first months after ART initiation: time to viral suppression in blood, persistence of HIV RNA in genital specimens, sexual risk behavior, pregnancy incidence, and HIV transmission using survival analysis and generalized estimating equations logistic regression.

RESULTS: The cumulative probabilities of achieving blood viral suppression (<80 copies per milliliter) 3, 6, and 9 months after ART initiation were 65.3%, 84.8%, and 89.1%, respectively. Endocervical and seminal HIV RNA were detectable in 12% and 21% of samples obtained within 6 months of ART. Pregnancy incidence was 8.8 per 100 person-years during the first 6 months of ART, and sex unprotected by condoms was reported at 10.5% of visits. Among initially uninfected partners, HIV incidence before ART was 2.08 per 100 person-years (55 infections; 2644 person-years), 1.79 for 0-6 months after ART initiation (3 infections; 168 person-years), and 0.00 with >6 months of ART (0 infections; 167 person-years). CONCLUSIONS: Residual HIV transmission risk persists during the first 6 months of ART, with incomplete viral suppression in blood and genital compartments. For HIV-serodiscordant couples in which the infected partner starts ART, other prevention options are needed, such as pre-exposure prophylaxis, until viral suppression is achieved.


Populations around the world are rapidly ageing and effective treatment for HIV means women living with HIV (WLHIV) can live longer, healthier lives. HIV testing and screening programmes and safer sex initiatives often exclude older sexually active WLHIV. Systematically reviewing the literature to inform World Health Organization guidelines on the sexual and reproductive health and rights (SRHR) of WLHIV, identified four studies examining healthy sexuality among older WLHIV. In Uganda, WLHIV reported lower rates of sexual activity and rated sex as less important than men. In the United States, HIV stigma, disclosure, and body image concerns, among other issues, were described as inhibiting relationship formation and safer sexual practices. Sexual activity declined similarly over time for all women, including for WLHIV who reported more protected sex, while a significant minority of WLHIV reported unprotected sex. A single intervention, the "ROADMAP" intervention, demonstrated significant increases in HIV knowledge and decreases in HIV stigma and high risk sexual behaviour. WLHIV face ageist discrimination and other barriers to remaining sexually active and maintaining healthy sexual relationships, including challenges procuring condoms.
and seeking advice on safe sex practices, reduced ability to negotiate safer sex, physical and social changes associated with menopause, and sexual health challenges due to disability and comorbidities. Normative guidance does not adequately address the SRHR of older WLHIV, and while this systematic review highlights the paucity of data, it also calls for additional research and attention to this important area.


Community sexual bridging may influence the socio-geographic distribution of heterosexually transmitted HIV. In a cross-sectional study, heterosexual adults at high-risk of HIV were recruited in New York City (NYC) in 2010 for the Centers for Disease Control and Prevention-sponsored National HIV Behavioral Surveillance system. Eligible participants were interviewed about their HIV risk behaviors and sexual partnerships and tested for HIV. Social network analysis of the geographic location of participants’ recent sexual partnerships was used to calculate three sexual bridging measures (non-redundant ties, flow-betweenness and walk-betweenness) for NYC communities (defined as United Hospital Fund neighborhoods), which were plotted against HIV prevalence in each community. The analysis sample comprised 494 participants and 1534 sexual partnerships. Participants were 60.1 % male, 79.6 % non-Hispanic black and 19.6 % Hispanic race/ethnicity; the median age was 40 years (IQR 24-50); 37.7 % had ever been homeless (past 12 months); 16.6 % had ever injected drugs; in the past 12 months 76.7 % used non-injection drugs and 90.1 % engaged in condomless vaginal or anal sex; 9.6 % tested HIV positive (of 481 with positive/negative results). Sexual partnerships were located in 33 (78.6 %) of 42 NYC communities, including 13 "high HIV-spread communities", 7 "hidden bridging communities", 0 "contained high HIV prevalence communities", and 13 "latent HIV bridging communities". Compared with latent HIV bridging communities, the population racial/ethnic composition was more likely (p < 0.0001) to be black or Hispanic in high HIV-spread communities and to be black in hidden bridging communities. High HIV-spread and hidden bridging communities may facilitate the maintenance and spread of heterosexually transmitted HIV in black and Hispanic populations in NYC.


BACKGROUND: With the scale-up of antiretroviral treatment across Africa, many people are living longer with HIV. Understanding the ageing of the HIV cohort and sexual behaviour among older adults are important for appropriately responding to the changing demographics of people living with HIV. METHODS: We used data from a large population-based open cohort in eastern Zimbabwe to examine HIV prevalence trends and incidence among those aged 45 years and older. Five survey rounds have been completed between 1998 and 2011. Incidence was analysed using midpoint between last negative and first positive HIV test. RESULTS: Across the survey rounds, 13,071 individuals were followed for 57,676 person years. While HIV prevalence among people aged 15-44 has fallen across the five rounds, HIV prevalence among those aged 45-54 has increased since the 2006-08 survey round. In the 2009-11 round, HIV prevalence among men aged 45-54 was 23.4% compared to 11.0% among those aged 15-44. HIV positive people aged 45-54 now represent more than 20% of all those living with HIV in Manicaland. Among those aged 45 years and older, there were 85 seroconversions in 11,999 person years for an HIV incidence of 0.708 per 100 person years. Analysis of cohort data and assessment of behavioural risk factors for HIV infection among older people shows significantly lower levels of condom use among older adults and a number of seroconversions past the age of 50. CONCLUSIONS: The cohort of people living with HIV is ageing in Zimbabwe and the behaviour of older adults puts them at risk of HIV infection. Older adults must be included in both HIV prevention and treatment programs.


The focus of this paper is on HIV sexual risk taking among a community-based sample of disadvantaged African American adults. The objective is to examine multiple factors associated with sexual HIV risk behaviors within a syndemic conceptual framework. Face-to-face, computer-assisted, structured interviews were conducted with 1535 individuals in Atlanta, Georgia. Bivariate analyses indicated a high level of relationships among the HIV sexual risks and other factors. Results from multivariate models indicated that gender, sexual orientation, relationship status, self-esteem, condom use self-efficacy, sex while the
respondent was high, and sex while the partner was high were significant predictors of condomless sex. Additionally, a multivariate additive model of risk behaviors indicated that the number of health risks significantly increased the risk of condomless sex. This intersection of HIV sexual risk behaviors and their associations with various other behavioral, sociodemographic, and psychological functioning factors help explain HIV risk-taking among this sample of African American adults and highlights the need for research and practice that accounts for multiple health behaviors and problems.


Age-discordant and earlier sexual debut are risk factors for HIV among men who have sex with men (MSM). Despite differences in the sociopolitical landscape over time, there are no studies sampling participants from the United States that have examined the role of birth cohort in relations between sexual debut characteristics and sexual risk among MSM. We assessed sexual debut patterns and associations with sexual risk-taking in 812 adult MSM stratified by ten-year birth cohorts (i.e., before 1970, 1970-1979, 1980-1989, after 1990). Sexual debut characteristics differed by birth cohort. In multivariate models controlling for birth cohort, both younger age of sexual debut and younger age of anal sex debut were associated with an increased likelihood of condomless sex. Men born in the 1990s had increased odds of engaging in sexual risk regardless of sexual debut characteristics. Sexual risk reduction interventions tailored to the unique needs of young MSM are encouraged.


Men who have sex with men (MSM) frequently consume sexually explicit online media (SEOM), yet little is known about its influence on their sexual behaviors. We describe a sequence of four studies to develop and psychometrically validate a measure of the perceived influence of sexually explicit online media (PI-SEOM) on the sexual behaviors of MSM. Study 1 involved qualitative interviews (N = 28) and a quantitative survey (N = 100) to develop a preliminary measure. Using an Internet sample of MSM (N = 1,170), we assessed its factor structure and reliability in Studies 2 and 3 as well as convergent validity and associations with HIV-related sexual risk in Study 4. Based on findings the measure was divided into two subscales: influences on (1) self and (2) other MSM. Factor analyses confirmed a two-factor model for each subscale, measuring perceived influences on (a) general sexual scripts and (b) condomless sex scripts. Survey results indicated that the more men perceived SEOM influencing their own condomless sex scripts, the more likely they were to report engaging in sexual risk behaviors. The developed measure holds promise for assessing the influence of SEOM on the sexual behaviors of MSM and may prove useful for HIV-prevention research.


We assessed whether economic, legal, and social hardships were associated with human immunodeficiency virus (HIV) risk among a sample of Black men who have sex with men (MSM) and whether associations were moderated by city of residence. The study analyzed baseline and follow-up data from HIV Prevention Trials Network 061 (N = 1553). Binary logistic regression assessed associations between hardships and HIV risk indicators. Multivariate regressions were used to test if city of residence had a moderating effect for hardships and HIV risks. Adjusted analyses showed that Black MSM with recent job loss were more likely to engage in condomless insertive anal intercourse (adjusted odds ratios (AOR) = 1.37, 95% CI 1.01-1.87) and that those with recent financial crisis were more likely to have had two or more male sexual partners in the past 6 months (AOR = 1.65; 95% CI 1.18-2.29). Black MSM with recent convictions were more likely to have a sexually transmitted infection at 6 months (AOR = 3.97; 95% CI 1.58-9.94), while those who were unstably housed were more likely to have a sexually transmitted infection at 12 months (AOR = 1.71; 95% CI 1.02 = 2.86). There were no city of residence and hardship interaction effects on HIV risks. Hardships are important factors that influence HIV risk for Black MSM. Integrating strategies that address structural factors that influence HIV risk may enhance HIV prevention interventions implementation efforts.

PURPOSE OF THE STUDY: Aging and HIV/AIDS research focuses primarily on standardized clinical, social, and behavioral measures, leaving unanswered questions about how this chronic and stigmatizing condition affects life course expectations and the meaning of aging with the disease. Utilizing Gaylene Becker's (1997) life course disruption theory, we explored older African Americans' experiences of living with HIV/AIDS. DESIGN AND METHODS: A purposive sample (N = 43) of seropositive African Americans aged 50 and older was selected from a parent study. Thirteen participants completed one semi-structured in-depth interview on life course expectations and experiences of living with HIV/AIDS. Interview transcripts were analyzed using standard qualitative coding and thematic analysis. RESULTS: Responding to broad, open-ended questions about the impact of HIV on life course expectations, participants emphasized how HIV limited their ability to experience sexuality and intimacy. Two major themes emerged, damaged sexuality and constrained intimacy. IMPLICATIONS: Older African Americans' discussions of living with HIV focused on the importance of and the challenges to sexuality and intimacy. Researchers and clinicians should be attentive to significant and ongoing HIV-related challenges to sexuality and intimacy facing older African Americans living with HIV/AIDS.


BACKGROUND: Recent advances in biomedical prevention strategies, including pre-exposure prophylaxis (PrEP) and achieving an undetectable viral load (UVL) among HIV-infected persons, show promise in curbing the rising incidence of HIV among men who have sex with men (MSM) in the United States. This mixed-methods study aimed to investigate the frequency with which MSM encounter potential sex partners on geosocial networking apps who disclose biomedical prevention use, and how MSM make decisions about condom use after these disclosures. METHOD: Participants were recruited through advertisements placed on a large geosocial networking app for MSM. A total of 668 and 727 participants, respectively, responded to questionnaires assessing partner disclosure of PrEP use and UVL. Each questionnaire included an open-ended item assessing reasons for condomless anal sex (CAS) with partners using biomedical prevention. RESULTS: Across both surveys, most respondents encountered potential sex partners who disclosed PrEP use or UVL, and the majority of those who met up with these partners engaged in CAS at least once. Qualitative analyses found that most participants who reported CAS did so after making a calculated risk about HIV transmission. We also describe a novel risk reduction strategy, "biomed-matching," or having CAS only when both individuals use PrEP or have UVL. We report serostatus differences in both quantitative and qualitative findings. CONCLUSIONS: Disclosure of PrEP use and UVL is not uncommon among MSM. Many MSM make accurate appraisals of the risks of CAS with biomedical prevention, and mobile apps may aid with disclosing biomedical prevention use.


Young men who have sex with men are substantially impacted by HIV/AIDS, and most new infections occur in serious romantic dyads. Young people experience substantial psychosocial and neurocognitive change between adolescence and emerging adulthood which impacts engagement in risk behaviors. We aimed to examine developmental change in the association between sexual partnership characteristics and condomless anal intercourse (CAI). Data were taken from an analytic sample of 114 young adult MSM from a longitudinal study of lesbian, gay, bisexual and transgender youth with 4-year follow-up. Rates of CAI were approximately 12 times higher in serious compared to casual partnerships, but this effect diminished in size over time. Partner age differences and violence were associated with more CAI, and these associations strengthened across development. Characteristics of serious relationships (e.g., power dynamics) were also examined. We discuss the need for HIV prevention strategies that address dyadic influences on CAI during this critical developmental period.
A total of 2768 MSM participated in a survey in southern Vietnam. Univariate and multivariate logistic regression analyses were performed to determine predictors of HIV infection. The prevalence of HIV among MSM was 2.6%. HIV infection was more likely in MSM who were older, had a religion, had engaged in anal sex with a foreigner in the past 12 months, previously or currently used recreational drugs, perceived themselves as likely or very likely to be infected with HIV, and/or were syphilis seropositive. MSM who had ever married, were exclusively or frequently receptive, sometimes consumed alcohol before sex, and/or frequently used condoms during anal sex in the past 3 months were less likely to be infected with HIV. Recreational drug use is strongly associated with HIV infection among MSM in southern Vietnam. HIV interventions among MSM should incorporate health promotion, condom promotion, harm reduction, sexually transmitted infection treatment, and address risk behaviors.

Background: Cardio-metabolic risk factors are of increasing concern in HIV-infected individuals, particularly with the advent of antiretroviral therapy (ART) and the subsequent rise in longevity. However, the prevalence of cardio-metabolic abnormalities in this population and the differential contribution, if any, of HIV specific factors to their distribution, are poorly understood. Therefore, we conducted a systematic review and meta-analysis to estimate the global prevalence of metabolic syndrome (MS) in HIV-infected populations, its variation by the different diagnostic criteria, severity of HIV infection, ART used and other major predictive characteristics. METHODS: We performed a comprehensive search on major databases for original research articles published between 1998 and 2015. The pooled overall prevalence as well as by specific groups and subgroups were computed using random effects models. RESULTS: A total of 65 studies across five continents comprising 55094 HIV-infected participants aged 17-73 years (median age 41 years) were included in the final meta-analysis. The overall prevalence of MS according to the following criteria were: ATPIII-2001:16.7% (95%CI: 14.6-18.8), IDF-2005: 18% (95%CI: 14.0-22.4), ATPIII-2004-2005: 24.6% (95%CI: 20.6-28.8), Modified ATPIII-2005: 27.9% (95%CI: 6.7-56.5), JIS-2009: 29.6% (95%CI: 22.9-36.8), and EGIR: 31.3% (95%CI: 26.8-36.0). By some MS criteria, the prevalence was significantly higher in women than in men (IDF-2005: 23.2% vs. 13.4, p = 0.030), in ART compared to non-ART users (ATPIII-2001: 18.4% vs. 11.8%, p = 0.001), and varied significantly by participant age, duration of HIV diagnosis, severity of infection, non-nucleoside reverse transcriptase inhibitors (NNRTIs) use and date of study publication. Across criteria, there were significant differences in MS prevalence by sub-groups such as in men, the Americas, older publications, regional studies, younger adults, smokers, ART-naive participants, NNRTIs users, participants with shorter duration of diagnosed infection and across the spectrum of HIV severity. Substantial heterogeneities across and within criteria were not fully explained by major study characteristics, while evidence of publication bias was marginal. CONCLUSIONS: The similar range of MS prevalence in the HIV-infected and general populations highlights the common drivers of this condition. Thus, cardio-metabolic assessments need to be routinely included in the holistic management of the HIV-infected individual. Management strategies recommended for MS in the general population will likely provide similar benefits in the HIV-infected.

Introduction: Anal cancer in men who have sex with men (MSM) living with HIV is an important issue but there are no consistent guidelines for how to screen for this cancer. In settings where screening with anal cytology is unavailable, regular anal examinations have been proposed in some guidelines but their cost-effectiveness is unknown. METHODS: Our objective was to estimate the cost-effectiveness of regular anal examinations to screen for anal cancer in HIV-positive MSM living in Australia using a probabilistic Markov model. Data sources were based on the medical literature and a clinical trial of HIV-positive MSM receiving an annual anal examination in Australia. The main outcome measures for calculating effectiveness were undiscounted and discounted (at 3%) lifetime costs, life years gained, quality-adjusted life years (QALY) gained and incremental cost-effectiveness ratio (ICER). RESULTS: Base-case analysis estimated the average cost of screening for and management of anal cancer ranged from $195 for no screening to $1,915 for lifetime annual screening of men aged >/= 50. Screening of men aged >/= 50 generated ICERs of $29,760 per QALY gained (for screening every four years), $32,222 (every three years) and $45,484 (every
two years). Uncertainty for ICERs was mostly influenced by the cost (financially and decrease in quality of life) from a false-positive result, progression rate of anal cancer, specificity of the anal examination, the probability of detection outside a screening program and the discount rate. CONCLUSIONS: Screening for anal cancer by incorporating regular anal examinations into routine HIV care for MSM aged >/= 50 is most likely to be cost-effective by conventional standards. Given that anal pap smears are not widely available yet in many clinical settings, regular anal exams for MSM living with HIV to detect anal cancer earlier should be implemented.


Pan, Y., et al. (2016). "Gender Differences in HIV Sexual Risk Behaviors Among Clients of Substance Use Disorder Treatment Programs in the U.S." Arch Sex Behav.

This study examined differences in sexual risk behaviors by gender and over time among 1281 patients (777 males and 504 females) from 12 community-based substance use disorder treatment programs throughout the United States participating in CTN-0032, a randomized control trial conducted within the National Drug Abuse Treatment Clinical Trials Network. Zero-inflated negative binomial and negative binomial models were used in the statistical analysis. Results indicated significant reductions in most types of sexual risk behaviors among substance users regardless of the intervention arms. There were also significant gender differences in sexual risk behaviors. Men (compared with women) reported more condomless sex acts with their non-primary partners (IRR = 1.80, 95 % CI 1.21-2.69) and condomless anal sex acts (IRR = 1.74, 95 % CI 1.11-2.72), but fewer condomless sex partners (IRR = 0.87, 95 % CI 0.77-0.99), condomless vaginal sex acts (IRR = 0.83, 95 % CI 0.69-1.00), and condomless sex acts within 2 h of using drugs or alcohol (IRR = 0.70, 95 % CI 0.53-0.90). Gender-specific intervention approaches are called for in substance use disorder treatment.


We sought to determine preferences for oral versus long-acting injectable (LAI) PrEP among gay and bisexual men (GBM). We surveyed a national U.S. sample of 1071 GBM about forms of PrEP. LAI PrEP was found to be acceptable among 43.2 % of men when injected monthly compared with 53.6 % of men when injected every 3 months. When asked to choose between forms of PrEP, 46.0 % preferred LAI, 14.3 % oral, 21.7 % whichever was most effective, 10.1 % had no preference, and 7.8 % would not take PrEP. There were no differences in PrEP preferences by race/ethnicity, income, region of residence, or relationship status. Those unwilling to take PrEP were significantly older than those who preferred LAI PrEP and those who would take either. Those who preferred the most effective form were younger, had less education, and reported more recent club drug use. Those who reported condomless anal sex and those who thought they were good PrEP candidates were more willing to take PrEP. Long-term health and side effects were of the greatest concern for both LAI and oral PrEP. The availability of LAI PrEP has the potential to increase uptake among GBM. The results of ongoing clinical trials of LAI PrEP will need to demonstrate similar or greater efficacy as daily Truvada for uptake to be maximized.


Men who have sex with men (MSM) in primary relationships engage in condomless sex both within and outside their relationships and a majority of HIV transmission risk may actually occur within primary relationships. Sexual agreements regarding non-monogamy are a critical component to understanding HIV prevention in male couples. Relationship factors have been associated with how sexual agreements function and power is one dyadic construct likely to affect couple’s maintenance of non-monogamy agreements. Multilevel modeling was used in a cross-sectional study of gay male couples (N = 566 couples) to examine associations between partners’ demographic characteristics traditionally used to define relationship power, a scale of decision-making power, and outcomes related to sexual agreements, including investment, agreement breaks, and break
disclosure. Results indicated that decision-making power relative to one's partner was not associated with any agreement outcome, contrary to hypotheses. However, controlling for decision-making power, demographic bases of power were variably associated with sexual agreements' functioning. Younger partners were less invested in and more frequently broke their agreements. Lower-earning partners broke their agreements more frequently, but also disclosed breaks more often. White men in white-minority relationships broke their agreement more often than their partners. Concordant HIV-positive couples were less invested in their agreements and HIV-positive men disclosed breaks more frequently. HIV prevention efforts for same-sex couples must attend to the social, developmental, and cultural influences that affect their agreements around non-monogamy.


In some studies, situational factors have been shown to be stronger predictors of condomless sex than individual risk factors. Cross-sectional relationships between condomless anal sex (CAS) with HIV-serodiscordant partners and risk factors across ecological levels (individual, sexual environment) were examined using a sample (N = 60) of HIV-positive men who have sex with men (MSM) who reported multiple recent episodes of CAS. Negative binomial regressions were used to evaluate the association of contextual risk factors (e.g., substance use during sex, transactional sex, public sex, sex at a sex party) with recent condomless sex, controlling for demographics and mental health. Results demonstrated that sexual environment factors, particularly sex under the influence of drugs or alcohol (B = .019, p < .05), transactional sex (B = .035, p < .01), and public sex (B = .039, p < .01) explained a large proportion of the variance in CAS. Only sex at a sex party was not related to CAS (p = .39). For each additional sexual environment in which men engaged, their rates of CAS increased (B = .39, p < .01). Secondary prevention interventions that are tailored to the proximal sexual environment could be maximally effective, particularly if they address substance use and other challenging sexual situations.


Apart from individual alcohol drinking behavior, the context or places where people drink play a significant role in HIV transmission risk. In this paper, we review the research that has been conducted on alcohol venues to identify the social and structural factors (e.g., social norms, sexual behavior) that are associated with HIV risk in these places, to review HIV prevention interventions based in alcohol venues, and to discuss appropriate methodologies for alcohol venue research. Alcohol venues are defined here as places that sell or serve alcohol for onsite consumption, including bars, bottle stores, nightclubs, wine shops, and informal shebeens. Despite the many established HIV risk factors at play in alcohol venues, limited prevention strategies have been implemented in such places. A total of 11 HIV prevention interventions or programs were identified. HIV prevention interventions in alcohol venues may be conducted at the individual, social, or structural level. However, multilevel interventions that target more than one level appear to lead to the most sustainable behavior change. Strategies to incorporate alcohol venues in biomedical prevention strategies including antiretroviral therapy for alcohol users are also discussed.


In Africa, men are more likely to die of AIDS than women and wealthier men are more likely to be HIV+ than poorer men. International AIDS policies and programs typically depict women as unquestioningly vulnerable; men are overlooked. Campaigns that overlook wealthy men distort the complex social and cultural dynamics of the epidemic.

Why have African men been largely overlooked in HIV policy and programs, while poor women are almost always targeted? Men are more likely to die of AIDS than women, and multiple studies in Africa find that wealthier men are more likely to be infected with HIV than are poor men. We draw on survey and ethnographic data from rural Malawi, a country in southeastern Africa that has experienced a major AIDS epidemic, to examine this puzzle of the “missing men.” Using longitudinal survey data collected at the height of Malawi’s epidemic, we find that not only are wealthy urban men more likely to be HIV positive, but so too are rural men who are wealthy by rural standards. We further advance our argument using ethnographic data to show that rural
Malawians understand that men with money are a risk, both to themselves and others. We then systematically analyze HIV policies and documents from the World Health Organization (WHO), UNAIDS, and the President’s Emergency Program for AIDS Relief (PEPFAR)—large international organizations at the forefront of responding to AIDS—to identify the extent to which women and men and poverty and wealth appear as targets. We present evidence showing that women, who appear in these documents more than twice than do men, are framed as unquestionably vulnerable and in need of aid, whereas men are overlooked. We argue that the international discourse on AIDS in Africa cannot be conceived of as separate from the broader discourses of economic development. The campaigns by international donors and NGOs to protect poor women while sideling men with money gives an incomplete picture of AIDS epidemics.


BACKGROUND: Violence against sex workers can heighten their vulnerability to HIV and other sexually transmitted infections (STIs). Evidence suggests the risk of acquiring STI/HIV infections among female sex workers (FSWs) who have experienced violence to be almost three-times higher than FSWs, who have not experienced violence. Moreover, an experience of physical and sexual violence makes it difficult for them to negotiate safer sex with their partners and often act as a barrier to utilization of prevention services. METHODS: This study utilizes data from 2785 FSWs aged 18 years and above who participated in a cross-sectional behavioural study conducted during 2013-14 in Thane district, Maharashtra. A probability-based two-stage cluster sampling method was used for data collection. This study assesses the effect of physical violence on self-reported STI symptoms (any STI and multiple STIs) and treatment seeking for the last STI symptom using propensity score matching method. RESULTS: About 18% of sampled FSWs reported physical violence at the time of the survey. The likelihood of experiencing such violence was significantly higher among FSWs who solicited clients at public places, engaged in other economic activities apart from sex work, had savings, and reported high client volume per week. FSWs experiencing violence were also inconsistent condom users while engaging in sex with regular partners and clients. The average adjusted effect of violence clearly depicted an increase in the risk of any STI (11%, p<0.05) and multiple STIs (8%, p<0.10) and reduction in treatment seeking (10%, p<0.05). CONCLUSIONS: This study demonstrates a significant effect of physical violence on reporting of any STI symptom and treatment seeking. Findings call for the immediate inclusion of strategies aimed to address violence related challenges in HIV prevention program currently being provided at Thane district. Such strategies would further help in enhancing the access to tailored STI prevention and care services among FSWs in the district.

Raffetti, E., et al. (2016). "The risk of late or advanced presentation of HIV infected patients is still high, associated factors evolve but impact on overall mortality is vanishing over calendar years: results from the Italian MASTER Cohort." BMC Public Health 16(1): 878.

BACKGROUND: We aimed at evaluating frequency and factors associated with late presentation and advanced HIV disease and excess risk of death due to these conditions from 1985 to 2013 among naive HIV infected patients enrolled in the Italian MASTER Cohort. METHODS: All antiretroviral naive adults with available CD4+ T cell count after diagnosis of HIV infection were included. Multivariable logistic regression analysis investigated factors associated either with late presentation or advanced HIV disease. Probabilities of survival were estimated both at year-1 and at year-5 according to the Kaplan-Meier method. Flexible parametric models were used to evaluate changes in risk of death overtime according to the Kaplan-Meier method. Flexible parametric models were used to evaluate changes in risk of death overtime according to the Kaplan-Meier method. Flexible parametric models were used to evaluate changes in risk of death overtime according to the Kaplan-Meier method. 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survival decreased, about 10% of patients diagnosed in more recent years remains at increased risk of death over a long-term follow-up.


BACKGROUND: Late HIV diagnosis is associated with higher medical costs, early mortality among individuals, and HIV transmission in the population. Even under optimal configurations of stable or declining HIV incidence and increase in HIV case findings, no change in proportion of late HIV diagnosis is projected after year 2019. We investigated the association among social capital, gender, and late HIV diagnosis. METHODS: We conduct ecological analyses (ZIP code, N = 166) using negative binomial regression of gender-specific rates of late HIV diagnoses (an AIDS defining illness or a CD4 count \( < \) 200 cell/\( \mu \)L within 12 months of a new HIV diagnosis) in 2005 and 2006 obtained from the New York City HIV Surveillance Registry, and social capital indicators (civic engagement, political participation, social cohesion, and informal social control) from the New York Social Indicators Survey, 2004. RESULTS: Overall, low to high political participation and social cohesion corresponded with significant (P < 0.0001) decreasing trends in late HIV diagnosis rates. Among men [relative risk (RR) = 0.66, 95% CI: (0.47 to 0.98)] and women [RR = 0.43, 95% CI: (0.28 to 0.67)], highest political participation was associated with lower relative odds of late HIV diagnosis, independent of income inequality. Highest informal social control [RR = 0.67, 95% CI: (0.48 to 0.93)] among men only and moderate social cohesion [RR = 0.71, 95% CI: (0.55 to 0.92)] among women only were associated with the outcome adjusting for social fragmentation, income inequality, and racial composition. DISCUSSION: The magnitude of association between social capital and late HIV diagnosis varies by gender and by social capital indicator.


BACKGROUND: Trading sex for drugs or money is common in substance abuse treatment patients, and this study evaluated prevalence and correlates of this behavior in women with cocaine use disorders initiating outpatient care. In addition, we examined the relation of sex trading status to treatment response in relation to usual care versus contingency management (CM), as well as predictors of continued involvement in sex trading over a 9-month period. METHODS: Women (N=493) recruited from outpatient substance abuse treatment clinics were categorized according to histories of sex trading (n=215, 43.6%) or not (n=278). RESULTS: Women with a history of trading sex were more likely to be African American, older and less educated, and they had more severe employment problems and were more likely to be HIV positive than those without this history. Controlling for baseline differences, both groups responded equally to substance abuse treatment in terms of retention and abstinence outcomes. Fifty-four women (11.3%) reported trading sex within the next nine months. Predictors of continued involvement in trading sex included a prior history of such behaviors and achieving less abstinence during treatment. Each additional week of abstinence during treatment was associated with a 16% reduction in the likelihood of trading sex over the follow-up. CONCLUSIONS: Because over 40% of women receiving community-based treatment for cocaine use disorders have traded sex for drugs or money and more than 10% persist in the behavior, more intensive and directed approaches toward addressing this HIV risk behavior are recommended.


HIV in the United States is concentrated in populations such as men who have sex with men (MSM), people who inject drugs (PWID), women of color and people living in poverty. These populations are labeled high-risk for HIV infection because of the higher levels of HIV or HIV risk taking behaviors seen in these groups compared to other sub-populations. It is also possible that a group may engage in behaviors that are "high-risk" for HIV infection but never become infected since HIV is not present or not present to a great extent in their social or sexual networks. We analyzed samples of MSM, PWID and high-risk heterosexuals (HRH) collected through the National HIV Behavioral Surveillance (NHBS) system in San Francisco to examine HIV risk taking and HIV burden to determine if the label "high-risk" is appropriately applied. NHBS samples MSM using time location sampling and PWID and HRH using Respondent Driven Sampling. We sampled 508 MSM in 2011, 570 PWID in 2012 and 267 HRH in 2013. There
were, as expected, differences in demographic characteristics across the three groups. HRH had a greater number of high-risk behaviors compared to MSM and PWID but had the lowest HIV prevalence. Focusing on risk behavior alone to label populations without considering the background HIV prevalence in communities, the types of risks engaged in and actual HIV infections may obscure which populations truly merit the label "high-risk" for HIV infection.


Young adult transgender men who have sex with men (TMSM) engage in sexual behaviors that place them at risk of sexually transmitted infections (STIs) including HIV. To date, no HIV and STI prevention interventions have been developed specifically for young adult TMSM. To address this gap, the current study aimed to (1) adapt a small group-based behavioral HIV prevention intervention designed for young transgender women ("LifeSkills") to address the unique HIV and STI prevention needs of young TMSM ages 18-29 years and (2) conduct a pilot evaluation of the intervention ("LifeSkills for Men"; LS4M). LS4M was carried out in an iterative approach with community input along the way, which allowed for refinement of the intervention manual and enhanced participant acceptability. A LS4M Task Force was convened to guide intervention development/adaptation and study implementation. Initially, focus groups were conducted to examine the sexual health needs, concerns, and stressors facing young TMSM (n = 12; mean age = 23.8 years; 16.7% people of color). Next, LS4M was pilot tested (n = 17; mean age = 24.3 years; 23.5% people of color) to assess acceptability with the study population and feasibility of all study procedures. Overall attendance, participation rates, and positive feedback from participants demonstrate that LS4M is highly acceptable and feasible to carry out with young TMSM. Trends in outcome measures across 4 months of follow-up suggest that participation in the intervention may improve mental health, reduce internalized stigma, and reduce HIV- and STI-related risk behaviors. Further testing of the intervention enrolling young TMSM with recent sexual risk behavior at baseline and with a control group is warranted. Lessons learned for future work with young TMSM are discussed.


We tested an intervention designed to increase human immunodeficiency virus (HIV) testing among men who have sex with men and transgender persons within existing and commonly used social media. At follow-up, intervention communities had significantly higher past 12-month HIV testing than the comparison communities. Findings suggest that promoting HIV testing via social media can increase testing.


IMPORTANCE: A key factor in assessing the effectiveness and cost-effectiveness of antiretroviral therapy (ART) as a prevention strategy is the absolute risk of HIV transmission through condomless sex with suppressed HIV-1 RNA viral load for both anal and vaginal sex. OBJECTIVE: To evaluate the rate of within-couple HIV transmission (heterosexual and men who have sex with men [MSM]) during periods of sex without condoms and when the HIV-positive partner had HIV-1 RNA load less than 200 copies/mL. DESIGN, SETTING, AND PARTICIPANTS: The prospective, observational PARTNER (Partners of People on ART-A New Evaluation of the Risks) study was conducted at 75 clinical sites in 14 European countries and enrolled 1166 HIV serodifferent couples (HIV-positive partner taking suppressive ART) who reported condomless sex (September 2010 to May 2014). Eligibility criteria for inclusion of couple-years of follow-up were condomless sex and HIV-1 RNA load less than 200 copies/mL. Anonymized phylogenetic analysis compared couples' HIV-1 polymerase and envelope sequences if an HIV-negative partner became infected to determine phylogenetically linked transmissions. EXPOSURES: Condomless sexual activity with an HIV-positive partner taking virally suppressive ART. MAIN OUTCOMES AND MEASURES: Risk of within-couple HIV transmission to the HIV-negative partner. RESULTS: Among 1166 enrolled couples, 888 (mean age, 42 years [IQR, 35-48]; 548 heterosexual [61.7%] and 340 MSM [38.3%]) provided 1238 eligible couple-years of follow-up (median follow-up, 1.3 years [IQR, 0.8-2.0]). At baseline, couples reported condomless sex for a median of 2 years (IQR, 0.5-6.3). Condomless sex with other partners was reported by 108 HIV-negative MSM (33%) and 21 heterosexuals (4%). During follow-up, couples reported condomless sex a
median of 37 times per year (IQR, 15-71), with MSM couples reporting approximately 22,000 condomless sex acts and heterosexuals approximately 36,000. Although 11 HIV-negative partners became HIV-positive (10 MSM; 1 heterosexual; 8 reported condomless sex with other partners), no phylogenetically linked transmissions occurred over eligible couple-years of follow-up, giving a rate of within-couple HIV transmission of zero, with an upper 95% confidence limit of 0.30/100 couple-years of follow-up. The upper 95% confidence limit for condomless anal sex was 0.71 per 100 couple-years of follow-up. CONCLUSIONS AND RELEVANCE: Among serodifferent heterosexual and MSM couples in which the HIV-positive partner was using suppressive ART and who reported condomless sex, during median follow-up of 1.3 years per couple, there were no documented cases of within-couple HIV transmission (upper 95% confidence limit, 0.30/100 couple-years of follow-up). Additional longer-term follow-up is necessary to provide more precise estimates of risk.


Antiretroviral therapy (ART) has reshaped the lives of millions of individuals infected with human immunodeficiency virus (HIV). Patients initiating ART early in the course of infection benefit from a considerable reduction in the risks of acquired immune deficiency syndrome (AIDS) and HIV-related inflammatory events. However, the absence of cure and lifelong requirements of treatment highlight the need of a vaccine and an immunotherapeutic strategy. Like for cancer, a paradigm shift has occurred with the contribution of immune activation and microbial translocation priming aberrant systemic immunity in restricting the ability of the host to mount an effective immune response. The approaches of implementing an effective vaccine to prevent infection and inhibition of immune activation with breakage of viral latency followed by vaccination should lead to an HIV-free generation.

Rowe, C., et al. (2016). "Correlates of recent HIV testing among substance-using men who have sex with men." Int J STD AIDS.

Men who have sex with men are disproportionately impacted by HIV and substance use is a key driver of HIV risk and transmission among this population. We conducted a cross-sectional survey of 3242 HIV-negative substance-using men who have sex with men aged 18 + in the San Francisco Bay Area from March 2009 to May 2012. Demographic characteristics and sexual risk and substance use behaviors in the last six months were collected using structured telephone questionnaires. We used multivariable logistic regression to identify independent demographic and behavioral predictors of recent HIV testing. In all, 65% reported having an HIV test in the last six months. In multivariable analysis, increasing age (aOR = 0.87, 95% CI = 0.84-0.90) and drinking alcohol (<1 drink/day: 0.65, 0.46-0.92; 2-3 drinks/day: 0.64, 0.45-0.91; 4 + drinks/day: 0.52, 0.35-0.78) were negatively associated with recent HIV testing. Having two or more condomless anal intercourse partners (2.17, 1.69-2.79) was positively associated with having a recent HIV test, whereas condomless anal intercourse with serodiscordant partners was not significantly associated with testing. Older men who have sex with men and those who drink alcohol may benefit from specific targeting in efforts to expand HIV testing. Inherently riskier discordant serostatus of partners is not as significant a motivator of HIV testing as condomless anal intercourse in general.


African American men who have sex with men (AAMSM) are vastly overrepresented among people with HIV/AIDS. Using data from 595 AAMSM in Philadelphia, we explored differences in sociodemographics, psychosocial characteristics related to beliefs about ethnicity, sexuality and masculinity, and sexual behavior with men and women by self-reported sexual identity (gay, bisexual, down low, straight). Roughly equivalent numbers identified as gay (40.6 %) and bisexual (41.3 %), while fewer identified as straight (7.6 %) or down low (10.5 %), with significant differences in age, income, history of incarceration, HIV status, alcohol and drug problems, childhood sexual abuse, and connection to the gay community evident among these groups. Analysis of psychosocial characteristics theorized to be related to identity and sexual behavior indicated significant differences in masculinity, homophobia, and outness as MSM. Gay and straight men appeared to be poles on a continuum of frequency of sexual behavior, with bisexual and down low men being sometimes more similar to gay men and sometimes more similar to straight men. The percentage of men having total intercourse of any kind was highest among down low and lowest among gay
men. Gay men had less intercourse with women, but more receptive anal intercourse with men than the other identities. There were no significant differences by identity in frequency of condomless insertive anal intercourse with men, but gay men had significantly more condomless receptive anal intercourse. There were significant differences by identity for condomless vaginal and anal intercourse with women. This study demonstrates the importance of exploring differences in types of sex behavior for AAMSM by considering sexual identity.


The double-blind phase of the randomized ANRS IPERGAY trial, evaluating sexual activity-based oral HIV pre-exposure prophylaxis (PrEP), was conducted among high-risk men who have sex with men (MSM). Results showed an 86% (95% CI: 40-98) relative reduction in HIV incidence among participants with tenofovir disoproxil fumarate-emtricitabine vs. placebo. The present pooled analysis aimed to analyze (i) participants' adherence to the prescribed treatment and/or condom use during sexual intercourse and (ii) sexual behavior during the double-blind phase of the study. Four hundred MSM were enrolled in the trial. Every 2 months they completed online questionnaires collecting sexual behavior and PrEP adherence data regarding their most recent sexual intercourse. A total of 2232 questionnaires (M0-M24) were analyzed. Changes over time were evaluated using a mixed model accounting for multiple measures. Irrespective of sexual partner and practice type, on average, 42.6% (min: 32.1-max: 45.8%) reported PrEP use only during their most recent episode of sexual intercourse; 29% (22.9-35.6%) reported both PrEP and condom use; 11.7% (7.2-18.9%) reported condom-use only, and 16.7% (10.8-29.6%) reported no PrEP or condom use with no significant change during the study. Scheduled (i.e., correct) PrEP use was reported on average by 59.0% (47.2-68.5%) of those reporting PrEP use during their most recent sexual intercourse. Overall, 70.3% (65.3-79.4%) and 69.3% (58.3-75.4%) of participants reported, respectively, condomless anal and condomless receptive anal intercourse during their most recent sexual encounter without significant change during follow-up. Overall, on average 83.3% (min: 70.4-max: 89.2%) of participants protected themselves by PrEP intake or condom use or both during the trial, and no increase in at-risk sexual practices was observed. None of these indicators showed significant trend during the follow-up, although we found a tendency toward decrease (p = .19) of the median number of sexual partners strengthening the absence of behavioral disinhibition. On-demand PrEP within a comprehensive HIV prevention package could improve prevention in MSM.


BACKGROUND: There are no effective pharmacologic strategies for nondependent methamphetamine (meth)-using and binge-drinking men who have sex with men (MSM) at high-risk for HIV. We sought to determine the feasibility of enrolling and retaining this population in a pharmacologic trial; the acceptability of pharmacotherapy study procedures; and the tolerability of targeted naltrexone versus placebo. METHODS: Thirty meth-using and binge-drinking MSM were randomly assigned 1:1 to 50 mg naltrexone or placebo for 8 weeks for targeted administration (ie, during craving or in anticipation of meth or alcohol use). Substance use counseling and behavioral assessments were conducted every 2 weeks. Medication use was measured using WisePill dispensers. RESULTS: Trial completion was 93%; visit completion rate was 95%. Mean weekly number of medication pills taken was 2.1 and was similar between arms. Participant satisfaction rate was 96%. There were neither serious adverse events nor differences in adverse event rates between arms. In exploratory intention-to-treat analyses, there were no differences in meth use and drinking. Naltrexone participants had greater reductions in serodiscordant receptive anal intercourse [incident rate ratio (IRR) = 0.15; 95% CI = 0.05 to 0.42] and serodiscordant condomless receptive anal intercourse (IRR = 0.11; 95% CI = 0.03 to 0.37), compared with placebo. In subgroup analyses among frequent meth users, naltrexone participants had greater reductions in meth-using days (IRR = 0.78; 95% CI = 0.62 to 0.99). In as-treated analyses, frequent study medication users in the naltrexone arm had greater reductions in binge drinking days (IRR = 0.72; 95% CI = 0.54 to 0.97). CONCLUSIONS: Targeted naltrexone is a feasible, acceptable, and tolerable intervention strategy for nondependent meth-using and binge-drinking MSM. Naltrexone was
associated with significant sexual risk reductions; and for some individuals, naltrexone was associated with meth and binge-drinking reductions.


HIV prevalence remains high in men who have sex with men (MSM) in Bangkok. Even though resources for HIV testing and treatment are available for all, a large proportion of MSM still do not get HIV tested. We studied high risk MSM who are unaware of their HIV status to help maximize effectiveness of our resources. Convenience sampling was conducted among MSM who came for HIV testing at the Thai Red Cross Anonymous Clinic and two popular drop-in centers in Bangkok. Inclusion criteria were MSM aged >18 years, have not been tested positive for HIV, who reported >1 of the following in the previous 6 months: condomless sex with a male, being a sex worker, or having a sexual transmitted infection diagnosis. Audio-Computer-Assisted Self-Interview was used to assess psychosocial profile, sexual risks, and HIV testing patterns prior to being informed of their HIV positive status. Among 499 high-risk MSM enrolled, the median age was 24.8 years and 112 (22 %) tested HIV-positive. Among the HIV-positive participants, 92 % self-identified as gay (versus bisexual), 39 % attained a bachelors degree or higher, 65 % had monthly income 10,000-29,999 baht ($280-830 USD), 10 % had vaginal or anal sex with a woman in the past 12 months, 39 % had condomless receptive sex with men and 21 % went to Lat Phrao to find a sexual partner. Compared to HIV negative MSM, HIV-positive MSM had less HIV testing: 31 % had ever been tested for HIV, 12 % had been tested in the past 6 months; but were more likely to guess correctly their positive status (31 %). Regarding psychosocial variables among HIV-positive MSM, 7 % had regular methamphetamine use in the past 3 months, 10 % had >2 sources of discrimination, and 8 % had >2 sources of discrimination due to being MSM. In multivariable model, age<30 year old, self-identified as gay, had monthly income <50,000 baht ($1400 USD), had anal sex with men in past 12 months, had >2 sources of discrimination because of being MSM, did not get HIV test in past 6 months, and guess of positive HIV were significantly associated with HIV positive status. Young MSM with lower socioeconomic status (SES) should be prioritized for innovative approaches to promoting awareness and uptake of HIV testing. Societal stigmatization of MSM should be addressed as a potential barrier to uptake of voluntary HIV testing. Resilience factors among these marginalized MSM who still test frequently and remain HIV-negative despite residing in a context with community viral loads and discrimination should also be studied in order to curb the HIV epidemic in Bangkok.


Although HIV prevalence remains high among Bangkok’s MSM early HIV testing as an entry point to ART has not been successfully implemented among in this population. Men who present late for initial HIV testing are a particular concern in the context of the Bangkok HIV epidemic, in that if long-term positives have had condomless sex during the time that they remained untreated they are likely to have been efficient transmitters of infection, to say nothing of the implications for their own health. A sequential sample of MSM who tested HIV positive, and CD4 counts, was taken at the Thai Red Cross Anonymous Clinic and two drop-in centers in Bangkok. Inclusion criteria were MSM aged >18 years, having not tested HIV positive earlier, who reported >1 of the following in the previous 6 months: condomless sex with a male, being a sex worker, or having a sexual transmitted infection (STI) diagnosis. Analysis was conducted by distinguishing between three groups of CD4 counts: <200, 200-500, >500 cells/mu to identify the social and behavioral characteristics of the men who presented late for HIV testing. Median CD4 was 325 cells/mu(n = 95). MSM with initial CD4< 200 cells/mu were significantly more likely to report problematic alcohol use. They were also more likely to report receptive anal sex and more likely to be engaged in sex work. MSM with CD4< 200 cells/mu were less likely to report recent HIV testing. Main barriers to HIV testing included being afraid of finding out that they were HIV positive and concerns about efficacy and side effects of HIV treatment. HIV stigma and concerns about treatment are still widespread and are potential barriers to HIV care among MSM in Bangkok. These barriers may work to keep men from finding out their positive HIV status in a timely manner. Thai MSM need to be made aware of the current availability of friendly HIV testing and ART services, and public health programs need to work to change their perceptions regarding ART itself. These same types of strategies might also work to destigmatize HIV and MSM within Thai society as a whole.
Men who have sex with men (MSM) are disproportionately affected by HIV. Although some theoretical models created to explain why individuals engage in risky sexual behavior contain an affective component, there has been relatively little focus on the influence of affect on sexual risk-taking. The goal of this study is to investigate the association between affect and condom use among MSM using an archival dataset from a survey of users of a popular sex-oriented website. Multilevel modeling was used to analyze daily diary data from 2871 MSM. At the within-person level, positive affect was positively related to condomless anal sex (CAS), whereas negative affect was negatively related to CAS. However, these results were qualified by interactions of trait affect and relationship to sex partner. These findings suggest that interventions focused on emotional regulation may have the potential to reduce CAS among MSM.

Condomless anal intercourse among transgender women (TW) in Peru has been shown to vary by the type of partner involved (e.g. primary vs. casual vs. transactional sex partner), but no previous studies have explored variations in partner-level patterns of condom use according to type of anal intercourse. We evaluated the relationship between partnership characteristics and condom use during insertive (IAI) versus receptive anal intercourse (RAI) among TW with recent, non-female partners. Condomless IAI was more common with transactional and casual sex partners and by TW who self-reported HIV-uninfected serostatus (p < 0.05), alcohol use disorders, or substance use before sex. Condomless RAI was more common with primary partners and by TW who described their HIV serostatus as unknown (p < 0.05). Examining partner-level differences between condomless IAI and RAI reveals distinct patterns of HIV/STI risk among TW, suggesting a need for HIV prevention strategies tailored to the specific contexts of partners, practices, and networks.

The study of collectivism has implications for HIV prevention research, especially in studies that use a social networking or community mobilization approach. However, research on collectivism in race/ethnicity and sexual minority groups is limited. We psychometrically evaluated a brief version of the Individualism-Collectivism Interpersonal Assessment Inventory (ICIAI) in a chain-referral sample of 400 Latino, 393 Asian/Pacific Islander, and 403 African American men who have sex with men (MSM). Data were collected via a one-time survey on demographics, the ICIAI, acculturation, and ethnicity identity. We conducted a multiple groups confirmatory factor analysis to assess for measurement invariance across the three groups of MSM, as well as tested its reliability and validity. The ICIAI evidenced good psychometric properties and was invariant across all groups. We highlight implications for how this measure of collectivism can be applied toward the study of HIV prevention and in lesbian, gay, bisexual and transgender communities.


The last decade has seen a dramatic increase in the availability of sexually explicit media (SEM) on the Internet. Men who have sex with men (MSM) report near universal use of SEM. However, this widespread use of SEM among MSM may contribute to more condomless anal sex. To examine the association of viewing SEM on the Internet and the number of condomless anal sex encounters among MSM, in 2012, an online survey was conducted of 265 MSM from New York, Philadelphia, Baltimore, or Washington D.C. who reported viewing SEM online in the past 3 months. Analyses were performed using negative binomial regression. Nearly all men reported viewing SEM featuring anal sex with (91%) or without (92%) condoms in the past 3 months.
Neither viewing more hours of SEM per week or compulsively viewing SEM were associated with more condomless anal sex encounters. Rather, viewing a greater proportion of SEM containing condomless anal sex was associated with engaging in more condomless anal encounters (IRR = 1.25), while viewing a greater proportion of SEM containing anal sex where condoms were used was associated with fewer condomless anal sex encounters (IRR = 0.62). MSM reported that viewing SEM caused changes in their sexual fantasies, desires, and behaviors. These findings provide important insights for health policy and the design of interventions addressing SEM and condomless sex among MSM. The findings suggest that condom use by SEM performers may benefit not only actor health, but also have health implications for SEM viewers.


This paper explores the interaction between gender-based violence and alcohol use and their links to vulnerability to HIV-infection in a population of women and their regular male partners in Kampala, Uganda. Data derive from 20 life history interviews (10 women and 10 men). Participants were drawn from a cohort of women at high risk of sexually transmitted infection (including HIV). Six of the women were current or former sex workers. Findings reveal that life histories are characterised by recurrent patterns of gender inequity related to violence, limited livelihood options and socioeconomic disadvantage. Overall, findings suggest women are able to negotiate safer sex and protect themselves better against abuse and violence from clients than from their intimate partners, although the status of men as 'client' or 'partner' is transitory and fluid. Among male respondents, alcohol led to intimate partner violence and high levels of sexual-risk taking, such as engagement with sex workers and reduced condom use. However, male partners are a heterogeneous group, with distinct and contrasting attitudes towards alcohol, condom use and violence. Actions to address gender-based violence need to be multi-pronged in order to respond to different needs and circumstances, of both women and men.


INTRODUCTION: Female sex workers (FSWs) are the second most affected population by HIV in Iran. However, their HIV testing practices are poorly understood. The aim of this study was to investigate testing and its associated factors among HIV negative FSWs. MATERIALS AND METHODS: Using facility based sampling, 1005 FSWs were recruited in 14 cities of Iran in 2010. Biological and survey data were collected through dried blood spot testing and standardized risk assessment questionnaire, respectively. In this paper, the prevalence of HIV testing and its correlates were explored among 714 HIV-negative FSWs using descriptive statistics and logistic regression models. RESULTS: Overall 65.4% had not tested in the past year. Only 27.5% had tested in the past year and received their results. FSWs who perceived themselves at risk of HIV (Adjusted Odds Ratio (AOR) = 8.35, 95% CI: 1.46, 47.6), had received free condom during past year (AOR = 3.90, 95% CI: 1.67, 9.14), started sex work at an older age (AOR18-24 = 2.83, 95% CI: 1.14, 7.0; AOR >24 = 2.76, 95% CI: 1.11, 6.84), and knew an HIV testing site (AOR = 5.67, 95% CI: 2.60, 12.4) had a significantly higher chance of having a recent HIV test result. CONCLUSIONS: Less than one third of FSWs in Iran knew their recent HIV status. Interventions to help FSWs evaluate their potential risk for HIV and integrate HIV testing services in condom distribution programs, could be viable strategies in increasing HIV testing uptake among FSWs. Health policy makers should also try to de-stigmatize HIV testing, identify the barriers to HIV testing, and make HIV testing sites more visible to FSWs.


Although alcohol consumption is frequently perceived as a driver of condomless sex and subsequent HIV acquisition, the causal nature of this relationship remains unclear, and little is known about alcohol's direct versus indirect impact on the sexual risk dynamics of those who are HIV-positive. To address this gap, we present the protocol for an in-progress NIAAA-funded controlled experiment, wherein a sample of HIV-positive men-who-have-sex-with-men (MSM) undergoes an alcohol consumption...
manipulation (alcohol/placebo/control) and sexual arousal induction (sexually aroused/non-aroused), and then reports intentions to engage in condom-protected and condomless sexual acts with hypothetical sexual partners differing in HIV serostatus (HIV+/HIV-/HIV status unknown), condom use preference (use/don’t use/not stated), and physical attractiveness (attractive/unattractive). Study outcomes will identify alcohol’s impact on HIV-positive MSM’s condomless sex intentions in the context of experimentally-manipulated factors as well as risk-relevant personality traits and alcohol-related expectancies. Detailed experimental procedures, ethical considerations, and potential implications for HIV prevention are discussed.


The article reports the move by the Canadian Aboriginal Aids Network (CAAN) as of January 2016 to raise awareness on the effect of AIDS and HIV in the aboriginal community. According to CAAN’s Ken Clement, their aim is to achieve zero new infection, zero discrimination, and zero HIV-related deaths in Canada. Also cited is the comment by CAAN’s Dave Miller on their campaign.


INTRODUCTION: Pre-exposure prophylaxis (PrEP), taken as a single daily coformulated pill containing tenofovir - emtricitabine, is a promising intervention to reduce the likelihood of HIV acquisition in at-risk individuals, including men who have sex with men. Little is known about the acceptability of less than daily, intermittent PrEP regimens. METHODS: We conducted an online survey of North American men who have sex with men to characterize their sexual frequency and planning behaviors and correlate these with PrEP dosing preferences. RESULTS: Of the 3217 respondents who completed the survey, 46% reported engaging in unplanned condomless anal intercourse (CAI) at least once in previous 3 months and 8% reported engaging in CAI more than once per week. In multivariable analysis, reporting unplanned CAI was associated with lower educational level, identifying as homosexual/gay as compared with bisexual, being in a monogamous relationship, having a higher self-perceived risk of HIV acquisition, reporting higher income, engaging in CAI more than five times in the last 3 months, and not having visited a health care provider in the previous year. Frequent CAI (>1 time per week) was associated with being younger, identifying as homosexual/gay as compared with bisexual, being in a monogamous relationship, and having a higher self-perceived risk of HIV. Having only planned sex over the last 3 months was associated with a preference for event-based PrEP, whereas having frequent or unplanned CAI was associated with a preference for daily or time-driven PrEP regimens, respectively. CONCLUSION: Our findings suggest that preferences for different PrEP regimens are associated with the sexual frequency and planning behaviors of potential users.


OBJECTIVES: Stigma related to later life sexuality could produce detrimental effects for older adults, through individual concerns and limited sexual health care for older adults. Identifying groups at risk for aging sexual stigma will help to focus interventions to reduce it. Accordingly, the purpose of this study was to examine cross-sectional trends in aging sexual stigma attitudes by age group, generational status, and gender. METHOD: An online survey was administered to a national sample of adults via a crowdsourcing tool, in order to examine aging sexual stigma across age groups, generational status, and gender (N = 962; 47.0% male, 52.5% female, and .5% other; mean age = 45 years). An aging sexual stigma index was formulated from the attitudinal items of the Aging Sexual Knowledge and Attitudes Scale. RESULTS: This sample reported moderately permissive attitudes toward aging sexuality, indicating a low level of aging sexual stigma. Though descriptive data showed trends of stigma attitudes increasing with age and later generations, there were no significant differences between age groups or generations in terms of aging sexual stigma beliefs. Men, regardless of age and/or generation, were found to espouse significantly higher stigmatic beliefs than women or those reporting 'other' gender. CONCLUSIONS: Aging sexual stigma beliefs may not be prevalent among the general population as cohorts become more sexually liberal over time, though men appear more susceptible to these beliefs. However, in order to more comprehensively assess aging sexual stigma, future research may benefit from measuring explicit and implicit aging sexual stigma beliefs.
OBJECTIVE: Despite considerable advances in the prevention and treatment of HIV/AIDS, the burden of new infections of HIV and AIDS varies substantially across the country. Previous studies have demonstrated associations between increased healthcare spending and better HIV/AIDS outcomes; however, less is known about the association between spending on social services and public health spending and HIV/AIDS outcomes. We sought to examine the association between state-level spending on social services and public health and HIV/AIDS case rates and AIDS deaths across the United States. DESIGN: We conducted a retrospective, longitudinal study of the 50 U.S. states over 2000-2009 using a dataset of HIV/AIDS case rates and AIDS deaths per 100,000 people matched with a unique dataset of state-level spending on social services and public health per person in poverty. METHODS: We estimated multivariable regression models for each HIV/AIDS outcome as a function of the social service and public health spending 1 and 5 years earlier in the state, adjusted for the log of state GDP per capita, regional and time fixed effects, Medicaid spending as % of GDP, and socio-demographic, economic, and health resource factors. RESULTS: States with higher spending on social services and public health per person in poverty had significantly lower HIV and AIDS case rates and fewer AIDS deaths, both 1 and 5 years post expenditure (P \leq 0.05). CONCLUSION: Our findings suggest that spending on social services and public health may provide a leverage point for state policymakers to reduce HIV/AIDS case rates and AIDS deaths in their state.

OBJECTIVES: The expansion of gay sex-seeking application (gay app) use among men who have sex with men (MSM) may create new virtual risk environments that facilitate STI transmission. The goals of this study were to compare sexual behaviours between gay app users and non-users, and to describe sexual behaviours among gay app users in China. METHODS: In October 2014, we recruited MSM from three Chinese gay websites. Data on sociodemographics, sexual behaviours and gay app use were collected. Logistic regressions were used to compare gay app users with non-app users and to identify factors associated with condomless sex among gay app users. RESULTS: Of the 1424 participants, most were <30 years old (77.5%), single (83.8%) and self-identified as gay (72.9%). Overall, 824 (57.9%) had used gay apps for partner-seeking in the last 6 months. Among gay app users, 36.4% met their last partner within 24 hours of first message exchange through gay apps, and 59.0% negotiated condom use before sex. Compared with non-users, gay app users reported engaging in more condomless sex in the last 6 months (adjusted OR (aOR) = 1.52, 95% CI 1.19 to 1.94) and more group sex (aOR = 1.49, 95% CI 1.02 to 2.18). Negotiating condom use before in-person meeting was positively associated with condom use with partners met through gay apps (aOR = 1.83, 95% CI 1.29 to 2.60). CONCLUSIONS: Gay apps are linked to risky sexual behaviours and may foster a virtual risk environment for STI transmission among Chinese MSM. App-based interventions could target young gay men and facilitate condom negotiation.


There is limited research examining the sexual health and well-being of older women living with HIV (OWLH). Most studies focus on sexual dysfunction, leaving aside the richer context of sexuality and sexual health, including the effect of age-related psychosocial and interpersonal changes on sexual health behaviors. Guided by the integrative biopsychosocial model and the sexual health model, this study explored the importance of sex and sexuality among OWLH to identify their sexual health and HIV prevention needs for program planning. A purposive sample (n = 50) of OWLH was selected from a parent study (n = 2052). We conducted 8 focus groups and 41 in-depth interviews with 50 African American and Latina OWLH aged 50-69 years old in three U.S. cities. The triangulation approach was used to synthesize the data. Six salient themes emerged: sexual pleasure...
changes due to age, sexual freedom as women age, the role of relationships in sexual pleasure, changes in sexual ability and sexual health needs, sexual risk behaviors, and ageist assumptions about older women's sexuality. We found that sexual pleasure and the need for intimacy continue to be important for OWLH, but that changing sexual abilities and sexual health needs, such as the reduction of sexual desire, as well as increased painful intercourse due to menopause-associated vaginal drying, were persistent barriers to sexual fulfillment and satisfaction. Particular interpersonal dynamics, including low perceptions of the risk of HIV transmission as related to gender, viral suppression, and habitual condomless sex with long-term partners without HIV transmission have resulted in abandoning safer sex practices with serodiscordant partners. These findings suggest that HIV prevention for OWLH should focus on how sexual function and satisfaction intersect with sexual risk. HIV prevention for OWLH should promote ways to maintain satisfying and safe sex lives among aging women.


The United States HIV epidemic disproportionately affects Black and Hispanic men who have sex with men (MSM). This disparity might be partially explained by differences in social and sexual network structure and composition. A total of 1267 MSM in New York City completed an ACASI survey and egocentric social and sexual network inventory about their sex partners in the past 3 months, and underwent HIV testing. Social and sexual network structure and composition were compared by race/ethnicity of the egos: black, non-Hispanic (N = 365 egos), white, non-Hispanic (N = 466), and Hispanic (N = 436). 21.1% were HIV-positive by HIV testing; 17.2% reported serodiscordant and serostatus unknown unprotected anal/vaginal intercourse (SDUI) in the last 3 months. Black MSM were more likely than white and Hispanic MSM to report exclusively having partners of same race/ethnicity. Black and Hispanic MSM had more HIV-positive and unknown status partners than white MSM. White men were more likely to report overlap of social and sex partners than black and Hispanic men. No significant differences by race/ethnicity were found for network size, density, having concurrent partners, or having partners with >/=10 years age difference. Specific network composition characteristics may explain racial/ethnic disparities in HIV infection rates among MSM, including HIV status of sex partners in networks and lack of social support within sexual networks. Network structural characteristics such as size and density do not appear to have such an impact. These data add to our understanding of the complexity of social factors affecting black MSM and Hispanic MSM in the U.S.


BACKGROUND: US guidelines now recommend that all HIV-infected persons receive antiretroviral therapy. HIV prevention is increasingly focused on ensuring that infected persons are diagnosed soon after HIV acquisition and quickly link to care and initiate antiretroviral therapy. We examined trends in time from HIV diagnosis to viral load suppression in King County, WA, to gauge improvement in our HIV care continuum over time. METHODS: We used HIV surveillance data and Cox proportional hazards to evaluate how the time from diagnosis to viral suppression changed among persons newly diagnosed as having HIV in King County, WA, between 2007 and 2013. RESULTS: A total of 1490 (84%) of 1766 newly diagnosed persons achieved viral suppression in a median time of 213 days (95% confidence interval, 203-229). Thirty-six percent of all persons diagnosed in 2007 and 77% in 2013 were virally suppressed within 12 months of HIV diagnosis (P < 0.0001). Differences in time to suppression by calendar year persisted when stratifying by CD4 count at diagnosis. Race was not significantly associated with time to viral suppression. CONCLUSIONS: Time from HIV diagnosis to viral suppression dramatically declined between 2007 and 2013, and more than three quarters of recently HIV-diagnosed individuals in King County, WA, now achieve viral suppression within a year of diagnosis. This improvement was evident among all persons newly diagnosed as having HIV, regardless of race/ethnicity or CD4 count at time of diagnosis.

The US HIV/AIDS epidemic is concentrated among men who have sex with men (MSM). Black men are disproportionately affected by incarceration and Black MSM experience higher infection rates and worse HIV-related health outcomes compared to non-Black MSM. We compared HIV treatment outcomes for Black MSM to other HIV-infected men from one of the largest cohorts of HIV-infected jail detainees (N = 1270) transitioning to the community. Of the 574 HIV-infected men released, 113 (19.7%) self-identified as being MSM. Compared to other male subgroups, young Black MSM (<30 years old, N = 18) were significantly less likely: (1) before incarceration, to have insurance, access to an HIV healthcare provider, and use cocaine; (2) during incarceration, to receive a disease management intervention; and (3) in the 6 months post-release, to link to HIV care. Interventions that effectively link and retain young HIV-infected Black MSM in care in communities before incarceration and post-release from jail are urgently needed.


This study investigated how HIV-related shame is associated with health-related quality of life (HRQoL) in older people living with HIV (PLHIV). Structural equation modeling tested whether HIV-related shame was associated with three dimensions of HRQoL (physical, emotional, and social well-being) and whether there were significant indirect associations of HIV-related shame with the three HRQoL dimensions via depression and loneliness in a sample of 299 PLHIV >/=50 years old. Results showed that depression and loneliness were key mechanisms, with depression at least partially accounting for the association between HIV-related shame and both emotional and physical well-being, respectively, and loneliness accounting for the association between HIV-related shame and social well-being. HIV-related shame appears to be an important correlate of HRQoL in older PLHIV and may provide a promising leveraging point by which to improve HRQoL in older PLHIV.


Although studies have shown that adherence to traditional masculine norms (i.e., Status, Toughness, Antifemininity) affect men's attitudes toward sexual health, there is little research on how men's adherence to these norms affect them in the context of heterosexual, dyadic relationships. Among 296 young pregnant couples, we investigated the extent to which adherence to traditional masculine norms affected male and female partners' own condom-related beliefs (i.e., condom self-efficacy, positive condom attitudes) and that of their partners. We tested an interdependence model using a dyadic-analytic approach to path analysis. We also tested for differences across gender and race-ethnicity (i.e., African American, Hispanic). Results showed that adherence to the Antifemininity and Toughness masculine norms predicted negative condom-related beliefs, whereas, overall, adherence to the Status norm predicted positive condom-related beliefs. Men's and women's adherence to traditional norms about masculinity were associated with their partner's condom self-efficacy, and moderated associations based on gender and race-ethnicity were detected. In contrast, each dyad member's traditional masculine norms were not associated with his or her partner's positive condom attitudes. Taken together, findings indicated that the roles of traditional masculinity and condom-related beliefs in sexual health should be addressed within the context of relationships and associations between masculine norms and condom-related beliefs are not uniformly negative.

last three months, 23.2% reported engaging in sex work in the last three months, 21.1% reported group sex in the last twelve months (21.1%) and 14.3% had used methamphetamine for sex in the last three months. CAI was associated with living in Ho Chi Minh City vs. Hanoi, being versatile during anal sex, a greater degree of sexual sensation-seeking, and more strongly agreeing that withdrawal before ejaculation is effective in preventing HIV. Effect-modification analysis showed that recent sex-related methamphetamine use was related to a higher probability of CAI for men with low sexual sensation-seeking scores. Methamphetamine assessment and/or interventions should be incorporated into HIV prevention and research with Vietnam’s MSM population.


We examined whether internalized HIV stigma and perceived HIV stigma from social network members (alters), including the most popular and most similar alter, predicted condomless intercourse with negative or unknown HIV status partners among 125 African American HIV-positive men. In a prospective, observational study, participants were administered surveys at baseline and months 6 and 12, with measures including sexual behavior, internalized HIV stigma, and an egocentric social network assessment that included several measures of perceived HIV stigma among alters. In longitudinal multivariable models comparing the relative predictive value of internalized stigma versus various measures of alter stigma, significant predictors of having had condomless intercourse included greater internalized HIV stigma (in all models), the perception that a popular (well-connected) alter or alter most like the participant agrees with an HIV stigma belief, and the interaction of network density with having any alter that agrees with a stigma belief. The interaction indicated that the protective effect of greater density (connectedness between alters) in terms of reduced risk behavior dissipated in the presence of perceived alter stigma. These findings call for interventions that help people living with HIV to cope with their diagnosis and reduce stigma, and inform the targets of social network-based and peer-driven HIV prevention interventions.


BACKGROUND: People who inject drugs (PWID) are at increased risk of acquiring and transmitting HIV and Hepatitis C (HCV) due to sharing injection paraphernalia and unprotected sex. To generate seroprevalence data on HIV and HCV among PWID and related data on risk behaviour, a multicentre sero- and behavioural survey using respondent driven sampling (RDS) was conducted in eight German cities between 2011 and 2014. We also evaluated the feasibility and effectiveness of RDS for recruiting PWID in the study cities. METHODS: Eligible for participation were people who had injected drugs within the last 12 months, were 16 years or older, and who consumed in one of the study cities. Participants were recruited, using low-threshold drop-in facilities as study sites. Initial seeds were selected to represent various sub-groups of people who inject drugs (PWID). Participants completed a face-to-face interview with a structured questionnaire about socio-demographics, sexual and injecting risk behaviours, as well as the utilisation of health services. Capillary blood samples were collected as dried blood spots and were anonymously tested for serological and molecular markers of HIV and HCV. The results are shown as range of proportions (min. and max. values (%)) in the respective study cities. For evaluation of the sampling method we applied criteria from the STROBE guidelines. RESULTS: Overall, 2,077 PWID were recruited. The range of age medians was 29-41 years, 18.5-35.3 % of participants were female, and 9.2-30.6 % were foreign born. Median time span since first injection were 10-18 years. Injecting during the last 30 days was reported by 76.0-88.4 % of participants. Sharing needle/syringes (last 30 days) ranged between 4.7 and 22.3 %, while sharing unsterile paraphernalia (spoon, filter, water, last 30 days) was reported by 33.0-43.8 %. A majority of participants (72.8-85.8 %) reported incarceration at least once, and 17.8-39.8 % had injected while incarcerated. Between 30.8 and 66.2 % were currently in opioid substitution therapy. Unweighted HIV seroprevalence ranged from 0-9.1 %, HCV from 42.3-75.0 %, and HCV-RNA from 23.1-54.0 %. The implementation of RDS as a recruiting method in cooperation with low-threshold drop in facilities was well accepted by both staff and PWID. We reached our targeted sample size in seven of eight cities. CONCLUSIONS: In the recruited sample of mostly current injectors with a long duration of injecting drug use, seroprevalence for HIV and HCV varied greatly between the city samples. HCV was endemic among participants in all city samples. Our results demonstrate the necessity of intensified prevention strategies for blood-borne infections among PWID in Germany.
White, D., et al. (2016). "Racial Differences in Partnership Attributes, Typologies, and Risk Behaviors Among Men Who Have Sex With Men in Atlanta, Georgia." Arch Sex Behav.

The role of main partnerships in shaping HIV transmission dynamics among men who have sex with men (MSM) has gained recognition in recent studies, but there is little evidence that existing definitions of partnership type are accurate or have consistent meaning for all men. Using data collected from 2011 to 2013 on 693 partnerships described by 193 Black and White MSM in Atlanta, GA, partnership attributes and risk behaviors were examined and compared by race, stratified in two ways: (1) by commonly used definitions of partnerships as "main" or "casual" and (2) by a new data-driven partnership typology identified through latent class analysis (LCA). Racial differences were analyzed using chi-square, Fisher's exact, and Wilcoxon-Mann-Whitney tests. Black participants were less likely to report condomless anal sex (CAS) within partnerships they labeled as main, yet they were also less likely to describe these partnerships as "primary" on a parallel question. In contrast, within strata defined by the LCA-derived typology, most partnership attributes were comparable and the likelihood of CAS was equivalent by race. These findings suggest that classification of partnerships as main or casual does not accurately capture the partnership patterns of MSM, resulting in differential misclassification by race. Future studies and interventions should refine and utilize more evidence-based typologies.


As the rate of HIV infection continues to rise among men who have sex with men (MSM) in the United States, a focus of current prevention efforts is to encourage frequent HIV testing. Although levels of lifetime testing are high, low levels of routine testing among MSM are concerning. Using data from an online sample of 768 MSM, this article explores how perceptions of HIV prevalence are associated with HIV testing behavior. Ordinal logistic regression models were fitted to examine correlates of perceived prevalence, and binary logistic regression models were fitted to assess associations between perceived prevalence and HIV testing. The results indicate that perceptions of higher prevalence among more proximal reference groups such as friends and sex partners are associated with greater odds of HIV testing. Perceptions of HIV prevalence were nonuniform across the sample; these variations point to groups to target with strategic messaging and interventions to increase HIV testing among MSM.


In 2014, the California Department of Public Health was notified by a local health department of a diagnosis of acute human immunodeficiency virus (HIV) infection* and rectal gonorrhea in a male adult film industry performer, aged 25 years (patient A). Patient A had a 6-day history of rash, fever, and sore throat suggestive of acute retroviral syndrome at the time of examination. He was informed of his positive HIV and gonorrhea test results 6 days after his examination. Patient A had a negative HIV-1 RNA qualitative nucleic acid amplification test (NAAT)(dagger) 10 days before symptom onset. This investigation found that during the 22 days between the negative NAAT and being informed of his positive HIV test results, two different production companies directed patient A to have condomless sex with a total of 12 male performers. Patient A also provided contact information for five male non-work-related sexual partners during the month before and after his symptom onset. Patient A had additional partners during this time period for which no locating information was provided. Neither patient A nor any of his interviewed sexual partners reported taking HIV preexposure prophylaxis (PrEP). Contact tracing and phylogenetic analysis of HIV sequences amplified from pretreatment plasma revealed that a non-work-related partner likely infected patient A, and that patient A likely subsequently infected both a coworker during the second film production and a non-work-related partner during the interval between his negative test and receipt of his positive HIV results. Adult film performers and production companies, medical providers, and all persons at risk for HIV should be aware that testing alone is not sufficient to prevent HIV transmission. Condom use provides additional protection from HIV and sexually transmitted infections (STIs). Performers and all persons at risk for HIV infection in their professional and personal lives should discuss the use of PrEP with their medical providers.

In this study, we investigated if a single-item indicator measured the degree to which people were open about their same-sex attraction ("out") as accurately as a multi-item scale. For the multi-item scale, we used the Outness Inventory, which includes three subscales: family, world, and religion. We examined correlations between the single- and multi-item measures; between the single-item indicator and the subscales of the multi-item scale; and between the measures and internalized homonegativity, social attitudes towards homosexuality, and depressive symptoms. In addition, we calculated Tjur’s R² as a measure of predictive power of the single-item indicator, multi-item scale, and subscales of the multi-item scale in predicting two health-related outcomes: depressive symptoms and condomless anal sex with multiple partners. There was a strong correlation between the single- and multi-item measures (r = 0.73). Furthermore, there were strong correlations between the single-item indicator and each subscale of the multi-item scale: family (r = 0.70), world (r = 0.77), and religion (r = 0.50). In addition, the correlations between the single-item indicator and internalized homonegativity (r = -0.63), social attitudes towards homosexuality (r = -0.38), and depression (r = -0.14) were higher than those between the multi-item scale and internalized homonegativity (r = -0.55), social attitudes towards homosexuality (r = -0.21), and depression (r = -0.13). Contrary to the premise that multi-item measures are superior to single-item measures, our collective findings indicate that the single-item indicator of outness performs better than the multi-item scale of outness.


Experiencing sexual violence in childhood or adolescence is highly prevalent among some women living with HIV, often resulting in anxiety and depression symptoms in adulthood. Anxiety and depression have been associated with HIV medication nonadherence, yet little research has assessed distinct components of anxiety and depression as risk factors of HIV medication nonadherence. The current study examined distinct symptom components of anxiety and depression as predictors of HIV medication non-adherence among women living with HIV and childhood sexual abuse enrolled in a coping intervention. This secondary analysis included a sample of 85 women living with HIV and childhood sexual abuse and being prescribed antiretroviral medication who completed measures on anxiety, depression, and medication adherence. Results from a logistic regression analysis suggest that distinct components of anxiety may be related to medication nonadherence among this population. Targeted mental health interventions for this population may increase adherence to antiretroviral medication.


**IMPORTANCE:** Human immunodeficiency virus (HIV) diagnoses continue to increase among young men who have sex with men (YMSM). Many YMSM living with HIV engage in sexual risk behaviors, and those who have a detectable viral load can transmit HIV to sex partners. Understanding factors that are related to sexual risk taking among virologically detectable (VL+) YMSM can inform prevention and treatment efforts. **OBJECTIVES:** To describe differences between virologically suppressed (VL-) and VL+ YMSM living with HIV and to identify correlates of condomless anal intercourse (CAI) and serodiscordant CAI among VL+ YMSM. **DESIGN, SETTING, AND PARTICIPANTS:** In this cross-sectional survey conducted from December 1, 2009, through June 30, 2012, we studied 991 HIV-infected YMSM 15 to 26 years of age at 20 adolescent HIV clinics in the United States. Data analysis was conducted December 1, 2013, through July 31, 2015. **MAIN OUTCOMES AND MEASURES:** Demographic, behavioral, and psychosocial assessments obtained using audio computer-assisted self-interviews. Viral load information was obtained via blood draw or medical record abstraction. **RESULTS:** Of the 991 participants, 688 (69.4%) were VL+ and 458 (46.2%) reported CAI, with 310 (31.3%) reporting serodiscordant CAI in the past 3 months. The VL+ YMSM were more likely than the VL- YMSM to report CAI (detectable, 266 [54.7%]; suppressed, 91 [44.4%]; P = .01) and serodiscordant CAI (detectable, 187 [34.9%]; suppressed, 57 [25.0%]; P < .01). Multivariable analyses indicated that among VL+ YMSM, those reporting problematic substance use were more likely to report CAI (adjusted odds ratio [AOR], 1.46; 95% CI, 1.02-2.10) and serodiscordant CAI (AOR, 1.45; 95% CI, 1.06-1.99). Black VL+ YMSM were less likely to report CAI (AOR, 0.63; 95% CI, 0.44-0.90) or serodiscordant CAI (AOR, 0.66; 95% CI, 0.46-0.94) compared with other VL+ YMSM. In addition, VL+ YMSM who disclosed their HIV status to sex partners were more likely to report CAI compared with nondisclosing YMSM (AOR, 1.35; 95% CI, 1.01-1.81). Transgender participants were less likely to report CAI compared with nondisclosing YMSM (AOR, 1.35; 95% CI, 1.01-1.81).
than cisgender participants (AOR, 0.35; 95% CI, 0.14-0.85). Last, VL+ YMSM who reported currently being employed were less likely to report serodiscordant CAI than those who were unemployed (AOR, 0.74; 95% CI, 0.55-0.99). CONCLUSIONS AND RELEVANCE: Targeted multilevel interventions are needed to reduce HIV transmission risk behaviors among YMSM living with HIV, particularly among those who are VL+.


OBJECTIVE: This study aimed to investigate the status of multiple sexual partners and unprotected sexual behaviors and related influencing factors among HIV-positive men who have sex with men (MSM). METHODS: HIV-positive men having sex with men aged 18 years or older, living in Chengdu, Chongqing or Guangzhou were recruited by using the "snowballing" sampling method. Participants completed the questionnaire on computers, after filling in the Informed Consent Form. Content of the study would include social demographic characteristics, number of sexual partners, sexual behaviors, and the symptoms assessment on depression and anxiety. chi(2)-test, t-test and non-conditional Multiple logistic Regression methods were used to examine the risky sexual behaviors with multiple sexual partners among the participants engaged in this project. RESULTS: Mean age of the 501 participants was (30.24±7.70) years old. In the past 6 months, 17.4% (87/501) of them had engaged in unprotected sexual behavior with two or more sexual partners. Factors at risk would include: being married (OR=1.93, 95%CI: 0.77-4.84), divorced or widowed (OR=3.94, 95%CI: 1.66-9.36), having primary male sexual partners (OR=5.04, 95%CI: 1.08-23.54) and casual or commercial male sexual partners (OR=2.54, 95%CI: 1.34-4.80) in the past 6 months, drinking alcohol (OR=3.00, 95%CI: 1.37-6.62) or Rush (alkyl nitrite) (OR=3.53, 95%CI: 1.72-7.23) during sexual acts, sharing their HIV-infection status to their partly primary male sexual partners (OR=1.84, 95%CI:0.78-4.33) or not (OR=2.68, 95% CI: 1.25-5.73), and having high sexual sensation seeking scores (OR=1.09, 95%CI: 1.03-1.15). CONCLUSIONS: Unprotected sexual behaviors with multiple sexual partners among HIV-positive MSM played an important role in expediting the HIV transmission. Development of intervention programs to minimize the risk sexual behaviors and setting up efficient medical and biological measures in controlling the HIV transmission were in urgent need.


Male and female students manifest different behaviors in condomless sex. This cross-sectional, exploratory, correlational study examined the differences in risk factors for condomless sex between male and female high school students, using secondary data from 4,968 sexually active males and females participating in the 2011 National Youth Risk Behavior Survey. Results in descriptive statistics and multivariate binary logistic regressions revealed that condomless sex was reported as 39.70% in general. A greater proportion of females engaged in condomless sex (23.26%) than did males (16.44%). Physical abuse by sex partners was a common reason for failure to use condoms regardless of gender. Lower condom use was found in (1) those experiencing forced sex by a partner in males, (2) female smokers, and (3) female with multiple sex partners. Thus, sexual health education should address the different risk factors and consider gender characteristics to reduce condomless sex.


BACKGROUND: Timely assessment of the burden of HIV/AIDS is essential for policy setting and programme evaluation. In this report from the Global Burden of Disease Study 2015 (GBD 2015), we provide national estimates of levels and trends of HIV/AIDS incidence, prevalence, coverage of antiretroviral therapy (ART), and mortality for 195 countries and territories from 1980 to 2015. METHODS: For countries without high-quality vital registration data, we estimated prevalence and incidence with data from antenatal care clinics and population-based seroprevalence surveys, and with assumptions by age and sex on initial CD4 distribution at infection, CD4 progression rates (probability of progression from higher to lower CD4 cell-count category), on and off antiretroviral therapy (ART) mortality, and mortality from all other causes. Our estimation strategy links the GBD 2015 assessment of all-cause mortality and estimation of incidence and prevalence so that for each draw from the uncertainty distribution all assumptions used in each step are internally consistent. We estimated incidence, prevalence, and death with GBD versions of the Estimation and Projection Package (EPP) and Spectrum software originally developed by the Joint United Nations Programme on HIV/AIDS (UNAIDS). We
used an open-source version of EPP and recoded Spectrum for speed, and used updated assumptions from systematic reviews of the literature and GBD demographic data. For countries with high-quality vital registration data, we developed the cohort incidence bias adjustment model to estimate HIV incidence and prevalence largely from the number of deaths caused by HIV recorded in cause-of-death statistics. We corrected these statistics for garbage coding and HIV misclassification. FINDINGS: Global HIV incidence reached its peak in 1997, at 3.3 million new infections (95% uncertainty interval [UI] 3.1-3.4 million). Annual incidence has stayed relatively constant at about 2.6 million per year (range 2.5-2.8 million) since 2005, after a period of fast decline between 1997 and 2005. The number of people living with HIV/AIDS has been steadily increasing and reached 38.8 million (95% UI 37.6-40.4 million) in 2015. At the same time, HIV/AIDS mortality has been declining at a steady pace, from a peak of 1.8 million deaths (95% UI 1.7-1.9 million) in 2005, to 1.2 million deaths (1.1-1.3 million) in 2015. We recorded substantial heterogeneity in the levels and trends of HIV/AIDS across countries. Although many countries have experienced decreases in HIV/AIDS mortality and in annual new infections, other countries have had slowdowns or increases in rates of change in annual new infections.

INTERPRETATION: Scale-up of ART and prevention of mother-to-child transmission has been one of the great successes of global health in the past two decades. However, in the past decade, progress in reducing new infections has been slow, development assistance for health devoted to HIV has stagnated, and resources for health in low-income countries have grown slowly. Achievement of the new ambitious goals for HIV enshrined in Sustainable Development Goal 3 and the 90-90-90 UNAIDS targets will be challenging, and will need continued efforts from governments and international agencies in the next 15 years to end AIDS by 2030. FUNDING: Bill & Melinda Gates Foundation, and National Institute of Mental Health and National Institute on Aging, National Institutes of Health.
OBJECTIVES: To determine the effect of long-term antiretroviral therapy (ART) on HIV-1-induced B-cell dysfunction. DESIGN: Comparative study of ART-naive and ART-treated HIV-infected patients with non-HIV controls. METHODS: B-cell dysfunction was examined in patients with HIV-1 infection (n = 30) who had received ART for a median time of 9.25 years (range: 1.3-21.7) by assessing proportions of CD21 B cells (a marker of B-cell exhaustion) and proportions of tumor necrosis factor-related apoptosis-inducing ligand or B and T lymphocyte attenuator B cells, and serum levels of immunoglobulin free light chains (markers of B-cell hyperactivation). The association of these markers with serum levels of IgG1 and IgG2, and production of IgG antibodies after vaccination with pneumococcal polysaccharides were also examined. ART-naive patients with HIV (n = 20) and controls (n = 20) were also assessed for comparison. RESULTS: ART-treated patients had increased proportions of CD21 and tumor necrosis factor-related apoptosis-inducing ligand B cells and, furthermore, although proportions of B and T lymphocyte attenuator B cells were not significantly different from controls, they correlated negatively with CD21 B cells. Proportions of CD21 B cells also correlated negatively with current CD4 T-cell counts. In ART-naive patients with HIV, free light chains correlated with CD21 B cells and IgG1, but not IgG2. Serum IgG2:IgG1 ratios were substantially lower than normal in patients with HIV and did not resolve on ART. In ART-treated patients, IgG antibody responses to pneumococcal polysaccharides after vaccination were not associated with markers of B-cell dysfunction. CONCLUSIONS: B-cell dysfunction persists in patients with HIV receiving long-term ART. The causes and consequences of this require further investigation.


BACKGROUND: Some LMNA mutations responsible for lipodystrophies, and some HIV-protease inhibitors (PIs) induce accumulation of farnesylated prelamin A and premature senescence in some cell types. Patients with LMNA mutations or under PI-based therapy suffer from early atherosclerosis. The metalloprotease ZMPSTE24 is the key enzyme in prelamin A maturation. AIM: We studied whether altered expression of ZMPSTE24 could contribute to vascular cell dysfunction in response to LMNA mutations or PI treatments. METHODS: Protein expression of prelamin A and ZMPSTE24 were evaluated in patients’ cells and in human cultured VSMCs. Oxidative stress, inflammation, senescence and transdifferentiation/calcification were evaluated in VSMCs. RESULTS: Fibroblasts from LMNA-mutated lipodystrophic patients (mutations R482W, D47Y or R133L) and peripheral blood mononuclear cells from PI-treated-HIV-infected patients expressed increased prelamin A and decreased ZMPSTE24, which was also observed in VSMCs overexpressing mutant LMNA or treated with PIs. These alterations correlated with oxidative stress, inflammation, senescence and calcification (all p < 0.05). ZMPSTE24 silencing in native VSMCs recapitulated the mutant LMNA- and PI-induced accumulation of farnesylated prelamin A, oxidative stress, inflammation, senescence and calcification. A negative regulator of ZMPSTE24, miRNA-141-3p, was enhanced in LMNA-mutated or PI-treated VSMCs. The farnesylation inhibitors pravastatin and FTI-277, or the antioxidant N-acetyl cysteine, partly restored ZMPSTE24 expression, and concomitantly decreased oxidative stress, inflammation, senescence, and calcification of PI-treated VSMCs. CONCLUSIONS: ZMPSTE24 downregulation is a major contributor in VSMC dysfunctions resulting from LMNA mutations or PI treatments that could translate in early atherosclerosis at the clinical level. These novel pathophysiological mechanisms could open new therapeutic perspectives for cardiovascular aging.


OBJECTIVES: AIDS is caused by CD4 T-cell depletion. Although combination antiretroviral therapy can restore blood T-cell numbers, the clonal diversity of the reconstituting cells, critical for immunocompetence, is not well defined. METHODS: We performed an extensive analysis of parameters of thymic function in perinatally HIV-1-infected (n = 39) and control (n = 28) participants ranging from 13 to 23 years of age. CD4 T cells including naive (CD27 CD45RA) and recent thymic emigrant (RTE) (CD31/CD45RA) cells, were quantified by flow cytometry. Deep sequencing was used to examine T-cell receptor (TCR) sequence diversity in sorted RTE CD4 T cells. RESULTS: Infected participants had reduced CD4 T-cell levels with predominant depletion of the memory subset and preservation of naive cells. RTE CD4 T-cell levels were normal in most infected individuals, and enhanced thymopoiesis was indicated by higher proportions of CD4 T cells containing TCR recombination excision circles. Memory CD4 T-cell depletion was highly associated with CD8 T-cell activation in HIV-1-infected persons and plasma interlekin-7 levels were correlated with naive CD4 T cells, suggesting activation-driven loss and compensatory enhancement of thymopoiesis. Deep
HIV-1 infection leads to a depletion of CD4 T-cells associated with a persistent immune inflammation and changes in cellular metabolism. Most effort of managing HIV infection with combination of antiretroviral therapies (ART) has been focused on CD4 T-cell recovery, while control of persistent immune inflammation and metabolism were relatively underappreciated in the past. Recent discoveries on the interplay between innate immunity, inflammation (especially the inflammasome) and metabolic changes in the context of cancer and autoimmunity provide an emerging field for chronic viral infections including HIV-1. In a previous review, we described the deregulated metabolism contributing to immune dysfunctions such as alteration of memory T-cell responses, mucosal protection, and dendritic cell-related antigen presentation. Here, we summarize the latest knowledge on the detrimental influence of long-lasting inflammation and inflammasome activation induced by HIV-1, gut dysbiosis, and bacterial translocation, on metabolism during the course of viral infection. We also report on the inability of ART to fully counteract inflammation, resulting in partial metabolic improvement and leading to an insufficient decrease in the risk of non-AIDS events. Further advances in our understanding of the relationship between inflammation, altered metabolism, and long-term ART is warranted. Additionally, there is a critical need for developing new strategies to regulate the pro-inflammatory...
signals to enhance cellular metabolism and immune functions in order to improve the quality of life of individuals living with HIV-


**PURPOSE OF REVIEW:** The development of serious non-AIDS-related pathologies typically associated with aging, and the premature immune aging that characterizes HIV-1-infected patients, even with suppressive antiretroviral therapy, have raised increasing concerns in recent years. Deciphering the causes of these phenomena is key for our understanding of HIV pathogenesis and for the clinical care of patients living with the virus. **RECENT FINDINGS:** An important basis for the immune parallels between HIV infection and aging lies in the exhaustion of the lymphopoietic capacity of infected individuals, which eventually affects all compartments of the immune system. The alleged cause for these immune alterations, and the onset of age-related comorbidities, is the systemic chronic immune activation that is established in patients. However, there is a multiplicity of contributors to this immune activation. **SUMMARY:** Our understanding of the precise link between immune activation and aging in HIV infection is complicated by the influence of coinfections and lifestyle factors. Developing rational interventions to reduce the hyper-inflammatory status of HIV-1-infected patients requires a clearer delineation of the factors contributing to the increased levels of systemic immune activation.


Many of the alterations that affect innate and adaptive immune cell compartments in HIV-infected patients are reminiscent of the process of immune aging, characteristic of old age. These alterations define the immunological age of individuals and are likely to participate to the decline of immune competence with HIV disease progression. It is therefore important to characterize these changes, which point toward the accumulation of highly differentiated immunocompetent cells, associated with overall telomere length shortening, as well as understanding their etiology, especially related to the impact of chronic immune activation. Particular attention should be given to the exhaustion of primary immune resources, including hematopoietic progenitors and naïve cells, which holds the key for effective hematopoiesis and immune response induction, respectively. The alteration of these compartments during HIV infection certainly represents the foundation of the immune parallel with aging.


Immunosenescence involves age-related remodeling changes in the organization of lymphoid organs and functionality of immune cells, which have been associated with increased morbidity and mortality. The pace of immunosenescence is modulated, however, by both intrinsic and extrinsic factors. Here, we review the mechanisms by which some factors, like the oxidative stress and certain chronic viral infections, may modulate the ageing immune system. Mounting evidence indicates that human cytomegalovirus (CMV) drives the expansion of late-differentiated T cells with an inflammatory profile. This would add to the "inflammaging" phenomenon, characterized by a low-grade inflammatory state, importantly involved in the etiology of several age-related diseases. We discuss that age-related oxidative stress is associated with chronic inflammation, and the oxidation-inflammation theory of ageing is summarized. According to this theory, the ageing process is a chronic oxidative and inflammatory stress, leading to damage of cell components, including proteins, lipids and DNA, and contributing to the age-related decline of physiological functions. Moreover, oxi-inflamm-aging is associated with immunosenescence, which could be involved in the rate of ageing of individuals.


Progression of major depression, a multifactorial disorder with a neuroinflammatory signature, seems to be associated with the disruption of body allostasis. High rates of comorbidity between depression and specific medical disorders, such as, stroke, chronic pain conditions, diabetes mellitus, and human immunodeficiency virus (HIV) infection, have been extensively reported. In this review, we discuss how these medical disorders may predispose an individual to develop depression by examining the impact of these disorders on some hallmarks of neuroinflammation known to be impaired in depressed patients: altered permeability of the blood brain barrier, immune cells infiltration, activated microglia, increased cytokines production, and the role of inflammasomes. In all four pathologies, blood brain barrier integrity was altered, allowing the infiltration of peripheral factors, known to activate resident microglia. Evidence indicated morphological changes in the glial population, increased levels
of circulating pro-inflammatory cytokines or increased production of these mediators within the brain, all fundamental in neuroinflammation, for the four medical disorders considered. Moreover, activity of the kynurenine pathway appeared to be enhanced. With respect to the inflammasome NLRP3, a new target whose role in neuroinflammation is emerging as being important, accumulating data suggest its involvement in the pathogenesis of brain injury following stroke, chronic pain conditions, diabetes mellitus or in HIV associated immune impairment. Finally, data gathered over the last 10 years, indicate and confirm that depression, stroke, chronic pain, diabetes, and HIV infection share a combination of underlying molecular, cellular and network mechanisms leading to a general increase in the neuroinflammatory burden for the individual.


PURPOSE OF REVIEW: This article explores new data from recent studies addressing the role of coinfections in immune activation in HIV-1-infected patients, with a focus on immune reconstitution inflammatory syndrome (IRIS), an aberrant inflammatory response occurring shortly after antiretroviral therapy (ART) initiation. RECENT FINDINGS: Chronic HIV infection is associated with several coinfections that contribute to immune activation in various settings including early after ART initiation in the most noticeable form of IRIS and also in chronic-treated infection, with chronic viral infections like cytomegalovirus and hepatitis C or hepatitis B virus contributing to immune activation and also morbidity and mortality. Expanding on older studies, the role of T cells in IRIS has been further elucidated with evidence of more pronounced effector activity in patients with IRIS that may be leading to excessive tissue disorder. Newer studies are also continuing to shed light on the role of myeloid cells as well as the contribution of antigen load in IRIS. In addition, preliminary data are beginning to suggest a possible role of inflammasome formation in IRIS. In cryptococcal IRIS, the role of activated immune cells (T cell and myeloid) and biomarkers were evaluated in more detail at the site of infection (cerebrospinal fluid). Finally, important differences of patients developing IRIS versus those who die from tuberculosis despite ART initiation were reported, a distinction that may have important implications for participant selection in studies aiming to prevent IRIS with immunosuppressive agents. SUMMARY: Better understanding of the role of opportunistic infections at ART initiation and IRIS pathogenesis will assist in improved strategies for prevention and treatment. The long-term consequences of IRIS remain unclear. Chronic viral coinfections with herpesviruses and hepatitis C virus are important factors in persistent immune activation in chronic-treated HIV.


The purpose of this study was to describe HIV-testing attitudes, HIV related stigma and health care access in African-born men taking part in the African Health Cup (AHC), a soccer tournament held annually to improve HIV awareness and testing. Venue sampling was used to collect survey and qualitative interview data related to HIV-testing attitudes, stigma and experiences associated with the AHC. The sample included 135 survey respondents and 27 interview participants. AHC participants were successfully accessing health care services. Although the AHC was viewed positively, HIV testing rates remain low due to stigma and privacy concerns. This population continues to have misconceptions about HIV transmission and to use condoms inconsistently. The AHC is a successful intervention to engage African-born men in HIV awareness and education. More work is needed to enhance these AHC aspects and address stigma and privacy concerns related to using onsite health screenings. Continuing to develop novel strategies to educate African-born immigrants about HIV is urgently needed.


This study examined how 2 distinct facets of perceived personal lifetime-future time perspective (FTP) and awareness of age-related change (AARC) are associated with another, and how they may interact to predict psychological well-being. To better understand associations among subjective perceptions of lifetime, aging, and well-being, we tested a series of models to investigate questions of directionality, indirect effects, and conditional processes among FTP, AARC-Gains, AARC-Losses, and psychological well-being. In all models, we tested for differences between middle-aged and older adults, and between adults from the United States and Germany. Analyses were conducted within a structural equation modeling framework on a cross-
national, 2.5-year longitudinal sample of 537 community-residing adults (age 40-98 years). Awareness of age-related losses (AARC-Losses) at Time 1 predicted FTP at Time 2, but FTP did not predict AARC-Gains or AARC-Losses. Furthermore, future time perspective mediated the association between AARC-Losses and well-being. Moderation analyses revealed a buffering effect of awareness of age-related gains (AARC-Gains) in which perceptions of more age-related gains diminished the negative effect of a limited future time perspective on well-being. Effects were robust across age groups and countries. Taken together, these findings suggest that perceived age-related loss experiences may sensitize individuals to perceive a more limited future lifetime which may then lead to lower psychological well-being. In contrast, perceived age-related gains may function as a resource to preserve psychological well-being, in particular when time is perceived as running out. (PsycINFO Database Record


HIV(+) persons stable on antiretroviral therapy (ART) face early onset of age-related diseases. This may arise from a high burden of cytomegalovirus (CMV). To address the role of CMV, we investigated univariate and multivariate associations between markers of systemic and endothelial inflammation, vascular damage, insulin resistance (IR), neurocognitive decline, and antibodies reactive with CMV. In this study, HIV(+) participants (n = 91) aged >45 years with <50 copies HIV RNA/ml plasma after >2 years on ART were assessed for cardiovascular risk (the D:A:D algorithm), type II diabetes (the HOMA-IR index), and neurocognitive performance. Blood samples were assayed for lymphocytes, T cells, insulin, glucose, C-reactive protein, CX3CL1, sTNF-R1, total immunoglobulin G (IgG), and antibodies reactive with CMV lysate, glycoprotein B, or immediate-early-1. Levels of antibodies detected with any of the three antigens were significantly lower in patients than in age-matched healthy controls and reflected their nadir CD4 T-cell count (p = .001), total IgG (p = .02), and age (p = .08). Levels of CMV lysate antibody correlated with D:A:D score (p = .04), neurocognitive performance (p = .045), and fasting insulin (p = .02). In multivariable analyses, some associations reflected the effect of age, but CMV lysate antibody and CD8 T-cell counts were significant predictors of the HOMA-IR index (R² = 0.09, p = .01) independent of age. We conclude that associations between levels of CMV antibodies, cardiovascular risk, and neurocognitive health in HIV(+) patients stable on ART are moderated by age-associated increases in response to CMV, while CMV antibodies may be independently linked with IR.


Our objective was to evaluate the association of plasma inflammatory biomarkers with MetS in an older population of treated HIV-infected (HIV(+)) as compared to age-matched HIV-negative (HIV(-)) adults. This was done in a retrospective observational study. Plasma concentrations of complement component 3 (C3), cystatin C, fibroblast growth factor 1, interleukin 6, oxidized LDL, soluble RAGE, soluble CD163, soluble CD14, and osteopontin were measured in 79 HIV(+) participants on combination antiretroviral treatment (cART) with a suppressed HIV viral load and 47 HIV(-) participants with a median age of 59 (range 50 to 79). Outcomes were individual MetS components (hypertension, type II diabetes, dyslipidemia, and obesity) and MetS. Covariates were screened for inclusion in multivariable models. Odds ratios are reported per 50 mg/dl increase in C3. In the HIV(+) group, higher C3 levels were associated with MetS (OR 3.19, p = .004), obesity (OR 2.02, p = .01), type II diabetes (OR 1.93, p = .02), and a trend level with dyslipidemia (OR 1.87, p = .07) and hypertension (OR 1.66, p = .09). C3 levels were significantly higher in HIV(+) participants with MetS compared to those without MetS (p = .002). C3 was higher among HIV(+) patients with three or four MetS components as compared to those with one or two (p = .04) and those with none (p = .002). No associations were found between C3 and the outcomes for HIV(-) participants. C3 is strongly associated with both MetS and MetS components in an older HIV(+) sample on cART compared to HIV(-) controls. C3 warrants further investigation as a marker of cardiometabolic risk among persons aging with HIV.


**INTRODUCTION:** HIV infection leads to a disturbed T-cell homeostasis, featured by a depletion of CD4 T-cells and a persistent elevation of CD8 T-cells over disease progression. Most effort of managing HIV infection has been focused on CD4 T-cell recovery, while changes in the CD8 compartment were relatively underappreciated in the past. METHODS: A comprehensive literature review of publications in English language was conducted using major electronic databases. Our search was focused on factors contributing to CD8 T-cell dynamics in HIV infection and following antiretroviral therapy (ART). DISCUSSION:
Normalization of CD8 counts is seldom observed even with optimal CD4 recovery following long-term treatment. Initiation of ART in primary HIV infection leads to enhanced normalization of CD8 count compared with long-term ART initiated in chronic infection. Importantly, such CD8 elevation in treated HIV infection is associated with an increased risk of inflammatory non-AIDS-related clinical events independent of CD4 T-cell recovery. The mechanisms underlying CD8 persistence remain largely unknown, which may include bystander activation, exhaustion and immunosenescence of CD8 T-cells. The information provided herein will lead to a better understanding of factors associated with CD8 persistence and contribute to the development of strategies aiming at CD8 normalization. CONCLUSIONS: Persistence of CD8 T-cell elevation in treated HIV-infected patients is associated with an increased risk of non-AIDS-related events. Now that advances in ART have led to decreased AIDS-related opportunistic diseases, more attention has been focused on reducing non-AIDS events and normalizing persistent CD8 T-cell elevation.


BACKGROUND: Insomnia symptoms are associated with vulnerability to age-related morbidity and mortality. Cross-sectional data suggest that accelerated biological aging may be a mechanism through which sleep influences risk. A novel method for determining age acceleration using epigenetic methylation to DNA has demonstrated predictive utility as an epigenetic clock and prognostic of age-related morbidity and mortality. METHODS: We examined the association of epigenetic age and immune cell aging with sleep in the Women's Health Initiative study (N = 2078; mean 64.5 +/- 7.1 years of age) with assessment of insomnia symptoms (restlessness, difficulty falling asleep, waking at night, trouble getting back to sleep, and early awakenings), sleep duration (short sleep 5 hours or less; long sleep greater than 8 hours), epigenetic age, naive T cell (CD8+CD45RA+CCR7+), and late differentiated T cells (CD8+CD28-CD45RA-). RESULTS: Insomnia symptoms were related to advanced epigenetic age (beta +/- SE = 1.02 +/- 0.37, p = .005) after adjustments for covariates. Insomnia symptoms were also associated with more late differentiated T cells (beta +/- SE = 0.59 +/- 0.21, p = .006), but not with naive T cells. Self-reported short and long sleep duration were unrelated to epigenetic age. Short sleep, but not long sleep, was associated with fewer naive T cells (p < .005) and neither was related to late differentiated T cells. CONCLUSIONS: Symptoms of insomnia were associated with increased epigenetic age of blood tissue and were associated with higher counts of late differentiated CD8+ T cells. Short sleep was unrelated to epigenetic age and late differentiated cell counts, but was related to a decline in naive T cells. In this large population-based study of women in the United States, insomnia symptoms are implicated in accelerated aging.


BACKGROUND: Metabolic syndrome (MetS) has been reported to cause considerable psychoneuroimmunology (PNI) disturbances such as, psychological distress, autonomic nervous imbalance, and impaired immune function. Associations among these psychoneuroimmunological (PNI) factors and their integrated effects with MetS and risk components of MetS necessitate further exploration. OBJECTIVE: This study investigated associations among psychoneuroimmunological factors, their integrated effects with MetS and risk components of MetS. METHODS: This was a cross-sectional study. Participants were recruited from two health management centers at a medical center in Northern Taiwan. Demographics and data on psychological distress (e.g., perceived stress and depression) were collected using self-reported questionnaires. Heart rate variability (HRV) and C-reactive protein values (CRP) were measured to evaluate participants' autonomic nervous function and immune reaction. The risk components of MetS (e.g., elevated blood pressure, impaired fasting glucose, dyslipidemia, and abdominal obesity) were identified according to the Taiwan-specific definition of MetS and were determined based on participants' health examination profiles. RESULTS: A total of 345 participants with complete data were included for data analysis. Compared with healthy controls, participants with MetS exhibited higher depression scores (11.2 +/- 8.5 vs. 8.7 +/- 7.0), higher CRP values (2.1 +/- 2.5 vs. 0.7 +/- 1.0), and lower HRV (total power: 758.7 +/- 774.9 vs. 1064.4 +/- 1075.0). However, perceived stress in participants with MetS did not significantly differ from that of their healthy counterparts (p > .05). Univariate analyses indicated that associations among psychoneuroimmunological factors and MetS risk components were statistically heterogeneous: a) perceived stress and depression were significantly associated only with high blood glucose (p < .05); b) CRP was significantly associated with all MetS risk components (p < .05); and c) HRV was significantly associated with high triglycerides and high fasting blood glucose (p < .05). Multivariate analysis indicated that the integrated effects of depression, CRP, and HRV were significantly associated with MetS (p < .01) after controlling for age and education level. CONCLUSIONS: Higher depression scores, higher CRP values, and lower HRV are independently and additively associated with MetS and risk components of MetS. Accordingly, a multidisciplinary approach to alleviating psychological distress, immune dysfunction, and autonomic nervous imbalance is recommended for promoting well-being in people with subclinical metabolic abnormalities or MetS to minimize downstream health consequences.
BACKGROUND AND OBJECTIVE: The HIV/AIDS-related issue has given rise to a priority concern in which potential new therapies are increasingly highlighted to lessen the negative impact of highly active anti-retroviral therapy (HAART) in the healthcare industry. With the motivation of "medical applications," this study focuses on the main advanced feature selection techniques and classification approaches that reflect a new architecture, and a trial to build a hybrid model for interested parties. METHODS: This study first uses an integrated linear-nonlinear feature selection technique to identify the determinants influencing HAART medication and utilizes organizations of different condition-attributes to generate a hybrid model based on a rough set classifier to study evolving HIV/AIDS research in order to improve classification performance. RESULTS: The proposed model makes use of a real data set from Taiwan's specialist medical center. The experimental results show that the proposed model yields a satisfactory result that is superior to the listed methods, and the core condition-attributes PVL, CD4, Code, Age, Year, PLT, and Sex were identified in the HIV/AIDS data set. In addition, the decision rule set created can be referenced as a knowledge-based healthcare service system as the best of evidence-based practices in the workflow of current clinical diagnosis. CONCLUSIONS: This study highlights the importance of these key factors and provides the rationale that the proposed model is an effective alternative to analyzing sustained HAART medication in follow-up studies of HIV/AIDS treatment in practice.


BACKGROUND: Aging-associated noncommunicable comorbidities are more prevalent among human immunodeficiency virus type 1 (HIV)-infected individuals than among HIV-uninfected individuals. Residual HIV-related chronic immune activation and senescence may increase the risk of developing comorbidities. METHODS: Immune phenotyping, thymic output, and telomere length were assessed in 94 HIV-infected individuals who were aged >45 years and receiving antiretroviral therapy (ART; cases) and 95 age-matched uninfected controls. RESULTS: Cases had lower CD4(+) T-cell counts, higher CD8(+) T-cell counts, and increased levels of immune activation (ie, increased soluble CD14 [sCD14] level and increased percentages of CD38(+)HLA-DR(+) cells among both CD4(+) and CD8(+) T cells), regulatory T cells, and percentage of programmed cell death 1 (PD-1)-expressing cells among CD4(+) T cells. Immune senescence levels (ie, percentages of CD27(-)CD28(-) cells or CD57(+) cells) were comparable between cases and controls. Peripheral blood mononuclear cells from cases had shorter telomeres but increased single-joint T-cell receptor excision circle content and CD31(+) naive CD4(+) T cells. Although cytomegalovirus (CMV) antibody titers were higher in cases, CMV-specific T-cell responses were comparable between cases and controls. T-cell senescence in cases was independently associated with T-cell activation but not with CMV-specific immune responses. CONCLUSIONS: Despite long-term receipt of ART, HIV-infected adults had higher levels of immune activation, regulatory T cells, and PD-1-expressing CD4(+) cells and shorter telomeres. The increased soluble CD14 levels and percentage of CD38(+)HLA-DR(+) cells among CD4(+) T cells correlated with shorter telomeres and increased regulatory T-cell levels. This suggests that HIV influences immune function irreversibly, with several pathways that are persistently abnormal during effective ART. Therapies aimed at improving immune health during ART are needed.


HIV infection is associated with impaired lung gas transfer as indicated by a low diffusing capacity (DLCO), but the mechanisms are not well understood. We hypothesized that HIV-associated gas exchange impairment is indicative of systemic-wide perturbations that could be reflected by alterations in peripheral blood leukocyte (PBL) gene expression. Forty HIV-infected (HIV(+)) and uninfected (HIV(-)) men with preserved versus low DLCO were enrolled. All subjects were current smokers and those with acute illness, lung diseases other than COPD or asthma were excluded. Total RNA was extracted from PBLs and hybridized to whole-genome microarrays. Gene set enrichment analysis (GSEA) was performed between HIV(+) versus HIV(-) subjects with preserved DLCO and those with low DLCO to identify differentially activated pathways. Using pathway-based analyses, we found that in subjects with preserved DLCO, HIV infection is associated with activation of processes involved in immunity, cell cycle, and apoptosis. Applying a similar analysis to subjects with low DLCO, we identified a much broader repertoire of pro-inflammatory and immune-related pathways in HIV(+) patients relative to HIV(-) subjects, with up-regulation of multiple interleukin pathways, interferon signaling, and toll-like receptor signaling. We confirmed elevated circulating levels of IL-6 in HIV(+) patients with low DLCO relative to the other groups. Our findings reveal that PBLs of subjects with HIV infection and low DLCO are distinguished by widespread enrichment of immuno-inflammatory programs. Activation of these pathways may alter the biology of circulating leukocytes and play a role in the pathogenesis of HIV-associated gas exchange impairment.

BACKGROUND: Vascular age is a concept that represents the hypothetical age of the cardiovascular system and might be an alternative way of expressing the cardiovascular risk of a patient. The Data Collection on Adverse Effects of Anti-HIV Drugs Study (D:A:D) developed a cardiovascular risk equation from a population of HIV-infected patients, incorporating exposure to individual antiretroviral therapy drugs and traditional classic cardiovascular risk factors. OBJECTIVES: The aim of this study was to determine the vascular age calculated from the D:A:D equation, for HIV infected patients. METHODS: Vascular age was calculated according to its definition by using the D:A:D equation. The Poisson regression model used in the D:A:D equation is an exponential model to calculate the vascular age to match the exponent of the equation with the factors of a patient with the exponent of a subject with controlled risk factors. RESULTS: We obtained an equation that allows calculating the vascular age of a patient considering cardiovascular risk factors listed in the same D:A:D equation. From the equation, we have built a table for easy calculation of the vascular age and a table of cardiovascular risk equivalents. CONCLUSIONS: Vascular age is a new concept derived from Framingham risk tables that can be calculated with other risk scales, such as D:A:D for HIV patients. The calculation of vascular age in HIV patients could be a useful tool for communicating cardiovascular risk and to improve the control of modifiable risk factors.


Despite the combined antiretroviral therapy has improved the length and quality of life of HIV infected patients, the survival of these patients is always decreased compared with the general population. This is the consequence of non-infectious illnesses including cardiovascular diseases. In fact large studies have indicated an increased risk of coronary atherosclerotic disease, myocardial infarction even in HIV patients on cART. In HIV infected patients several factors may contribute to the pathogenesis of cardiovascular problems: life-style, metabolic parameters, genetic predisposition, viral factors, immune activation, chronic inflammation and side effects of antiretroviral therapy. The same factors may also contribute to complicate the clinical management of these patients. Therefore, treatment of these non-infectious illnesses in HIV infected population is an emerging challenge for physicians. The purpose of this review is to focus on the new insights in non AIDS-related cardiovascular diseases in patients with suppressed HIV viremia.


BACKGROUND: Despite the relevance of monocytes as promoters of the inflammatory response, whether human immunodeficiency virus (HIV) infection induces premature age-related changes to the phenotype and function of monocytes or whether these alterations are different and/or specifically driven by HIV remains to be mechanistically determined. METHODS: We assayed the activation phenotype and the responsiveness in vitro to Toll-like receptor (TLR) agonists in classical, intermediate, and nonclassical subsets of monocytes by assessing intracellular interleukin 1alpha (IL-1alpha), IL-1beta, interleukin 6 (IL-6), interleukin 8, tumor necrosis factor alpha, and interleukin 10 (IL-10) production in 20 HIV-infected patients receiving combination antiretroviral therapy (cART) and 2 groups of uninfected controls (20 age-matched young individuals and 20 older individuals aged >65 years). RESULTS: HIV-infected patients showed a more activated phenotype of monocytes than older controls. Regarding functionality, under unstimulated conditions HIV-infected patients showed a higher percentage of classical monocytes producing IL-6 and IL-10 than control subjects. The percentage of cells with production of multiple cytokines (polyfunctionality), including IL-10, in response to TLR agonists was greater among HIV-infected patients than among control subjects. CONCLUSIONS: Inflammatory alterations associated with monocytes during HIV infection are different from those in aging individuals. This monocyte dysfunction, mainly characterized by high levels of IL-6- and IL-10-producing monocytes, may have clinical implications in HIV-infected patients that are different from those in aging individuals.


Although the replicative life cycle of HIV within CD4 T cells is understood in molecular detail, less is known about how this human retrovirus promotes the loss of CD4 T lymphocytes. It is this cell death process that drives clinical progression to acquired immune deficiency syndrome (AIDS). Recent studies have highlighted how abortive infection of resting and thus
nonpermissive CD4 T cells in lymphoid tissues triggers a lethal innate immune response against the incomplete DNA products generated by inefficient viral reverse transcription in these cells. Sensing of these DNA fragments results in pyroptosis, a highly inflammatory form of programmed cell death, that potentially further perpetuates chronic inflammation and immune activation. As discussed here, these studies cast CD4 T cell death during HIV infection in a different light. Further, they identify drug targets that may be exploited to both block CD4 T cell demise and the chronic inflammatory response generated during pyroptosis.


**BACKGROUND:** Common variable immunodeficiency (CVID) is characterized by hypogammaglobulinemia, defective antibody production and recurrent upper and lower respiratory tract infections. The diagnosis in adult patients is often thought to be rare, and thus misdiagnosis often occurs. A limited number of cases of adult-onset CVID have been reported in China, and the features of the syndrome remain unclear. The objective of this study was to describe the main characteristics of CVID, and evaluate the treatment of adult patients who present with CVID.

**MATERIALS AND METHODS:** This was a retrospective analysis of 8 patients with CVID from different departments in 1 center in China. Patients were diagnosed according to the diagnostic criteria of the European Society for Immunodeficiency Diseases. Demographics, clinical and immunological data from each patient were collected and a statistical analysis was undertaken.

**RESULTS:** The mean age at diagnosis was 43 +/- 13.7 years, whereas the mean duration of diagnostic delay was 10.5 years. The median total serum levels of immunoglobulin (Ig) G, IgA and IgM at diagnosis were 2.5 +/- 0.59, 0.23 +/- 0.05 and 0.17 +/- 0.05g/L, respectively. A total of 7 patients also had a low CD4(+) / CD8(+) ratio. All patients presented with recurrent respiratory infections. Regular infusions of intravenous immunoglobulin every 3 weeks substantially reduced pneumonic episodes.

**CONCLUSIONS:** Diagnosis is often delayed in adult CVID. Pulmonary infections and diseases were the most frequent presentations at onset of the disease. Regular intravenous immunoglobulin infusions were beneficial in controlling recurrent infections.


The article discusses the effort of the "Life Extension®" magazine to speed restoration of immune competence in aging people, including inhibiting the interleukin-6 levels. Topics include the leading cause of disability and death is immune senescence, the beneficial effects of various nutrients on immune activity, and the use of the cistanche plant to restore progenitors of peripheral naïve T cells.


**OBJECTIVE:** Chronic obstructive pulmonary disease is a common comorbidity in HIV, with prevalence and severity of disease incompletely explained by risk factors such as smoking and age. Unique HIV-associated factors, including microbial translocation, monocyte activation, and endothelial dysfunction, have been described in other comorbidities, but have not been investigated in relation to pulmonary abnormalities in HIV. This study assessed the relationship of these pathologic processes to pulmonary function in HIV-infected and uninfected individuals and determined if relationships were unique to HIV.

**DESIGN:** Longitudinal observational study. METHODS: Total 274 participants completed pulmonary function testing. Markers of inflammation (IL-6, IL-8, and TNFalpha), microbial translocation (lipopolysaccharide, sCD14), monocyte activation (sCD163, sCD14, and IL-2 receptor), and endothelial dysfunction (endothelin-1) were measured at baseline. Cross-sectional and longitudinal analyses were performed, adjusting for pertinent covariates.

**RESULTS:** In HIV-infected individuals, higher IL-6 and endothelin-1 associated with worse forced expiratory volume in one second (FEV1) percentage-predicted, and higher sCD163 associated with worse FEV1/forced vital capacity. IL-6, TNFalpha, lipopolysaccharide, sCD163, IL-2 receptor, and endothelin-1 associated with diffusing impairment. sCD163 and endothelin-1 interacted with HIV status in relationship to pulmonary function. In HIV-infected individuals only, baseline endothelin-1 was associated with lower FEV1, and sCD163 and endothelin-1 were associated with lower diffusing capacity during follow-up.

**CONCLUSION:** Circulating markers of HIV-associated humoral abnormalities are associated with airflow obstruction and diffusing impairment and baseline measures of monocyte activation and endothelial dysfunction associate with lower pulmonary function over time in HIV-infected persons. These findings suggest mechanisms of the disproportionate burden of chronic obstructive pulmonary disease in HIV-infected persons.

Inflammation is related to several pathological processes. The aim of this study was to investigate the protein expression of the different subunits of the nuclear factor kappa b (NFkBp65, p50, p105, p52, p100) and the protein expressions of IkB beta and alpha in the hearts from a murine model of accelerated aging (SAM model) by Western blot. In addition, the translocation of some isoforms of NFkB from cytosol to nuclei (NFkBp65, p50, p52) and ATP level content was studied. In addition we investigated the effect of the chronic administration of growth hormone (GH) on these age-related parameters. SAM8 and SAMR1 mice of 2 and 10 months of age were used (n = 30). Animals were divided into five experimental groups: 2 old untreated (SAM8/SAMR1), 2 young control (SAM8/SAMR1) and one GH treated-old groups (SAM8). Age-related changes were found in the studied parameters. We were able to see decreases of ATP level contents and the translocation of the nuclear factor kappa B p50, p52 and p65 from cytosol to nuclei in old SAM8 mice together with a decrease of IkB proteins. However p100 and p105 did not show differences with aging. No significant changes were recorded in SAMR1 animals. GH treatment showed beneficial effects in old SAM8 mice inducing an increase in ATP levels and inhibiting the translocation of some NFkB subunits such as p52. Our results supported the relation of NFkB activation with enhanced apoptosis and pro-inflammatory status in old SAM8 mice and suggested a selective beneficial effect of the GH treatment, which was able to partially reduce the incidence of some deleterious changes in the heart of those mice.


Clonal expansion of human T-lymphotropic virus type-1 (HTLV-1) infected cells in vivo is well documented. Unlike human immunodeficiency virus type-1 (HIV-1), HTLV-1 plasma RNA is sparse. The contribution of the "mitotic" spread of HTLV-1 compared with infectious spread of the virus to HTLV-1 viral burden in established infection is uncertain. Since extrachromosomal long terminal repeat (LTR) DNA circles are indicators of viral replication in HIV-1 carriers with undetectable plasma HIV RNA, we hypothesised that HTLV-1 LTR circles could indicate reverse transcriptase (RT) usage and infectious activity. 1LTR and 2LTR DNA circles were measured in HTLV-1 cell lines and peripheral blood mononuclear cells (PBMC) of asymptomatic carriers (ACs) and patients with HTLV-1-associated myelopathy/tropical spastic paraparesis (HAM/TSP) or adult T cell leukaemia/lymphoma (ATLL). 1LTR DNA circles were detected in 14/20 patients at a mean of 1.38/100 PBMC but did not differentiate disease status nor correlate with HTLV-1 DNA copies. 2LTR DNA circles were detected in 30/31 patients and at higher concentrations in patients with HTLV-1-associated diseases, independent of HTLV-1 DNA load. In an incident case the 2LTR DNA circle concentration increased 2.1 fold at the onset of HAM/TSP compared to baseline. Detectable and fluctuating levels of HTLV-1 DNA circles in patients indicate viral RT usage and virus replication. Our results indicate HTLV-1 viral replication capacity is maintained in chronic infection and may be associated with disease onset.


The mechanism underlying the excess risk of non-AIDS diseases among HIV infected people is unclear. HIV associated inflammation/hypercoagulability likely plays a role. While antiretroviral therapy (ART) may return this process to pre-HIV levels, this has not been directly demonstrated. We analyzed data/specimens on 249 HIV+ participants from the US Military HIV Natural History Study, a prospective, multicenter observational cohort of >5600 active duty military personnel and beneficiaries living with HIV. We used stored blood specimens to measure D-dimer and Interleukin-6 (IL-6) at three time points: pre-HIV seroconversion, >/=6 months post-HIV seroconversion but prior to ART initiation, and >/=6 months post-ART with documented HIV viral suppression on two successive evaluations. We evaluated the changes in biomarker levels between time points, and the association between these biomarker changes and future non-AIDS events. During a median follow-up of 3.7 years, there were 28 incident non-AIDS diseases. At ART initiation, the median CD4 count was 361cells/mm3; median duration of documented HIV infection 392 days; median time on ART was 354 days. Adjusted mean percent increase in D-dimer levels from pre-seroconversion to post-ART was 75.1% (95% confidence interval 24.6-148.0, p = 0.002). This increase in D-dimer was associated with a significant 22% increase risk of future non-AIDS events (p = 0.03). Changes in IL-6 levels across time points were small and not associated with future non-AIDS events. In conclusion, ART initiation and HIV viral suppression does not eliminate HIV associated elevation in D-dimer levels. This residual pathology is associated with an increased risk of future non-AIDS diseases.


The goal of this review is to describe evolving epidemiology of noninfectious, nonneoplastic pulmonary complications of HIV infection, including HIV-associated pulmonary arterial hypertension (HIV-PAH) and interstitial lung disease (ILD). The
development of antiretroviral therapy has rendered HIV a chronic illness in treated patients, and the landscape of HIV-associated medical conditions continues to evolve. Although there has been a shift away from AIDS-defining infectious diseases and malignancies, HIV-PAH continues to affect survival adversely when compared with HIV-infected patients without PAH. Studies of pre- and post-highly active antiretroviral therapy (HAART) era show that the prevalence of HIV-PAH remains high and unchanged. The increased prevalence of PAH among HIV-infected individuals has led to several complementary theories about potential mechanisms underlying this disease. Unique mechanisms of HIV-PAH focus on direct effects of viral proteins; alterations in cellular immunologic/inflammatory reactions to the virus; additive effects of cocaine, heroin, and other drugs of abuse; and potentially toxic aspects of antiretroviral and associated therapies. PAH-specific therapy with HAART is likely beneficial in the treatment of HIV-PAH patients. The prevalence of ILD in HIV-infected individuals is also significantly higher than that in the general population. Lymphoid interstitial pneumonitis (LIP) and nonspecific interstitial pneumonia (NSIP) have been reported in both HIV-infected children and adults, and NSIP is more common than LIP in HIV-infected patients. At present, there is no consensus on the pathogenesis of LIP and NSIP in HIV. Finally, we briefly review the literature on venous thromboembolic disease in HIV-infected individuals.


OBJECTIVE: Several pieces of evidence indicate that HIV-infected adults undergo premature aging. The effect of HIV and antiretroviral therapy (ART) exposure on the aging process of HIV-infected children may be more deleterious since their immune system coevolves from birth with HIV. DESIGN: Seventy-one HIV-infected (HIV+), 65 HIV-exposed-uninfected (HEU), and 56 HIV-unexposed-uninfected (HUU) children, all aged 0-5 years, were studied for biological aging and immune senescence. METHODS: Telomere length and T-cell receptor rearrangement excision circle levels were quantified in peripheral blood cells by real-time PCR. CD4 and CD8 cells were analysed for differentiation, senescence, and activation/exhaustion markers by flow cytometry. RESULTS: Telomere lengths were significantly shorter in HIV+ than in HEU and HUU children (overall, P < 0.001 adjusted for age); HIV+ ART-naive (42%) children had shorter telomere length compared with children on ART (P = 0.003 adjusted for age). T-cell receptor rearrangement excision circle levels and CD8 recent thymic emigrant cells (CD45RACD31) were significantly lower in the HIV+ than in control groups (overall, P = 0.025 and P = 0.005, respectively). Percentages of senescent (CD28CD57), activated (CD38HLA-DR), and exhausted (PD1) CD8 cells were significantly higher in HIV+ than in HEU and HUU children (P = 0.004, P < 0.001, and P < 0.001, respectively). Within the CD4 cell subset, the percentage of senescent cells did not differ between HIV+ and controls, but programmed cell death receptor-1 expression was upregulated in the former. CONCLUSIONS: HIV-infected children exhibit premature biological aging with accelerated immune senescence, which particularly affects the CD8 cell subset. HIV infection per se seems to influence the aging process, rather than exposure to ART for prophylaxis or treatment.


HIV-infected individuals are living longer on antiretroviral therapy, but many patients display signs that in some ways resemble premature aging. To investigate and quantify the impact of chronic HIV infection on aging, we report a global analysis of the whole-blood DNA methylomes of 137 HIV+ individuals under sustained therapy along with 44 matched HIV- individuals. First, we develop and validate epigenetic models of aging that are independent of blood cell composition. Using these models, we find that both chronic and recent HIV infection lead to an average aging advancement of 4.9 years, increasing expected mortality risk by 19%. In addition, sustained infection results in global deregulation of the methylome across >80,000 CpGs and specific hypomethylation of the region encoding the human leukocyte antigen locus (HLA). We find that decreased HLA methylation is predictive of lower CD4 / CD8 T cell ratio, linking molecular aging, epigenetic regulation, and disease progression.

Residual immune activation was studied in 51 HIV-infected individuals, 16 with viral load between 1 and 20 copies/ml and 35 with viral load less than 1 copy/ml, and compared with results in 20 healthy blood donors. Higher T-cell activation and IP-10/CXCL10, MIG/CXCL9 and sCD14 plasma levels persisted in both HIV+ groups. The proportion of activated HLA-DR+ CD4 T cells was inversely correlated with the CD4 nadir and the current CD4 cell counts.


BACKGROUND: To investigate mechanisms that determine healthy aging is of major interest in the modern world marked by longer life expectancies. In addition to lifestyle and environmental factors genetic factors also play an important role in aging phenotypes. The aged immune system is characterized by a chronic micro-inflammation, known as inflamm-aging, that is suspected to trigger the onset of age-related diseases such as cardiovascular disease, Alzheimer’s disease, cancer, and Diabetes Mellitus Type 2 (DMT2). We have recently shown that a Toll-like receptor 6 variant (P249S) is associated with susceptibility to cardiovascular disease and speculated that this variant may also be associated with healthy aging in general by decreasing the process of inflamm-aging.

RESULTS: Analyzing the PolSenior cohort we show here that nonsmoking S allele carriers are significantly protected from age-related diseases (P = 0.008, OR: 0.654). This association depends not only on the association with cardiovascular diseases (P = 0.018, OR: 0.483) for homozygous S allele carriers, but is also driven by a protection from Diabetes Mellitus type 2 (P = 0.010, OR: 0.486) for S allele carriers. In addition we detect a trend but no significant association of this allele with inflamm-aging in terms of baseline IL-6 levels.

CONCLUSION: We confirm our previous finding of the TLR-6 249S variant to be protective regarding cardiovascular diseases. Furthermore, we present first evidence of TLR-6 249S being involved in DMT2 susceptibility and may be in general associated with healthy aging possibly by reducing the process of inflamm-aging.


HIV patients have an increased risk to develop sepsis and HIV infection affects several components of the immune system involved in sepsis pathogenesis. We hypothesized that HIV infection might aggravate the aberrant immune response during sepsis, so we aimed to determine the impact of HIV infection on the genomic host response to sepsis. We compared whole blood leukocyte gene expression profiles among sepsis patients with or without HIV co-infection in the intensive care unit (ICU) and validated our findings in a cohort of patients admitted to the same ICUs in a different time frame. To examine the influence of HIV infection per se, we also determined the expression of genes of interest in a cohort of asymptomatic HIV patients. We identified a predominantly common host response in sepsis patients with or without HIV co-infection. HIV positive sepsis patients in both ICU cohorts showed overexpression of genes involved in granzyme signaling (GZMA, GZMB), cytotoxic T-cell signaling (CD8A, CD8B) and T-cell inhibitory signaling (LAG3), compared to HIV negative patients. Enhanced expression of CD8A, CD8B and LAG3 was also unmasked in asymptomatic HIV patients. Plasma levels of granzymes in sepsis patients were largely below detection limit, without differences according to HIV status. These results demonstrate that sepsis is characterized by a massive common response with few differences between HIV positive and HIV negative sepsis patients. Observed differences in granzyme signaling, cytotoxic T-cell signaling and T-cell inhibitory signaling appear to be changes commonly observed in asymptomatic HIV patients which persist during sepsis.


The article discusses research published in the 2016 issue of the journal "Molecular Cell" on the association of HIV infection to accelerated cellular aging based on analysis of DNA methylation patterns of men with HIV infection. The study examined the capacity of the epigenetic clock of the methyleome to predict mortality or morbidity and the potential effect of the virus itself or long-term antiretroviral therapy on HIV-positive patients.
The article offers information on preventing accelerated aging by understanding several aspects of immune senescence, a major factor which underlie accelerated aging. Topics include how to rebuild immune system, the how to manage the effect of aging to the immune system function, and physiological effect of Pu-erh tea exract on providing longevity.


BACKGROUND: Rates of HIV infections are increasing in older adults. Although it is known that the HIV/AIDS epidemics affects women disproportionately, little is known regarding immune functions in the genital tract of postmenopausal women, as relevant to HIV susceptibility. OBJECTIVE: The objective of the study was to compare levels of female reproductive tract immune mediators that are important for HIV-associated immune responses as well as intrinsic anti-HIV activity in the cervical vaginal lavages collected from HIV-negative pre- and postmenopausal women. STUDY DESIGN: Cervical vaginal lavage from 20 premenopausal and 20 postmenopausal women were assayed for interleukin-6, interleukin-8, tumor necrosis factor-alpha, secretory leukocyte protease inhibitor, elafin, human beta-defensin-2, and macrophage inflammatory protein-3alpha using standard enzyme-linked immunosorbent assays. Anti-HIV activity of cervical-vaginal lavage was measured using TZM-bl indicator cells against HIV-1 IIIB and BaL. Whereas each postmenopausal woman provided only 1 sample, each premenopausal woman provided 3 samples, during proliferative, ovulatory, and secretory stages, based on menstrual dates. RESULTS: We observed significantly lower levels of tumor necrosis factor-alpha, MIP-3alpha, secretory leukocyte protease inhibitor, elafin, and human beta-defensin-2 in cervical vaginal lavage from postmenopausal women compared with premenopausal women. Inhibition of HIV-1 infection was observed for both pre- and postmenopausal women, but cervical vaginal lavage from postmenopausal women showed significantly higher inhibition against HIV-1 BaL after adjusting for total protein concentration, genital pH, and reproductive tract infections. No change in mediators or HIV inhibition was observed through the stages of menstrual cycle. In addition, we observed that postmenopausal women with reproductive tract infections had significantly higher levels of tumor necrosis factor-alpha and significantly lower levels of interleukin-8, which were not observed in premenopausal women. CONCLUSION: Our findings suggest that female reproductive tract immune microenvironment is distinct in HIV-negative postmenopausal women. Further studies are needed to assess the risk of HIV acquisition/transmission in this population.


BACKGROUND: Virus-specific CD8(+) T-cell responses are believed to play an important role in the control of HIV-1 infection; however, what constitutes an effective HIV-1 CD8(+) T-cell response remains a topic of debate. The ex vivo viral suppressive capacity was measured of CD8(+) T cells from 44 HIV-1-positive individuals. The phenotypic and cytokine profiles, and also the specificity of the CD8(+) T cells, were correlated with the suppression of HIV-1 replication. We also aimed to determine whether antiretroviral therapy (ART) had any positive effect on the HIV-1 suppressive CD8(+) T cells. METHOD: Ex vivo suppression assay was used to evaluate the ability of CD8(+) T cells to suppress HIV-1 replication in autologous CD4(+) T cells. The CD107a, interferon-gamma, interleukin-2, tumor necrosis factor-alpha (TNF-alpha), and macrophage inflammatory protein-1beta (MIP-1beta) responses to HIV-1 were evaluated by intracellular staining. The phenotypic profile of CD8(+) T cells was determined by whole blood staining. RESULTS: The expression of CD57 on effector CD8(+) T cells correlated with the suppression of HIV-1 replication and to the duration of ART. CD107a and tumor necrosis factor-alpha expression levels were significantly higher in individuals with ex vivo suppressive activity compared with individuals without suppressive activity. CONCLUSIONS: Standard in vitro assays measuring one or several cytokines do not correlate with the functional viral suppressive capacity of CD8(+) T cells from HIV-1-positive individuals. The best correlation of viral suppression was found to be CD57 expression. CD57 expression correlated with the duration of ART, suggesting that ART restores the cytotoxic capacity of CD8(+) T lymphocytes.


Resting CD4+ T-cells harboring inducible HIV proviruses are a critical reservoir in antiretroviral therapy (ART)-treated subjects. These cells express little to no viral protein, and thus neither die by viral cytopathic effects, nor are efficiently cleared by immune effectors. Elimination of this reservoir is theoretically possible by combining latency-reversing agents (LRAs) with immune effectors, such as CD8+ T-cells. However, the relative efficacy of different LRAs in sensitizing latently-infected cells for recognition by HIV-specific CD8+ T-cells has not been determined. To address this, we developed an assay that utilizes HIV-
specific CD8+ T-cell clones as biosensors for HIV antigen expression. By testing multiple CD8+ T-cell clones against a primary cell model of HIV latency, we identified several single agents that primed latently-infected cells for CD8+ T-cell recognition, including IL-2, IL-15, two IL-15 superagonists (IL-15SA and ALT-803), prostratin, and the TLR-2 ligand Pam3CSK4. In contrast, we did not observe CD8+ T-cell recognition of target cells following treatment with histone deacetylase inhibitors or with hexamethylene bisacetamide (HMBA). In further experiments we demonstrate that a clinically achievable concentration of the IL-15 superagonist 'ALT-803', an agent presently in clinical trials for solid and hematological tumors, primes the natural ex vivo reservoir for CD8+ T-cell recognition. Thus, our results establish a novel experimental approach for comparative evaluation of LRAs, and highlight ALT-803 as an LRA with the potential to synergize with CD8+ T-cells in HIV eradication strategies.


With increasing success in treating HIV, infected persons are living longer, and a new challenge has emerged - the need to understand how HIV-infected adults are aging. What are the similarities with typical aging and what are the unique aspects that may have resulted from HIV infection, interacting with characteristic lifestyle factors and other comorbid conditions? Are specific diseases and conditions (comorbidities), typically seen as part of the aging process, occurring at accelerated rates or with higher frequency (accentuated) in HIV-infected adults? At this juncture, conclusions should be tentative. Certainly, biological processes that correlate with aging occur earlier in the older adult HIV population. Clinical manifestations of these biological processes are age-associated illnesses occurring in greater numbers (multimorbidity), but they are not accelerated. Specifically cardiovascular disease, certain cancers, and renal disease are more common with other comorbidities less certain. Management of this elevated risk for developing multimorbidity is a major concern for patients and their health care teams. The medical system must respond to the evolving needs of this aging and growing older adult population who will dominate the epidemic. Adopting a more holistic approach to their health care management is needed to achieve optimal health and well-being in the HIV-infected older adult. Geriatric care principles best embody this approach.


OBJECTIVES: In contrast to the general population, no decline in cardiovascular disease (CVD) has been noted in HIV-infected patients over the last 10 years. We compared the carotid artery intima media thickness (CIMT) of HIV-infected patients to that of age- and gender-matched reference values and determined the relationship between CVD risk factors and CIMT.

METHODS: A total of 292 HIV-infected patients were enrolled in the study. Data collected included vascular screening data, data obtained using a questionnaire, data obtained from laboratory assessments and CIMT measurement. Using linear regression (adjusted for age/gender/known HIV), the association between HIV-specific and classical cardiovascular risk factors and CIMT was evaluated.

RESULTS: The cohort comprised for 91% of male patients, aged 49.4 +/- 10.5 years, with a known duration of HIV infection of 8.8 +/- 6.7 years. The mean with standard deviation (mean +/- SD) CIMT was 0.77 +/- 0.19 mm, compared with 0.58 +/- 0.05 mm in the controls. A steeper increase of CIMT per age was seen in the HIV-infected patients. A significant relationship between CIMT and hypertension, diabetes mellitus, smoking, systolic blood pressure, HbA1c (glycated hemoglobin) and ankle brachial index was found. Of the HIV-specific variables, only a relationship between CIMT and length of cART use and between CIMT and (inversely) current cART use was seen.

CONCLUSIONS: A greater CIMT was found in HIV-infected patients compared with controls. In contrast to HIV-specific variables, classical CVD risk factors were associated with a greater CIMT and should therefore be the focus of preventive measures.

Lamoury, F. M., et al. (2016). "HIV infection is associated with higher levels of monocyte chemoattractant protein-1 and eotaxin among people with recent hepatitis C virus infection." BMC Infect Dis 16: 241.

BACKGROUND: Human immunodeficiency virus (HIV) infection leads to more rapid progression of hepatitis C virus (HCV)-related liver fibrosis, which could be linked to differences in the severity of liver inflammation among HIV/HCV co-infected individuals compared to HCV mono-infected individuals. This study assessed the association of HIV co-infection with pro-inflammatory and pro-fibrogenic cytokines and chemokines during recent HCV infection. METHODS: Participants from the ATAHQ study, a prospective cohort of recent HCV infection, with detectable HCV RNA at the time of acute HCV detection were included. Concentrations of 27 plasma cytokines and chemokines were measured by multiplex immunoassays and compared between those with, and without, HIV co-infection. RESULTS: Out of 117 individuals with recent HCV infection included in analysis, 73 had HCV mono-infection and 44 had HIV/HCV co-infection. Individuals with HIV/HCV co-infection had significantly higher mean levels of eotaxin (1.79 vs. 1.62 log pg/mL; P < 0.001), monocyte chemotactic protein 1 (MCP-1; 2.10 vs. 1.98 log pg/mL; P < 0.001), and interferon-gamma inducible protein-10 (IP-10; 3.11 vs. 2.98 log pg/mL; P = 0.013). Linear regression analyses adjusting for age,
alanine transaminase (ALT), HCV RNA levels, and assay run, higher eotaxin levels were independently associated with HIV/HCV co-infection (adjusted beta: 0.12; 95%CI: 0.01, 0.24; P = 0.039). Higher MCP-1 levels were also independently associated with HIV/HCV co-infection in adjusted analysis (adjusted beta: 0.11; 95%CI: 0.03, 0.18; P = 0.009). CONCLUSIONS: During recent HCV, those with HIV/HCV co-infection had a stronger pro-fibrogenic mediator profile compared to those with HCV mono-infection. These findings may provide a potential explanation for accelerated liver fibrosis in HIV/HCV co-infection. TRIAL REGISTRATION: Australian Trial in Acute Hepatitis C (ATAHC) study was registered with ClinicalTrials.gov registry on September 11, 2005. NCT00192569.


OBJECTIVE: To investigate differences in subclinical coronary atherosclerotic plaque and markers of immune activation among HIV-infected and non-HIV-infected women categorized by degree of ovarian reserve and menopause status. DESIGN: Cross-sectional evaluation. METHODS: Seventy-four women (49 HIV-infected, 25 non-HIV-infected) without known cardiovascular disease (CVD) were classified as premenopausal, premenopausal with reduced ovarian reserve, or postmenopausal based on menstrual history and anti-Mullerian hormone (AMH) levels. Participants underwent contrast-enhanced coronary computed tomography angiography and immune phenotyping. Comparisons in coronary atherosclerotic plaque burden and immune markers were made between the HIV-infected and non-HIV-infected women overall and within the HIV-infected and non-HIV-infected women by reproductive classification group. RESULTS: Among the overall group of HIV-infected women, the women with reduced ovarian reserve (undetectable AMH) had a higher prevalence of coronary atherosclerotic plaque (52 versus 6%, P = 0.0007) and noncalcified plaque (48 versus 6%, P = 0.002), as well as higher levels of log sCD163 (P = 0.0004) and log MCP-1 (P = 0.006), compared with the premenopausal women with measurable AMH. Furthermore, reduced ovarian reserve in the HIV-infected group related to noncalcified plaque, controlling for traditional CVD risk factors (P = 0.04) and sCD163 (P = 0.03). CONCLUSION: HIV-infected women with reduced ovarian reserve have increased subclinical coronary atherosclerotic plaque compared with premenopausal women in whom AMH is measurable. This relationship holds when controlling for CVD risk factors (including age) and immune activation. Our findings demonstrate that reduced ovarian reserve may contribute to CVD burden in HIV-infected women and support a comprehensive assessment of CVD risk prior to completion of menopause in this population.


To increase our understanding of the genetic basis of adiposity and its links to cardiometabolic disease risk, we conducted a genome-wide association meta-analysis of body fat percentage (BF%) in up to 100,716 individuals. Twelve loci reached genome-wide significance (P<5 x 10(-8)), of which eight were previously associated with increased overall adiposity (BMI, BF%) and four (in or near COBLL1/GRB14, IGF2BP1, PLA2G6, CRTC1) were novel associations with BF%. Seven loci showed a larger effect on BF% than on BMI, suggestive of a primary association with adiposity, while five loci showed larger effects on BMI than on BF%, suggesting association with both fat and lean mass. In particular, the loci more strongly associated with BF% showed distinct cross-phenotype association signatures with a range of cardiometabolic traits revealing new insights in the link between adiposity and disease risk.


BACKGROUND: Decreased hepatitis C virus (HCV) clearance, faster cirrhosis progression and higher HCV RNA levels are associated with Human Immunodeficiency virus (HIV) coinfection. The CD4+ T helper cytokines interleukin (IL)-21 and IL-17A are associated with virus control and inflammation, respectively, both important in HCV and HIV disease progression. Here, we examined how antigen-specific production of these cytokines during HCV mono and HIV/HCV coinfection was associated with HCV virus control. METHODS: We measured HCV-specific IL-21 and IL-17A production by transwell cytokine secretion assay in PBMCs from monoinfected and coinfected individuals. Viral control was determined by plasma HCV RNA levels. RESULTS: In acutely infected individuals, those able to establish transient/complete HCV viral control tended to have stronger HCV-specific IL-21-production than non-controllers. HCV-specific IL-21 production also correlated with HCV viral decline in acute infection. Significantly stronger HCV-specific IL-21 production was detected in HAART-treated coinfected individuals. HCV-specific IL-17A production was not associated with lower plasma HCV RNA levels in acute or chronic HCV infection and responses were stronger in HIV coinfection. HCV-specific IL-21/ IL-17A responses did not correlate with microbial translocation or fibrosis. Exogenous IL-21 treatment of HCV-specific CD8+ T cells from monoinfected individuals enhanced their function although CD8+ T cells from...
coinfected individuals were somewhat refractory to the effects of IL-21. CONCLUSIONS: These data show that HCV-specific IL-21 and IL-17A-producing T cells are induced in HIV/HCV coinfection. In early HIV/HCV coinfection, IL-21 may contribute to viral control, and may represent a novel tool to enhance acute HCV clearance in HIV/HCV coinfected individuals.


OBJECTIVE: The impact of HIV-1 tropism on the emergence of non-AIDS events was evaluated in a cohort of 116 antiretroviral therapy (ART) responder patients. METHODS: The patients were followed for the emergence of hypertension, renal impairment, metabolic and bone disorders (defined as non-AIDS events) each 8 weeks at standard visits. A V3 plasma sequence genotype analysis was performed at the time of ART initiation and the geno2pheno algorithm with the results that defines the false-positive rate (FPR) was used to infer HIV tropism. The associations between the non-AIDS events and the FPR at baseline were evaluated using the chi test for trend. A Cox-regression analysis using the counting process formulation of Andersen and Gill was performed to define whether the emergence of non-AIDS events was correlated to FPR. RESULTS: The prevalence of at least one non-AIDS event resulted higher in patients with a FPR below 10% than in patients with a R5 virus (P = 0.033). Patients with a FPR below 5.0% most frequently developed non-AIDS events during ART (P = 0.01). A higher prevalence of patients with at least two AIDS events was found in the group of patients with a FPR below 5.0% with respect to the others (P < 0.001). At multivariate Cox-regression analysis, having an X4 virus and age were independently associated with a higher probability of non-AIDS event development. CONCLUSION: This study shows that an X4 virus, particularly a FPR less than 5%, is related to non-AIDS events development. Further studies are warranted to understand the mechanisms underlying this phenomenon.


BACKGROUND: Depression has been associated with impaired nitric oxide (NO)-mediated vasodilation and vascular dysregulation (VD). Whether depression and NO levels will disturb retinal haemodynamics is not clear. OBJECTIVES AND METHODS: Associations between the retinal vasculature, diastolic ocular perfusion pressure (DOPP) as measure of hypoperfusion, NO metabolites (NOx) and depression symptoms were assessed. Chronic VD risk markers [depression symptoms (Patient Health Questionnaire/PHQ-9 >/= 10) and 24 h pulse pressure] were determined in a bi-ethnic cohort (n = 313; 48.6 +/- 9 years; 53.9% men). At 3 year follow-up, retinal vessel calibre and retinopathy signs were quantified from digital images. Salivary NOx was obtained pre- and post-flicker light-induced provocation (FLIP). DOPP was defined as diastolic blood pressure minus intraocular pressure. RESULTS: Chronic VD risk was evident in Blacks opposed to acute risk in Whites (P < 0.05). At follow-up, retinopathy (Blacks 60.4%/Whites 39.6%), lower pre-FLIP (μM) and higher post-FLIP NOx (changes from baseline, %), arteriolar narrowing and wider venular calibre values were evident in Blacks compared to Whites, independent of confounders. A wider venular calibre, an index of stroke risk, was associated with chronic depression symptoms [cut point 248 μM: Area under the curve 0.61 (95% CI: 0.51, 0.72); 71% sensitivity; 55% specificity] as well as with hypoperfusion in the Blacks. In this group, arteriolar narrowing was associated with hypoperfusion; and attenuated arteriolar dilation with increased post-FLIP NOx responses. CONCLUSIONS: Chronic depression symptoms may alter NO regulation and facilitate VD. NO-mediated vasoconstriction presumably impeded perfusion, retinal haemodynamics and -remodelling; potentiating stroke risk in Blacks.


Previously, we reported that HIV-Tat elicits spermine oxidase (SMO) activity upregulation through NMDA receptor (NMDAR) stimulation in human SH-SY5Y neuroblastoma cells, thus increasing ROS generation, which in turn leads to GSH depletion, oxidative stress, and reduced cell viability. In several cell types, ROS can trigger an antioxidant cell response through the transcriptional induction of oxidative stress-responsive genes regulated by the nuclear factor erythroid 2-related factor 2 (Nrf2). Here, we demonstrate that Tat induces both antioxidant gene expression and Nrf2 activation in SH-SY5Y cells, mediated by SMO activity. Furthermore, NMDAR is involved in Tat-induced Nrf2 activation. These findings suggest that the NMDAR/SMO/Nrf2 pathway is an important target for protection against HIV-associated neurocognitive disorders.

Major depressive disorder (MDD) affects millions of individuals and is highly comorbid with many age associated diseases such as diabetes mellitus, immune-inflammatory dysregulation and cardiovascular diseases. Oxidative/nitrosative stress plays a fundamental role in aging, as well as in the pathogenesis of neurodegenerative/neuropsychiatric disorders including MDD. In this review, we critically review the evidence for an involvement of oxidative/nitrosative stress in acceleration of aging process in MDD. There are evidence of the association between MDD and changes in molecular mechanisms involved in aging. There is a significant association between telomere length, enzymatic antioxidant activities (SOD, CAT, GPx), glutathione (GSH), lipid peroxidation (MDA), nuclear factor kappaB, inflammatory cytokines with MDD. Major depression also is characterized by significantly lower concentration of antioxidants (zinc, coenzyme Q10, PON1). Since, aging and MDD share a common biological base in their pathophysiology, the potential therapeutic use of antioxidants and anti-aging molecules in MDD could be promising.

Mbugua, K. K., et al. (2016). "HIV-associated CD4+/CD8+ depletion in infancy is associated with neurometabolic reductions in the basal ganglia at age 5 years despite early antiretroviral therapy." AIDS 30(9): 1353-1362.

OBJECTIVE: Investigating consequences of early or late antiretroviral therapy (ART) initiation in infancy on young brain development using magnetic resonance spectroscopy. DESIGN: Most pediatric HIV/ART-related neurological studies are from neuropsychological/clinical perspectives. Magnetic resonance spectroscopy can elucidate the mechanisms underpinning neurocognitive outcomes by quantifying the brain’s chemical condition through localized metabolism to provide insights into health and development. METHODS: Basal ganglia metabolite concentrations were assessed in thirty-eight 5-year-old HIV-infected children previously participating in a randomized trial comparing early limited ART to deferred continuous ART, as well as 15 uninfected controls (12 HIV exposed). Metabolite levels were compared between 26 infected children who initiated ART at/before 12 weeks and 12 who initiated afterward, and were correlated with clinical HIV and treatment-related measures. RESULTS: HIV-infected children initiating ART after 12 weeks had lower creatine, choline and glutamate (P < 0.05) than those initiating ART at/before 12 weeks. The CD4/CD8 ratio at baseline correlated with N-acetyl-aspartate (r = 0.56, P = 0.003) and choline (r = 0.36, P = 0.03) at 5 years, irrespective of treatment regimen and ART interruption. In comparison with uninfected controls, 80% of whom were HIV-exposed in utero, children on early treatment had higher N-acetyl-aspartate (P = 0.006) and choline (P = 0.03). CONCLUSIONS: Despite early ART (<12 weeks), low baseline CD4/CD8 predicts brain metabolite levels in later childhood. Also, HIV exposure and antiretroviral exposure for preventing vertical HIV transmission may hinder metabolite health, but needs further investigation.


OBJECTIVE: High rates of albuminuria are observed among HIV-infected individuals on stable antiretroviral therapy (ART). Though pro-inflammatory and pro-fibrotic responses are described as components of albuminuria in the general population, it is unclear how these responses are associated to albuminuria in ART-treated chronic HIV. We investigated the relationship of monocyte subsets and urine inflammatory and fibrotic biomarkers to albuminuria in ART-treated HIV-infected participants. DESIGN AND METHODS: Cross-sectional analyses were performed on Hawaii Aging with HIV-cardiovascular disease study cohort participants who were required at entry to be >/=40 years old and on ART >/=3 months. Monocyte subpopulations were determined in banked peripheral blood mononuclear cells (PBMC) using multi-parametric flow-cytometry. Entry random urine samples were assessed for albumin-to-creatinine ratios (UACR). Urine samples were measured for inflammatory and fibrotic biomarkers using Luminex technology. RESULTS: Among 96 HIV-infected subjects with measured UACR (87% male, 59% Caucasian, and 89% undetectable HIV RNA with median CD4 of 495.5 cells/muL), 18 patients (19%) had albuminuria. Non-classical (CD14low/+CD16++) monocytes were significantly elevated in subjects with albuminuria (p = 0.034) and were correlated to UACR (r = 0.238, p = 0.019). Elevated non-classical monocyte counts were significant predictors of worsening albuminuria, independent of traditional- and ART-associated risk factors (beta = 0.539, p = 0.007). Urine TGF-beta1 and collagen-IV were significantly higher in albuminuric compared to non-albuminuric participants (TGF-beta1; p = 0.039 and collagen-IV; p = 0.042). Urine TGF-beta1 was significantly correlated with non-classical monocyte counts (r = 0.464, p = 0.017). CONCLUSION: Alterations in monocyte subpopulations and urine pro-fibrotic factors may play a role in kidney dysfunction during chronic HIV infection and warrants further study.

BACKGROUND: HIV is associated with elevated markers of vascular remodeling that may contribute to arterial fibrosis and stiffening and changes in pulse pressure (PP). These changes may, in turn, deleteriously affect autoregulation of cerebral blood flow and neurocognitive function. METHODS: To evaluate these mechanisms, we studied markers of vascular remodeling, PP, and neurocognitive function among older (>50 years of age) HIV-infected (HIV+, n = 72) and HIV-seronegative (HIV-, n = 36) adults. Participants completed standardized neurobehavioral and neuromedical assessments. Neurocognitive functioning was evaluated using a well-validated comprehensive battery. Three plasma biomarkers of vascular remodeling (ie, angiopoietin 2, Tie-2, and vascular endothelial growth factor, VEGF) were collected. RESULTS: HIV+ and HIV- participants had similar levels of plasma angiopoietin 2 (P = 0.48), Tie-2 (P = 0.27), VEGF (P = 0.18), and PP (P = 0.98). In a multivariable regression model, HIV interacted with Tie-2 (beta = 0.41, P < 0.01) and VEGF (beta = -0.43, P = 0.01) on neurocognitive function, such that lower Tie-2 and higher VEGF values were associated with worse neurocognitive function for HIV+ participants. Greater Tie-2 values were associated with increased PP (r = 0.31, P < 0.01). In turn, PP demonstrated a quadratic association with neurocognitive function (beta = -0.33, P = 0.01), such that lower and higher, relative to mean sample, PP values were associated with worse neurocognitive function.

CONCLUSIONS: These findings indicate that vascular remodeling and altered cerebral blood flow autoregulation contribute to neurocognitive function. Furthermore, HIV moderates the association between vascular remodeling and neurocognitive function but not the association between PP and neurocognitive function.


The induction of the acquired immunodeficiency syndrome by the human immunodeficiency virus-1 (HIV-1) is a complex process which is not yet understood in full detail. Still open is the question whether the highly conserved so-called immunosuppressive (Isu) domain in the transmembrane envelope (TM) protein gp41 of HIV-1 is actively participating in immunopathogenesis. Inactivated virus particles, recombinant gp41 and peptides corresponding to the Isu domain have been reported to inhibit lymphocyte proliferation, as well as to alter cytokine release and gene expression. Here we demonstrate, using fluorescence-activated cell sorting and competition experiments, that homopolymers of the Isu peptide of HIV-1 are binding specifically to human peripheral blood mononuclear cells, mainly to monocytes and B cells. These data suggest that a putative receptor might be involved in the immunomodulatory effects observed previously.


The RV254 cohort of HIV-infected very early acute (4thG stage 1 and 2) (stage 1/2) and late acute (4thG stage 3) (stage 3) individuals was used to study T helper-B cell responses in acute HIV infection and the impact of early antiretroviral treatment (ART) on T and B cell function. To investigate this, the function of circulating T follicular helper cells (cTfh) from this cohort was examined, and cTfh and memory B cell populations were phenotyped. Impaired cTfh cell function was observed in individuals treated in stage 3 when compared to stage 1/2. The cTfh/B cell cocultures showed lower B cell survival and IgG secretion at stage 3 compared to stage 1/2. This coincided with lower IL-10 and increased RANTES and TNF-alpha suggesting a role for inflammation in altering cTfh and B cell responses. Elevated plasma viral load in stage 3 was found to correlate with decreased cTfh-mediated B cell IgG production indicating a role for increased viremia in cTfh impairment and dysfunctional humoral response. Phenotypic perturbations were also evident in the mature B cell compartment, most notably a decrease in resting memory B cells in stage 3 compared to stage 1/2, coinciding with higher viremia. Our coculture assay also suggested that intrinsic memory B cell defects could contribute to the impaired response despite at a lower level. Overall, cTfh-mediated B cell responses are significantly altered in stage 3 compared to stage 1/2, coinciding with increased inflammation and a reduction in memory B cells. These data suggest that early ART for acutely HIV infected individuals could prevent immune dysregulation while preserving cTfh function and B cell memory.


Nowadays, HIV+ patients have an expected lifespan that is only slightly shorter than healthy individuals. For this reason, along with the fact that infection can be acquired at a relatively advanced age, the effects of ageing on HIV+ people have begun to be evident. Successful anti-viral treatment is, on one hand, responsible for the development of side effects related to drug toxicity; on the other hand, it is not able to inhibit the onset of several complications caused by persistent immune activation and chronic inflammation. Therefore, patients with a relatively advanced age, i.e. aged more than 50 years, can experience pathologies that affect much older citizens. HIV+ individuals with non-AIDS-related complications can thus come to the attention of clinicians because of the presence of neurocognitive disorders, cardiovascular diseases, metabolic syndrome, bone abnormalities and non-HIV-associated cancers. Chronic inflammation and immune activation, observed typically in elderly people and defined as ‘inflammaging’, can be present in HIV+ patients who experience a type of premature ageing, which affects the quality of life significantly. This relatively new condition is extremely complex, and important factors have been identified as well as the traditional behavioural risk factors, e.g. the toxicity of anti-retroviral treatments and the above-mentioned chronic inflammation leading to a functional decline and a vulnerability to injury or pathologies. Here, we discuss the role of inflammation and immune activation on the most important non-AIDS-related complications of chronic HIV infection, and the contribution of aging per se to this scenario.


The precise effects of HIV-1 on the gut microbiome are unclear. Initial cross-sectional studies provided contradictory associations between microbial richness and HIV serostatus and suggested shifts from Bacteroides to Prevotella predominance following HIV-1 infection, which have not been found in animal models or in studies matched for HIV-1 transmission groups. In two independent cohorts of HIV-1-infected subjects and HIV-1-negative controls in Barcelona (n = 156) and Stockholm (n = 84), men who have sex with men (MSM) predominantly belonged to the Prevotella-rich enterotype whereas most non-MSM subjects were enriched in Bacteroides, independently of HIV-1 status, and with only a limited contribution of diet effects. Moreover, MSM had a significantly richer and more diverse fecal microbiota than non-MSM individuals. After stratifying for sexual orientation, there was no solid evidence of an HIV-specific dysbiosis. However, HIV-1 infection remained consistently associated with reduced bacterial richness, the lowest bacterial richness being observed in subjects with a virological-immune discordant response to antiretroviral therapy. Our findings indicate that HIV gut microbiome studies must control for HIV risk factors and suggest interventions on gut bacterial richness as possible novel avenues to improve HIV-1-associated immune dysfunction.


Cardiovascular disease is one of the leading causes of morbidity and mortality in people living with HIV. Several epidemiological studies have shown an increased risk of myocardial infarction and stroke compared to uninfected controls. Although traditional risk factors contribute to this increased risk of cardiovascular disease, HIV-specific mechanisms likely also play a role. Systemic inflammation has been linked to cardiovascular disease in several populations suffering from chronic inflammation, including people living with HIV. Although antiretroviral therapy reduces immune activation, levels of inflammatory markers remain elevated compared to uninfected controls. The causes of this sustained immune response are likely multifactorial and incompletely understood. In this review, we summarize the evidence describing the relationship between inflammation and cardiovascular disease and discuss potential anti-inflammatory treatment options for cardiometabolic disease in people living with HIV.


The aim of this study was to explore the social networks of older adults living with HIV. Interviews were conducted with nine individuals aged 50 or older living with HIV in Helsinki, Finland. Analysis of transcripts was analysed by inductive qualitative
content analysis. Results indicated that these participants' networks tended to be large, including those both aware and unaware of the participants' health status. Analysis identified three main themes: large multifaceted social networks, importance of a support group, and downsizing of social networks. Support received appeared to be of great importance in coping with their health condition, especially since the time of diagnosis. Friends and family were the primary source of informal support. The majority of participants relied mostly on friends, some of whom were HIV-positive. Formal support came primarily from the HIV organisation's support group. In this study group, non-disclosure did not impact participants' well-being. In years to come, social networks of older adults living with HIV may shrink due to personal reasons other than HIV-disclosure. What is of primary importance is that healthcare professionals become knowledgeable about psychosocial issues of older adults living with HIV, identifying latent problems and developing adequate interventions in the early stages of the disease; this would help prevent social isolation and foster successful ageing with HIV.

Ofotokun, I., et al. (2016). "Antiretroviral therapy induces a rapid increase in bone resorption that is positively associated with the magnitude of immune reconstitution in HIV infection." AIDS (02699370) 30(3): 405.


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BACKGROUND: Advanced age and human immunodeficiency virus (HIV) infection are associated with increased pneumococcal disease risk. The impact of these factors on cellular responses to vaccination is unknown. METHODS: HIV-infected (HIV+) individuals 50-65 years old with CD4(+)/Tcells/μl (CD4) >200 on antiretroviral therapy (ART) >/=1 year received either the 13-valent pneumococcal conjugate vaccine followed by the 23-valent pneumococcal polysaccharide vaccine (PCV/PPV) or PPV only. HIV-uninfected (HIV-) controls received PCV/PPV. Phenotype distribution and surface expression of complement receptor CD21 and tumor necrosis factor superfamily receptors (TNFRs) were compared on serotype-specific B cells postvaccination. RESULTS: Postvaccination serotype-specific B cell percentages were significantly lower in HIV+ PCV/PPV compared to PPV groups, but similar between HIV+ or HIV- PCV/PPV groups. Transmembrane activator and calcium-modulating cyclophilin ligand interactor (TACI)(+) serotype-specific B cell percentages were significantly decreased in HIV+ PCV/PPV compared to PPV groups. CD21(+) serotype-specific B cells were significantly higher in HIV- compared to HIV+ PCV/PPV groups. CONCLUSIONS: An initial dose of PCV reduced the frequency, but not phenotype distribution, of serotype-specific B cells and also lowered TACI expression in aging HIV+ subjects postvaccination with PPV. These findings suggest that PCV does not enhance cellular responses to revaccination with PPV.


Highly active antiretroviral therapy (HAART) is associated with multiple metabolic disorders, including lipodystrophy, dyslipidaemia and insulin resistance. HIV/HAART-associated lipodystrophy syndrome (HALS) is characterised by subcutaneous fat wasting, central fat accumulation and increased risk of diabetes. Thiazolidinediones are considered a promising treatment for HALS, because they improve insulin sensitivity and increase subcutaneous fat mass. In previous studies, pioglitazone increased overall fat mass in patients with HALS but whether fat distribution changes remains unclear. We describe a HALS patient with diabetes treated with pioglitazone. Prior to pioglitazone therapy, he had hollowed cheeks, loss of fat in the extremities and abdominal obesity. 18 months after starting pioglitazone and switching his HAART regimens, T1-weighted MRI showed obvious increases in the subcutaneous fat mass of the neck and upper trunk, but no changes in the cheeks and extremities. Pioglitazone therapy for HALS could increase subcutaneous fat mass in non-lipoatrophic but not in lipoatrophic regions.


Skeletal muscle mitochondrial dysfunction may contribute to low aerobic capacity. We previously reported 40% lower aerobic capacity in HIV-infected men compared to noninfected age-matched men. The objective of this study was to compare skeletal muscle mitochondrial enzyme activities in HIV-infected men on antiretroviral therapy (55 +/- 1 years of age, n = 10 African American men) with age-matched controls (55 +/- 1 years of age, n = 8 Caucasian men), and determine their relationship with aerobic capacity. Activity assays for mitochondrial function including enzymes involved in fatty acid activation and oxidation, and oxidative phosphorylation, were performed in homogenates prepared from vastus lateralis muscle. Hydrogen peroxide
(H2O2), cardiolipin, and oxidized cardiolipin were also measured. beta-hydroxy acyl-CoA dehydrogenase (beta-HAD) (38%) and citrate synthase (77%) activities were significantly lower, and H2O2 (1.4-fold) and oxidized cardiolipin (1.8-fold) were significantly higher in HIV-infected men. VO2peak (mL/kg FFM/min) was 33% lower in HIV-infected men and was directly related to beta-HAD and citrate synthase activity and inversely related to H2O2 and oxidized cardiolipin. Older HIV-infected men have reduced oxidative enzyme activity and increased oxidative stress compared to age-matched controls. Further research is crucial to determine whether an increase in aerobic capacity by exercise training will be sufficient to restore mitochondrial function in older HIV-infected individuals.


Adipose tissue dysfunction occurs with aging and has systemic effects, including peripheral insulin resistance, ectopic lipid deposition, and inflammation. Fundamental aging mechanisms, including cellular senescence and progenitor cell dysfunction, occur in adipose tissue with aging and may serve as potential therapeutic targets in age-related disease. In this review, we examine the role of adipose tissue in healthy individuals and explore how aging leads to adipose tissue dysfunction, redistribution, and changes in gene regulation. Adipose tissue plays a central role in longevity, and interventions restricted to adipose tissue may impact lifespan. Conversely, obesity may represent a state of accelerated aging. We discuss the potential therapeutic potential of targeting basic aging mechanisms, including cellular senescence, in adipose tissue, using type II diabetes and regenerative medicine as examples. We make the case that aging should not be neglected in the study of adipose-derived stem cells for regenerative medicine strategies, as elderly patients make up a large portion of individuals in need of such therapies.


Activation of the immune system occurs in response to the recognition of foreign antigens and receipt of optimal stimulatory signals by immune cells, a process that requires energy. Energy is also needed to support cellular growth, differentiation, proliferation, and effector functions of immune cells. In HIV-infected individuals, persistent viral replication, together with inflammatory stimuli contributes to chronic immune activation and oxidative stress. These conditions remain even in subjects with sustained virologic suppression on antiretroviral therapy. Here we highlight recent studies demonstrating the importance of metabolic pathways, particularly those involving glucose metabolism, in differentiation and maintenance of the activation states of T cells and monocytes. We also discuss how changes in the metabolic status of these cells may contribute to ongoing immune activation and inflammation in HIV-infected persons and how this may contribute to disease progression, establishment and persistence of the HIV reservoir, and the development of co-morbidities. We provide evidence that other viruses such as Epstein-Barr and Flu virus also disrupt the metabolic machinery of their host cells. Finally, we discuss how redox signaling mediated by oxidative stress may regulate metabolic responses in T cells and monocytes during HIV infection.


Elevated blood CXCL10/IP-10 levels during primary HIV-1 infection (PHI) were described as an independent marker of rapid disease onset, more robust than peak viremia or CD4 cell nadir. IP-10 enhances the recruitment of CXCR3+ cells, which include major HIV-target cells, raising the question if it promotes the establishment of viral reservoirs. We analyzed data from four cohorts of HIV+ patients, allowing us to study IP-10 levels before infection (Amsterdam cohort), as well as during controlled and uncontrolled viremia (ANRS cohorts). We also addressed IP-10 expression levels with regards to lymphoid tissues (LT) and blood viral reservoirs in patients and non-human primates. Pre-existing elevated IP-10 levels but not sCD63 associated with rapid CD4 T-cell loss upon HIV-1 infection. During PHI, IP-10 levels to a lesser level IL-18 correlated with cell-associated HIV DNA, while 26 other inflammatory soluble markers did not. IP-10 levels tended to differ between HIV controllers with detectable and undetectable viremia. IP-10 was increased in SIV-exposed aviremic macaques with detectable SIV DNA in tissues. IP-10 mRNA was produced at higher levels in the small intestine than in colon or rectum. Jejunal IP-10+ cells corresponded to numerous small and round CD68neg cells as well as to macrophages. Blood IP-10 response negatively correlated with RORC (Th17 marker) gene expression in the small intestine. CXCR3 expression was higher on memory CD4+ T cells than any other immune cells. CD4 T cells
from chronically infected animals expressed extremely high levels of intra-cellular CXCR3 suggesting internalization after ligand recognition. Elevated systemic IP-10 levels before infection associated with rapid disease progression. Systemic IP-10 during PHI correlated with HIV DNA. IP-10 production was regionalized in the intestine during early SIV infection and CD68+ and CD68neg haematopoietic cells in the small intestine appeared to be the major source of IP-10.


Immune activation in HIV-1-infected individuals is reduced under antiretroviral therapies, but persists, resulting in various morbidities. To better characterize this phenomenon, using a panel of 68 soluble and cell surface markers, we measured the level of activation in circulating CD4+ and CD8+ T cells, B cells, monocytes, NK cells, polynuclear and endothelial cells as well as inflammation and fibrinolysis in 120 virologic responders over 45 years of age. As compared with age- and sex-matched uninfected individuals, we observed a persistence of activation in all the cell subpopulations analyzed, together with marks of inflammation and fibrinolysis. Two independent hierarchical clustering analyses allowed us to identify five clusters of markers that varied concurrently, and five patient groups, each with the same activation profile. The five groups of patients could be characterized by a marker of CD4+ T cell, CD8+ T cell, NK cell, monocyte activation or of inflammation, respectively. One of these profiles was strongly associated with marks of metabolic syndrome, particularly with hyperinsulinemia (OR 12.17 [95% CI 1.79-82.86], p=0.011). In conclusion, our study unveils biomarkers linked to metabolic syndrome that could be tested as predictive markers, and opens the way to new therapeutic approaches tailored to each patient group.


HIV infection often causes neurological symptoms including cognitive and motor dysfunction, which have been collectively termed HIV/neuroAIDS. Neuropsychological assessment and clinical symptoms have been the primary diagnostic criteria for HIV/neuroAIDS, even for the mild cognitive and motor disorder, the most prevalent form of HIV/neuroAIDS in the era of combination antiretroviral therapy. Those performance-based assessments and symptoms are generally descriptive and do not have the sensitivity and specificity to monitor the diagnosis, progression, and treatment response of the disease when compared to objective and quantitative laboratory-based biological markers, or biomarkers. In addition, effects of demographics and comorbidities such as substance abuse, psychiatric disease, nutritional deficiencies, and co-infection on HIV/neuroAIDS could be more readily determined using biomarkers than using neuropsychological assessment and clinical symptoms. Thus, there have been great efforts in identification of HIV/neuroAIDS biomarkers over the past two decades. The need for reliable biomarkers of HIV/neuroAIDS is expected to increase as the HIV-infected population ages and their vulnerability to neurodegenerative diseases, particularly Alzheimer's disease increases. Currently, three classes of HIV/neuroAIDS biomarkers are being pursued to establish objective laboratory-based definitions of HIV-associated neurologic injury: cerebrospinal fluid biomarkers, blood biomarkers, and neuroimaging biomarkers. In this review, we will focus on the current knowledge in the field of HIV/neuroAIDS biomarker discovery.


Whilst disturbances of female reproductive hormones and function are commonplace in opioid dependence, their pathophysiological interrelationships are not well understood. Hormonal levels in females were compared in 77 opioid dependent patients (ODP) and 148 medical controls (MC) including 205 and 364 repeat studies. Significant changes in FSH, LH, oestradiol, testosterone and SBG were noted including power functions with age. The FSH/LH was lower in ODP (P=0.0150) and the ratio inversion point occurred at 28.06+/-.9.36v. 46.26+/-4.76years, implying a 58% reduction in fertility duration. FSH has been shown to induce ovarian failure and GnRH (controlling LH and FSH) has been shown to regulate longevity systemically. This implies that, far from being benign, these findings explicate the adverse experience of female compared to male ODP, exacerbate opioid-dependent aging amongst females, and informs the care of opioid dependent women, particularly relating to the choice, dose and duration of agonist or antagonist therapy.

INTRODUCTION: Previous studies have demonstrated an association between HIV infection and coronary artery disease (CAD); little is known about potential associations between HIV infection and extra-coronary calcification (ECC). METHODS: We analyzed 621 HIV infected (HIV+) and 384 HIV uninfected (HIV-) men from the Multicenter AIDS Cohort Study who underwent non-contrast computed tomography (CT) from 2010-2013. Agatston scores were calculated for mitral annular calcification (MAC), aortic valve calcification (AVC), aortic valve ring calcification (AVRC), and thoracic aortic calcification (TAC). The associations between HIV infection and the presence of each type of ECC (score > 0) were evaluated by multivariable logistic regression. We also evaluated the association of ECC with inflammatory biomarker levels and coronary plaque morphology. RESULTS: Among HIV+ and HIV- men, the age-standardized prevalences were 15% for TAC (HIV+ 14%/HIV- 16%), 10% for AVC (HIV+ 11%/HIV- 8%), 24% for AVRC (HIV+ 23% HIV- 24%), and 5% for MAC (HIV+ 7%/HIV- 3%). After adjustment, HIV+ men had 3-fold greater odds of MAC compared to HIV- men (OR = 3.2, 95% CI: 1.5-6.7), and almost twice the odds of AVC (1.8, 1.1-2.9). HIV serostatus was not associated with TAC or AVRC. AVRC was associated with higher IL-6 and sCD163 levels. TAC was associated with higher ICAM-1, TNF-alpha RII, and IL-6 levels. AVC and AVRC calcification were associated with presence of non-calcified plaque in HIV+ but not HIV- men. CONCLUSION: HIV infection is an independent predictor of MAC and AVC. Whether these calcifications predict mortality in HIV+ patients deserves further investigation.


OBJECTIVE: The study aims to determine whether cystatin C is associated with HIV disease and HIV-associated neurocognitive impairment (NCI). METHODS: Participants included 124 (HIV+ n = 77; HIV- n = 47) older adults (age >/= 50 years) examined at the UCSD HIV Neurobehavioral Research Program. Cystatin C, a biomarker of kidney functioning that has been linked to poor health outcomes, was measured in blood. Participants completed a comprehensive neurocognitive assessment that was used to define both global and domain NCI. RESULTS: The HIV+ group had significantly higher cystatin C concentrations than the HIV- group (d=0.79 p<0.001). Among HIV+ participants, those with NCI had higher cystatin C concentrations than those without NCI (d=0.42, p=0.055), particularly among participants taking tenofovir (d=0.78, p=0.004). A receiver-operator characteristic curve identified that cystatin C levels >/= 0.75 mg/L were associated with NCI in the HIV+ group. Using this binary variable and including relevant covariates, multivariate modeling confirmed that NCI was associated with higher cystatin C levels (OR = 3.0; p = 0.03). CONCLUSIONS: Our results confirm that HIV+ older adults have higher cystatin C than HIV- older adults and further identify that cystatin C may be associated with NCI in this population, particularly if they use tenofovir. This blood biomarker may be a useful clinical tool to identify older HIV+ persons at greater risk for cognitive decline.


IL-18 is a pleiotropic and multifunctional cytokine that belongs to the IL-1 family. It is produced as a biologically inactive precursor, which is cleaved into its active mature form mainly by caspase-1. The caspase becomes active from its inactive precursor (procaspase-1) upon assembly of an inflammasome. Because of IL-18’s potential pro-inflammatory and tissue destructive effects, its biological activities are tightly controlled in the body by its naturally occurring antagonist called IL-18BP. The antagonist is produced in the body both constitutively and in response to an increased production of IL-18 as a negative feedback mechanism. Under physiological conditions, most of IL-18 in the circulation is bound with IL-18BP and is inactive. However, an imbalance in the production of IL-18 and its antagonist (an increase in the production of IL-18 with a decrease, no increase or an insufficient increase in the production of IL-18BP) has been described in many chronic inflammatory diseases in humans. The imbalance results in an increase in the concentrations of free IL-18 (unbound with its antagonist) resulting in increased biological activities of the cytokine that contribute towards pathogenesis of the disease. In this article, we provide an overview of the current biology of IL-18 and its antagonist, discuss how the imbalance occurs in HIV infections and how it contributes towards development of AIDS and other non-AIDS-associated clinical conditions occurring in HIV-infected individuals undergoing combination anti-retroviral therapy (cART). Finally, we discuss challenges facing immunotherapeutic strategies aimed at restoring balance between IL-18 and its antagonist in these patients.
Further decrease in serum AMH levels (2.4 +/- 2.4 vs 3.4 +/- 3.0 ng/ml; respectively, P = 0.011). Among HIV-infected women, after adjusting for factors associated with altered AMH among HIV-infected women, an association has been shown between tubal disease and a lower AMH level in the HIV-infected group as compared with seronegative controls (3.0 +/- 2.8 vs 3.7 +/- 3.5 ng/ml; respectively, P = 0.001).

Looking for other contributing factors to increased serum AMH levels in HIV-infected women, a backward multiple linear regression was performed.

RESULTS: Serum AMH levels were significantly lower in HIV-infected women than in matched controls (P < 0.001) and also reduced when compared to age and cause of infertility-matched HIV seronegative women (P = 0.011). Among HIV-infected women, after adjusting for factors associated with altered AMH among HIV-infected women, an association has been shown between tubal disease and lower AMH level in the HIV-infected group as compared with seronegative controls (3.0 +/- 2.8 vs 3.7 +/- 3.5 ng/ml; respectively, P = 0.001). Looking for other contributing factors to increased serum AMH levels in HIV-infected women, a backward multiple linear regression was performed.

OBJECTIVE: To evaluate HIV directly or indirectly related altered ovarian function, using serum anti-Mullerian hormone (AMH) levels in HIV-infected women as compared with seronegative women. DESIGN: We conducted a matched cohort study from January 2008 to December 2013 in a tertiary university centre. Two hundred and one HIV-infected women requesting assisted reproductive technology and 603 age and cause of infertility-matched HIV seronegative women were enrolled in this study. METHODS: All data were prospectively collected using a semistructured questionnaire. Serum AMH levels in HIV-infected women and matched controls were compared. To find out the contributing factors to increased serum AMH levels in HIV-infected women, a backward multiple linear regression was performed. RESULTS: Serum AMH levels were significantly lower in HIV-infected group as compared with seronegative controls (3.0 +/- 2.8 vs 3.7 +/- 3.5 ng/ml; respectively, P = 0.001). Looking for other contributing factors to increased serum AMH levels in HIV-infected women, an association has been shown between tubal disease and a further decrease in serum AMH levels (2.4 +/- 2.4 vs 3.4 +/- 3.0 ng/ml; respectively, P = 0.011). Among HIV-infected women, after adjusting for factors associated with altered AMH among HIV-infected women, an association has been shown between tubal disease and lower AMH level in the HIV-infected group as compared with seronegative controls (3.0 +/- 2.8 vs 3.7 +/- 3.5 ng/ml; respectively, P = 0.001).
multivariate linear regression analysis, we showed that increased age, BMI and viral load were associated with decreased serum AMH levels whereas in striking contrast an increase in CD4(+) cell count was associated with an increase of serum AMH levels.

CONCLUSION: Serum AMH levels were lower in the HIV-infected group than in the control group. Age, BMI, CD4(+) cell count and viral load were the independent contributors affecting serum AMH levels among HIV-infected women.


The aging of the human immunodeficiency virus type 1 (HIV-1)-infected population obligates a focus on the interaction between aging, comorbid conditions, and HIV-1. We recruited a cohort of HIV-1-infected men aged <\= 35 years or >\= 50 years who were receiving fully suppressive antiretroviral therapy (ART). We analyzed plasma markers of inflammation; T-cell activation, exhaustion, proliferation; and innate cellular subsets and functional capacity. Levels of lipopolysaccharide and the plasma marker of chemokine (C-C motif) ligand 2 were significantly elevated in older HIV-infected men despite comparable cellular phenotypes. Compared with similarly age-stratified uninfected subjects, older HIV-1-infected adults were also more frequently in the upper quartile of soluble CD14 expression.


BACKGROUND: Human immunodeficiency virus (HIV)-infected individuals are at high risk for ischemic stroke. To investigate the physiological basis for this risk, we used magnetic resonance imaging (MRI) to measure oxygen extraction fraction (OEF) and cerebral blood flow (CBF) in treatment-naive asymptomatic HIV-infected subjects and controls. METHODS: In treatment-naive asymptomatic HIV-infected subjects and age-, gender-, and race-matched controls, OEF was measured by MRI asymmetric spin-echo echo-planar imaging sequences and CBF was measured by MRI pseudocontinuous arterial spin labeling. RESULTS: Twenty-six treatment-naive HIV-infected subjects and 27 age-, gender-, race-matched controls participated. Whole-brain, gray matter (GM), and white matter OEF were not different between the groups (all P > .70). Unexpectedly, HIV-infected subjects had significantly higher CBF in cortical GM (72.9 +/- 16.2 mL/100 g/min versus 63.9 +/- 9.9 mL/100 g/min; P = .01) but not in subcortical GM (P = .25). CONCLUSIONS: The observed increase in cortical GM CBF in treatment-naive HIV-infected subjects is unexpected, contrary to CBF decreases reported in HIV-infected subjects on treatment, and may represent an initial increase in metabolic activity due to an HIV-mediated inflammation.


While changes in gut microbial populations have been described in human immuno-deficiency virus (HIV)-infected patients undergoing antiretroviral therapy (ART), the mechanisms underlying the contributions of gut bacteria and their molecular agents (metabolites and proteins) to immune recovery remain unexplored. To study this, we examined the active fraction of the gut microbiome, through examining protein synthesis and accumulation of metabolites inside gut bacteria and in the bloodstream, in 8 healthy controls and 29 HIV-infected individuals (6 being longitudinally studied). We found that HIV infection is associated to dramatic changes in the active set of gut bacteria simultaneously altering the metabolic outcomes. Effects were accentuated among immunological ART responders, regardless diet, subject characteristics, clinical variables other than immune recovery, the duration and type of ART and sexual preferences. The effect was found at quantitative levels of several molecular agents and active bacteria which were herein identified and whose abundance correlated with HIV immune pathogenesis markers. Although, we cannot rule out the possibility that some changes are partially a random consequence of the disease status, our data suggest that most likely reduced inflammation and immune recovery is a joint solution orchestrated by both the active fraction of the gut microbiota and the host.


BACKGROUND & AIDS: HIV-infected adults have increased risk of several individual micronutrient deficiencies. However, the prevalence and risk factors of concurrent and multiple micronutrient deficiencies and whether micronutrient concentrations change after antiretroviral therapy (ART) initiation have not been well described. The objective of this study was to determine the...
Prevalence and risk factors of individual, concurrent and multiple micronutrient deficiencies among ART-naive HIV-infected adults from nine countries and assess change in micronutrient status 48 weeks post-ART initiation. METHODS: A random sub-cohort (n = 270) stratified by country was selected from the multinational PEARLS clinical trial (n = 1571 ART-naive, HIV-infected adults). We measured serum concentrations of vitamins A, D (25-hydroxyvitamin), E, carotenoids and selenium pre-ART and 48 weeks post-ART initiation, and measured vitamins B6, B12, ferritin and soluble transferrin receptor at baseline only. Prevalence of single micronutrient deficiencies, concurrent (2 coexisting) or conditional (a deficiency in one micronutrient given a deficiency in another) and multiple (>2) were determined using defined serum concentration cutoffs. We assessed mean changes in micronutrient concentrations from pre-ART to week 48 post-ART initiation using multivariable random effects models. RESULTS: Of 270 participants, 13.9%, 29.2%, 24.5% and 32.4% had 0, 1, 2 and multiple deficiencies, respectively. Pre-ART prevalence was the highest for single deficiencies of selenium (53.2%), vitamin D (42.4%), and B6 (37.3%) with 12.1% having concurrent deficiencies of all three micronutrients. Deficiency prevalence varied widely by country. 48 weeks post-ART initiation, mean vitamin A concentration increased (p < 0.001) corresponding to a 9% decrease in deficiency. Mean concentrations also increased for other micronutrients assessed 48 weeks post-ART (p < 0.001) but with minimal change in deficiency status. CONCLUSIONS: Single and multiple micronutrient deficiencies are common among HIV-infected adults pre-ART initiation but vary between countries. Importantly, despite increases in micronutrient concentrations, prevalence of individual deficiencies remains largely unchanged after 48 weeks on ART. Our results suggest that ART alone is not sufficient to improve micronutrient deficiency.


BACKGROUND: HIV-infected patients who fail to normalize CD4 T cells despite suppressive antiretroviral therapy have impaired immune homeostasis: diminished naive T-cell numbers, elevated T-cell turnover, senescence, and inflammation. METHODS: Blood samples from immune failures (n = 60), immune successes (n = 20), and healthy controls (n = 20) were examined for plasma interleukin (IL)-7 levels, for cellular expression of the IL-7 receptor alpha chain (CD127), for the exhaustion and senescence markers programmed death 1 (PD-1) and CD57, and for the survival factor Bcl2. Because both inflammatory and homeostatic cytokines can induce T-cell cycling, we also examined the effects of these mediators on exhaustion and senescence markers. RESULTS: Plasma levels of IL-7 were elevated and both CD4 and CD8 T-cell CD127 expression was decreased in immune failure. Plasma levels of IL-7 correlated directly with naive CD4 T-cell counts in immune success and inversely with T-cell cycling (Ki67) in healthy controls and immune success, but not in immune failure. CD4 T-cell density of PD-1 was increased and Bcl2+ CD4 T cells were decreased in immune failure but not in immune success, whereas the proportion of T cells expressing CD57 was increased in immune failure. PD-1 and CD57 were induced on CD4 but not CD8 T cells by stimulation in vitro with inflammatory IL-1beta or homeostatic (IL-7) cytokines. CONCLUSIONS: Perturbation of the IL-7/IL-7 receptor axis, increased T-cell turnover, and increased senescence may reflect dysregulated responses to both homeostatic and inflammatory cytokines in immune failure patients.


BACKGROUND: Post-traumatic stress disorder (PTSD) may be associated with chronic immune dysregulation and a proinflammatory state. Among HIV-infected individuals, PTSD is associated with greater morbidity and mortality, but the association with immune dysfunction has not been evaluated. This study explores the association between PTSD and selected markers of inflammation and immune activation in a cohort of HIV-infected, virally-suppressed individuals. METHODS: HIV-infected adults who were virologically controlled on antiretroviral medications were recruited through a screening protocol for studies of HIV-related neurocognitive disorders. Each participant underwent blood draws, urine toxicology screen, and completed the Client Diagnostic Questionnaire, a semistructured psychiatric interview. RESULTS: Of 114 eligible volunteers, 72 (63%) were male, 77 (68%) African American, and 34 (30%) participants met criteria for PTSD. Participants with PTSD were more likely to be current smokers (79%) than those without (60%) (p = 0.05). The PTSD cohort had significantly higher total white blood cell counts (5318 and 6404 cells/μL, p = 0.03), absolute neutrophil count (2767 and 3577 cells/μL, p = 0.02), CD8% (43 and 48, p = 0.05), and memory CD8% (70 and 78%, p = 0.04); lower naive CD8% (30 and 22%, p = 0.04) and higher rate of high-sensitivity C-reactive protein >3mg/L (29 and 20, p = 0.03). DISCUSSION: A high prevalence of PTSD was identified in this cohort of HIV-infected adults who were virally suppressed. These results suggest that PTSD may be associated with immune dysregulation even among antiretroviral therapy-adherent HIV-infected individuals.

BACKGROUND: HIV infection and biomarkers of inflammation [measured by interleukin-6 (IL-6)], monocyte activation [soluble CD14 (sCD14)], and coagulation (D-dimer) are associated with morbidity and mortality. We hypothesized that these immunologic processes mediate (explain) some of the excess risk of mortality among HIV infected (HIV+) versus uninfected people independently of comorbid diseases. METHODS: Among 2350 (1521 HIV+) participants from the Veterans Aging Cohort Study Biomarker Cohort (VACS BC), we investigated whether the association between HIV and mortality was altered by adjustment for IL-6, sCD14, and D-dimer, accounting for confounders. Participants were followed from date of blood draw for biomarker assays (baseline) until death or July 25, 2013. Analyses included ordered logistic regression and Cox Proportional Hazards regression. RESULTS: During 6.9 years (median), 414 deaths occurred. The proportional odds of being in a higher quartile of IL-6, sCD14, or D-dimer were 2-3 fold higher for viremic HIV+ versus uninfected people. Mortality rates were higher among HIV+ compared with uninfected people [incidence rate ratio (95% CI): 1.31 (1.06 to 1.62)]. Mortality risk increased with increasing quartiles of IL-6, sCD14, and D-dimer regardless of HIV status. Adjustment for IL-6, sCD14, and D-dimer partially attenuated mortality risk among HIV+ people with unsuppressed viremia (HIV-1 RNA >/=10,000 copies per milliliter) compared with uninfected people-hazard ratio (95% CI) decreased from 2.18 (1.60 to 2.99) to 2.00 (1.45 to 2.76). CONCLUSIONS: HIV infection is associated with elevated IL-6, sCD14, and D-dimer, which are in turn associated with mortality. Baseline measures of these biomarkers partially mediate excess mortality risk among HIV+ versus uninfected people.


Viral suppression of human immunodeficiency virus (HIV) with combination antiviral therapy (cART) has led to increasing longevity but has not enabled a complete return to health among aging HIV-infected individuals (HIV+). Viral coinfections are prevalent in the HIV+ host and are implicated in cancer, liver disease, and accelerated aging. We must move beyond a simplistic notion of HIV becoming a "chronic controllable illness" and develop an understanding of how viral suppression alters the natural history of HIV infection, especially at the intersection of HIV with other common viral coinfections in the context of an altered, aging immune system.


Improvements in survival due to advances in antiretroviral therapy (ART) have led to a shift in the age distribution of those receiving HIV care, with increasing numbers of women living with HIV (WLHIV) reaching menopausal age. We present a narrative literature review of 26 studies exploring the menopause transition in WLHIV, focusing on: (1) natural history (2) symptomatology and management, and (3) immunologic and virologic effects. Data are conflicting on the association between HIV and earlier age at menopause, and the role of HIV-specific factors such as HIV viral load and CD4 count. There are some data to suggest that WLHIV experience more vasomotor and psychological symptoms during the menopause than HIV-negative women, and that uptake of hormone replacement therapy by WLHIV is comparatively low. There is no evidence that menopause affects either CD4 count or response to ART, although there may be increased immune activation in older WLHIV. We conclude that menopause in WLHIV is a neglected area of study. Specific information gaps include qualitative studies on experiences of reproductive ageing; data on the impact of the menopause on women's quality of life and ability to adhere to health-sustaining behaviors; as well as studies investigating the safety and efficacy of pharmacological and psychosocial interventions. There is likely to be a burden of unmet health need among this growing population, and better data are required to inform optimal provision of care, supporting WLHIV to maintain their health and wellbeing into their post-reproductive years.


CONTEXT: HIV patients are at an increased risk for cardiometabolic disease secondary to depot-specific alterations in adipose function, but mechanisms remain poorly understood. OBJECTIVE: The endoribonuclease Dicer has been linked to the modulation of brown and white adipocyte differentiation. We previously demonstrated that Dicer knockout mice undergo
transformation of brown adipose tissue to white adipose tissue and develop a lipodystrophic phenotype. We hypothesized reduced Dicer and brown adipose tissue gene expression from nonlipomatous sc fat among HIV patients with a lipodystrophic phenotype. DESIGN: Eighteen HIV (nine with and without lipodystrophic changes in fat distribution, characterized by excess dorsocervical adipose tissue [DCAT]) and nine non-HIV subjects underwent punch biopsy of abdominal sc fat to determine expression of Dicer and other adipose-related genes. RESULTS: HIV subjects with long-duration antiretroviral use demonstrated excess DCAT vs non-HIV subjects [9.8 +/- 1.0 vs 6.6 +/- 0.8 cm(2), P = .02] with similar body mass index. Dicer expression was decreased in abdominal sc fat of HIV vs non-HIV [4.88 [1.91, 11.93] vs 17.69 [10.72, 47.91], P = .01], as were PPARalpha, ZIC1, PRDM16, DIO2, and HSP60 (all P < .03). Moreover, the expression of Dicer [2.49 [0.02, 4.88] vs 11.20 [4.83, 21.45], P = .006], brown fat (PPARalpha [P = .002], ZIC1 [P = .004], LHX8 [P = .03], PRDM16 [P = .0008], PAT2 [P = .008], P2RX5 [P = .02]), beige fat (TMEM26 [P = .004], CD137 [P = .008]), and other genes (DIO2 [P = .002], leptin [P = .003], HSP60 [P = .0004]) was further decreased in abdominal sc fat comparing HIV subjects with vs without excess DCAT. Down-regulation of Dicer in the abdominal sc fat correlated with the down-regulation of all brown and beige fat genes [all P < .01]. CONCLUSION: Our results demonstrate dysfunctional sc adipose tissue marked by reduced Dicer in relationship to the down-regulation of brown and beige fat-related genes in lipodystrophic HIV patients and may provide a novel mechanism for metabolic dysregulation. A strategy to increase browning of white adipose tissue may improve cardiometabolic health in HIV.


PURPOSE OF REVIEW: The purpose is to review recent insights into the impact of HIV-associated immune activation on AIDS and non-AIDS morbidity and mortality. RECENT FINDINGS: Immune activation has long been recognized as an important consequence of untreated HIV infection and predictor of AIDS progression, which declines but fails to normalize during suppressive antiretroviral therapy, and continues to predict disease in this setting. Thus, a major research agenda is to develop novel therapies to reduce smoking immune activation in treated HIV infection. Yet, the optimal targets for interventions remain unclear. Both the specific root causes of immune activation and the many interconnected pathways of immune activation that are most likely to drive disease risk in HIV-infected individuals remain incompletely characterized, but recent studies have shed new light on these topics. SUMMARY: In the context of this review, we will summarize recent evidence helping to elucidate the immunologic pathways that appear most strongly predictive of infectious and noninfectious morbidity. We will also highlight the likelihood that not all root drivers of immune activation - and the discrete immunologic pathways to which they give rise - are likely to produce the same disease manifestations and/or be equally attenuated by early antiretroviral therapy initiation.


People with HIV infection are at increased risk for community-acquired methicillin-resistant Staphylococcus aureus (CA-MRSA) skin and soft tissue infections (SSTIs). Lower CD4 T-cell counts, higher peak HIV RNA levels and epidemiological factors may be associated with increased risk but no specific immune defect has been identified. We aimed to determine the immunologic perturbations that predispose HIV-infected people to MRSA SSTIs. Participants with or without HIV infection and with MRSA SSTI, MRSA colonization or negative for MRSA were enrolled. Peripheral blood and skin biopsies from study participants were collected. Flow cytometry, flow cytometry with microscopy, multiplex assays of cell culture supernatants and immunohistochemistry were used to evaluate the nature of the immune defect predisposing HIV-infected people to MRSA infections. We found deficient MRSA-specific IFNgamma+ CD4 T-cell responses in HIV-infected people with MRSA SSTIs compared to MRSA-colonized participants and HIV-uninfected participants with MRSA SSTIs. These IFNgamma+ CD4 T cells were less polyfunctional in HIV-infected participants with SSTIs compared to those without SSTIs. However, IFNgamma responses to cytomegalovirus and Mycobacterium avium antigens and MRSA-specific IL-17 responses by CD4 T cells were intact. Upon stimulation with MRSA, peripheral blood mononuclear cells from HIV-infected participants produced less IL-12 and IL-15, key drivers of IFNgamma production. There were no defects in CD8 T-cell responses, monocyte responses, opsonization, or phagocytosis of Staphylococcus aureus. Accumulation of CD3 T cells, CD4 T cells, IL-17+ cells, myeloperoxidase+ neutrophils and macrophage/myeloid cells to the skin lesions were similar between HIV-infected and HIV-uninfected participants based on immunohistochemistry. Together, these results indicate that MRSA-specific IFNgamma+ CD4 T-cell responses are essential for the control of initial and recurrent MRSA infections in HIV-infected people.

BACKGROUND: We aimed to evaluate the roles of the plasma immune activation biomarkers neopterin and soluble CD14 (sCD14) in the indirect assessment of the immune activation status of patients with the indeterminate HIV-1 (IHIV-1) pattern and a true HIV-1-positive infection (PCG). METHODS: This cross-sectional and descriptive study included eighty-eight patients with the IHIV-1 pattern, 100 patients in the PCG, and 100 people in a healthy control group (HCG). Neopterin and sCD14 levels were determined by competitive and sandwich ELISA methods, respectively. RESULTS: Mean neopterin and sCD14 levels among those with the IHIV-1 pattern were significantly lower than among the PCG (p < 0.001 and p = 0.001, respectively), but they were similar to those in the HCG (p = 0.57 and p = 0.66, respectively). Mean neopterin and sCD14 levels among the PCG were found to be significantly higher than among those with the IHIV-1 pattern (p < 0.001 and p = 0.001, respectively) and among those in the HCG (p = 0.001, p < 0.001, respectively). Neopterin did not have adequate predictive value for identifying those in the PCG (area under the curve [AUC] = 0.534; 95% CI, 0.463-0.605; p = 0.4256); sCD14 also had poor predictive value but high specificity (100%) for identifying those in the PCG (AUC = 0.627; 95% CI, 0.556-0.694; p = 0.0036). CONCLUSIONS: While low levels of these two biomarkers were detected among those with the IHIV-1 pattern, they were found in high levels among those in the PCG. These two markers obviously cannot be used as a screening test because they have low sensitivities. Taken together, we suggest that neopterin and sCD14 may be helpful because they both have high specificity (92%-100%) as indirect non-specific markers for predicting the immune activation status of individuals, whether or not they have true positive HIV-1.


Recent attempts to analyze human immunodeficiency virus (HIV)-1-induced gene expression changes in astrocytes uncovered a multifunctional oncogene, astrocyte elevated gene-1 (AEG-1). Our previous studies revealed that AEG-1 regulates reactive astrocytes proliferation, migration and inflammation, hallmarks of aging and CNS injury. Moreover, the involvement of AEG-1 in neurodegenerative disorders, such as Huntington's disease and migraine, and its induction in the aged brain suggest a plausible role in regulating overall CNS homeostasis and aging. Therefore, it is important to investigate AEG-1 specifically in aging-associated cognitive decline. In this study, we decipher the common mechanistic links in cancer, aging and HIV-1-associated neurocognitive disorders that likely contribute to AEG-1-based regulation of astrocyte responses and function. Despite AEG-1 incorporation into HIV-1 virions and its induction by HIV-1, tumor necrosis factor-alpha and interleukin-1beta, the specific role(s) of AEG-1 in astrocyte-driven HIV-1 neuropathogenesis are incompletely defined. We propose that AEG-1 plays a central role in a multitude of cellular stress responses involving mitochondria, endoplasmic reticulum and the nucleolus. It is thus important to further investigate AEG-1-based cellular and molecular regulation in order to successfully develop better therapeutic approaches that target AEG-1 to combat cancer, HIV-1 and aging.


BACKGROUND: There are contradicting reports on the associations between Apolipoprotein E4 (ApoE epsilon4) and brain outcomes in HIV with some evidence that relationships may be greatest in older age groups. METHODS: We assessed cognition in 76 clinically stable HIV-infected participants over age 60 and genotyped ApoE. Sixty-one of these subjects underwent structural brain magnetic resonance imaging and diffusion tensor imaging. RESULTS: The median age of the participants was 64 years (range: 60-84) and the median estimated duration of HIV infection was 22 years. Apo epsilon4 carriers (n = 19) were similar to noncarriers (n = 57) in sex (95% vs. 96% male), and education (16.0 vs. 16.2 years) Apo epsilon4 carriers demonstrated greater deficits in cognitive performance in the executive domain (P = 0.045) and had reduced fractional anisotropy and increased mean diffusivity throughout large white matter tracts within the brain compared with noncarriers. Tensor-based morphometry analyses revealed ventricular expansion and atrophy in the posterior corpus callosum, thalamus, and brainstem among HIV-infected ApoE epsilon4 carriers compared with epsilon4 noncarriers. CONCLUSIONS: In this sample of older HIV-infected individuals, having at least 1 ApoE epsilon4 allele was associated with decreased cognitive performance in the executive functioning domain, reduced brain white matter integrity, and brain atrophy. Brain atrophy was most prominent in the posterior corpus callosum, thalamus, and brainstem. This pattern of cognitive deficit, atrophy, and damage to white matter integrity was similar to that described in HIV, suggesting an exacerbation of HIV-related pathology; although emergence of other age-associated neurodegenerative disorders cannot be excluded.

The relationship between markers of monocyte/macrophage activation (sCD14 and sCD163) and components of the Veterans Aging Cohort Study (VACS) score, which predict mortality in patients with HIV, in immunologic nonresponders (INRs) is not defined. HIV(+) subjects with >12 months of continuous virologic suppression and persistent CD4 <250 cells/mm(3) were enrolled at the CORE Center, Chicago. Subjects had a single visit where history was taken and blood drawn. ELISA assays for sCD14 and sc163 were performed at Blood Systems, CA. Descriptive statistics were performed using SAS. We enrolled 43 subjects with persistent CD4 <250 after a median of 32 months of continuous viral suppression. We found elevated markers of monocyte/macrophage activation; sCD14 and sCD163 correlated with higher VACS scores as well as hepatitis C virus (HCV) coinfection and FIB-4 score, components of the VACS index. In this cohort of immunologic nonresponders, there was a significant correlation between markers of monocyte/macrophage activation and the VACS score. Among components of the VACS index, we did not find a significant association between HCV coinfection and sCD14; however, there was a significant association between HCV coinfection and sCD163.


HIV infection and antiretroviral therapy (ART) use are associated with perturbations in glucose and lipid metabolism. Increasing incidence of diabetes, cardiovascular disease, and obesity highlights the need for early identification and treatment of metabolic dysfunction. Newer ART regimens are less toxic for cellular function and metabolism but have failed to completely eliminate metabolic dysfunction with HIV infection. Additional factors, including viral-host interactions, diet, physical activity, non-ART medications, and aging may further contribute to metabolic disease risk in the HIV setting. We summarize the recent literature regarding the impact on metabolic function of HIV infection, ART, and pharmaceutical or lifestyle prescriptions.


OBJECTIVES: Cytomegalovirus (CMV) infection might increase the risk of cardiovascular event. However, data on the link between incident stroke and co-infections of CMV and human immunodeficiency virus (HIV) are limited and inconsistent. This nationwide population-based cohort study analyzed the association of CMV end-organ disease and stroke among people living with HIV/AIDS (PLWHA). METHODS: From January 1, 1998, this study identified adult HIV individuals with and without CMV end-organ disease in the Taiwan National Health Insurance Research Database. All patients were observed for incident stroke and were followed until December 31, 2012. Time-dependent analysis was used to evaluate associations of CMV end-organ disease with stroke. RESULTS: Of the 22,581 PLWHA identified (439 with CMV end-organ disease and 22,142 without CMV end-organ disease), 228 (1.01%) had all-cause stroke during a mean follow-up period of 4.85 years, including 169 (0.75%) with ischemic stroke and 59 (0.26%) with hemorrhagic stroke. After adjusting for age, sex, comorbidities, opportunistic infections after HIV diagnosis, and antiretroviral treatment, CMV end-organ disease was found to be an independent risk factor for incident all-cause stroke (adjusted hazard ratio [AHR], 3.07; 95% confidence interval [CI], 1.70 to 5.55). When stroke type was considered, CMV end-organ disease was significantly positively associated with the risk of ischemic stroke (AHR, 3.14; 95% CI, 1.49 to 6.62) but not hemorrhagic stroke (AHR, 2.52; 95% CI, 0.64 to 9.91). CONCLUSIONS: This study suggested that CMV end-organ disease was an independent predictor of ischemic stroke among PLWHA.


In HIV-1-infected patients, increased numbers of circulating CD8+ T cells are linked to increased risk of morbidity and mortality. Here, we identified a bystander mechanism that promotes CD8 T cell activation and expansion in untreated HIV-1-infected patients. Compared with healthy controls, untreated HIV-1-infected patients have an increased population of proliferating, granzyme B+, CD8+ T cells in circulation. Vbeta expression and deep sequencing of CDR3 revealed that in untreated
HIV-1 infection, cycling memory CD8 T cells possess a broad T cell repertoire that reflects the repertoire of the resting population. This suggests that cycling is driven by bystander activation, rather than specific antigen exposure. Treatment of peripheral blood mononuclear cells with IL-15 induced a cycling, granzyme B+ phenotype in CD8+ T cells. Moreover, elevated IL-15 expression in the lymph nodes of untreated HIV-1-infected patients correlated with circulating CD8+ T cell counts and was normalized in these patients following antiretroviral therapy. Together, these results suggest that IL-15 drives bystander activation of CD8+ T cells, which predicts disease progression in untreated HIV-1-infected patients and suggests that elevated IL-15 may also drive CD8+ T cell expansion that is linked to increased morbidity and mortality in treated patients.


While combination antiretroviral therapy can enable people with HIV to enjoy many more years of life than they might previously have expected, the same patients appear to be prone to losing an average of 5 years of life due to premature aging. The results of the research, which involved the use of a highly accurate biomarker to measure biological aging, are published in Molecular Cell.


Telomeres are the heterochromatic repeat regions at the ends of eukaryotic chromosomes, whose length is considered to be a determinant of biological ageing. Normal ageing itself is associated with telomere shortening. Here, critically short telomeres trigger senescence and eventually cell death. This shortening rate may be further increased by inflammation and oxidative stress and thus affect the ageing process. Apart from shortened or dysfunctional telomeres, cells undergoing senescence are also associated with hyperactivity of the transcription factor NF-kappaB and overexpression of inflammatory cytokines such as TNF-alpha, IL-6, and IFN-gamma in circulating macrophages. Interestingly, telomerase, a reverse transcriptase that elongates telomeres, is involved in modulating NF-kappaB activity. Furthermore, inflammation and oxidative stress are implicated as pre-disease mechanisms for chronic diseases of ageing such as neurodegenerative diseases, cardiovascular disease, and cancer. To date, inflammation and telomere shortening have mostly been studied individually in terms of ageing and the associated disease phenotype. However, the interdependent nature of the two demands a more synergistic approach in understanding the ageing process itself and for developing new therapeutic approaches. In this review, we aim to summarize the intricate association between the various inflammatory molecules and telomeres that together contribute to the ageing process and related diseases.
Men who have sex with men (MSM) and transgender women are disproportionately affected by HIV in the Dominican Republic. Little is known about their experiences living with HIV as a chronic condition. We explored employment as a social determinant of well-being with HIV. We conducted 42 qualitative in-depth interviews with MSM (n = 16) and transgender women (n = 5) living with HIV; each participant completed 2 interviews to facilitate depth and iterative analysis. We used narrative analysis and systematic coding to identify salient themes related to employment and the HIV experience and developed a conceptual model of the pathways between HIV stigma, unemployment, and HIV outcomes. Early life experiences, including rejection from families and school, resulted in limited work opportunities, especially among transgender women. Following HIV diagnosis, participants across all socio-economic levels lost jobs and/or were unable to get jobs due to illegal HIV testing and HIV stigma and discrimination. Not being able to work impacted mental health, engagement in HIV care, and overall well-being. We
conclude that lack of employment is a salient concern among MSM and transgender women living with HIV. Holistic, multi-level programmes that address illegal HIV testing and discriminatory hiring practices are urgently needed to facilitate engagement in care and long-term well-being.


Shame is consistently associated with poor adjustment (e.g., depressive symptoms) among community samples but, surprisingly, has rarely been directly examined among people living with HIV/AIDS (PLWH). This limited research on shame is likely due, in part, to shame’s having been subsumed within measures of internalized stigma, an imprecise construct with varied definitions in the HIV literature. The current review summarizes research directly examining the correlates of shame among PLWH. Findings indicate that shame is associated with greater depressive symptoms, less healthcare utilization, and poorer physical health among PLWH. Directions for future research examining shame among PLWH are highlighted, including the need for more prospective research examining shame as a predictor of future adjustment.

Bernstein, L. (2016). Older people among newer HIV cases; One-sixth of those diagnosed in 2014 were older than 50: 32.

Thousands of people 50 and older are diagnosed with HIV each year in the United States, a development that has significant consequences for the health care and social support they need and the doctors, counselors and others who provide it. Older people tend to be sicker when the infection is finally discovered...


Latin America has some of the highest levels of antiretroviral therapy (ART) coverage of any developing region in the world. Early initiation and optimal adherence to ART are necessary for improved health outcomes and reduction in onward transmission. Previous work has demonstrated the role of psychosocial problems as barriers to uptake and adherence to ART, and recently, a syndemic framework has been applied to the role of multiple psychosocial syndemic factors and adherence to ART, in the USA. However, to our knowledge, these associations have not been investigated outside of the USA, nor in a multi-country context. To address these gaps, we assessed the association between multiple co-occurring psychosocial factors and engagement in HIV-related medical care and adherence to ART among a large, multinational sample of sexually-active HIV-infected men who have sex with men in Latin America. Among the 2020 respondents, 80.7% reported currently receiving HIV-related medical care, 72.3% reported currently receiving ART; among those, 62.5% reported 100% adherence. Compared with experiencing no psychosocial health problems, experiencing five or more psychosocial health problems is associated with 42% lower odds of currently receiving HIV-related medical care (adjusted odds ratio, aOR = 0.58, 95% CI 0.36, 0.95) and of currently receiving ART (aOR = 0.58, 95% CI 0.38, 0.91). The number of psychosocial health problems experienced was associated with self-reported ART adherence in a dose-response relationship; compared to those with none of the factors, individuals with one syndemic factor had 23% lower odds (aOR = 0.77, 95% CI 0.60, 0.97) and individuals with five or more syndemic factors had 72% lower odds (aOR = 0.28, 95% CI 0.14, 0.55) of reporting being 100% adherent to ART. Addressing co-occurring psychosocial problems as potential barriers to uptake and adherence of ART in Latin America may improve the effectiveness of secondary prevention interventions.


The HIV (human immunodeficiency virus) epidemic in the United States remains a serious public health concern. Despite treatment and prevention efforts, approximately 50,000 new HIV cases are transmitted each year. Estimates indicate that 44% of all people diagnosed with HIV are living in the southern region of the United States. African Americans represent 13.2% of the United States population; however, 44% (19,540) of reported new HIV cases in 2014 were diagnosed within this ethnic group. The majority of cases were diagnosed in men (73%, 14,305). In the United States, it is estimated that 21% of adults living with HIV are 50 years or older. There exists limited data regarding how well African American men are aging with HIV disease. The purpose of this study was to explore the perceptions and experiences of older African American men living with HIV in rural Georgia. Data were collected from 35 older African American men living with HIV using focus groups and face-to-face personal interviews. Qualitative content analysis revealed six overlapping themes: (1) Stigma; (2) Doing Fine, Most of the Time; (3) Coping With Age-Related Diseases and HIV; (4) Self-Care; (5) Family Support; and (6) Access to Resources. The findings from this study provide new
insights into the lives of rural HIV-infected African American men, expands our understanding of how they manage the disease, and why many return to or remain in rural communities.


Previous research suggests that people living with HIV (PLWH) sometimes internalize HIV-related stigma existing in the community and experience feelings of inferiority and shame due to their HIV status, which can have negative consequences for treatment adherence. PLWH’s interpersonal concerns about how their HIV status may affect the security of their existing relationships may help explain how internalized stigma affects adherence behaviors. In a cross-sectional study conducted between March 2013 and January 2015 in Birmingham, AL, 180 PLWH recruited from an outpatient HIV clinic completed previously validated measures of internalized stigma, attachment styles, and concern about being seen while taking HIV medication. Participants also self-reported their HIV medication adherence. Higher levels of HIV-related internalized stigma, attachment-related anxiety (i.e., fear of abandonment by relationship partners), and concerns about being seen by others while taking HIV medication were all associated with worse medication adherence. The effect of HIV-related internalized stigma on medication adherence was mediated by attachment-related anxiety and by concerns about being seen by others while taking HIV medication. Given that medication adherence is vitally important for PLWH to achieve long-term positive health outcomes, understanding interpersonal factors affecting medication adherence is crucial. Interventions aimed at improving HIV treatment adherence should address interpersonal factors as well as intrapersonal factors.


RATIONALE: African Americans living with HIV are less likely to adhere to antiretroviral treatment (ART) compared to other racial/ethnic groups. Medical mistrust is thought to be a factor in this disparity. OBJECTIVE: We examined (1) whether exposure to HIV conspiracy beliefs, a specific type of HIV-related mistrust (about the origins and treatment of HIV) in social networks is associated with ART nonadherence among African Americans living with HIV; and (2) the characteristics of individuals who discuss HIV-related mistrust in the social networks of African Americans living with HIV. METHODS: At baseline and 6- and 12-months post-baseline, 175 African Americans living with HIV on ART completed egocentric social network assessments, from which we assessed the structure and composition of their personal networks (the social context immediately surrounding them). HIV-related mistrust was operationalized with an indicator of whether any social network member had expressed HIV conspiracy beliefs to the participant. Daily medication adherence was monitored electronically. RESULTS: At baseline, 63% of participants agreed with at least one conspiracy belief, and 55% reported hearing at least one social network member ("alter") express conspiracy beliefs. In a multivariate linear repeated measures regression, expression of conspiracy beliefs by similar others in the network (in terms of age, gender, HIV status, sexual orientation, and race/ethnicity) was associated with ART nonadherence (i.e., percentage of prescribed doses taken). In a multivariate logistic regression, expression of conspiracy beliefs was more likely among social network members who were HIV-positive, who knew the participants’ serostatus, and with whom participants interacted frequently, and less likely among more well-connected social network members. CONCLUSION: HIV-related mistrust in the network may be most influential when expressed by similar others who may be HIV-positive themselves.


The purpose of this study was to describe HIV-testing attitudes, HIV related stigma and health care access in African-born men taking part in the African Health Cup (AHC), a soccer tournament held annually to improve HIV awareness and testing. Venue sampling was used to collect survey and qualitative interview data related to HIV-testing attitudes, stigma and experiences associated with the AHC. The sample included 135 survey respondents and 27 interview participants. AHC participants were successfully accessing health care services. Although the AHC was viewed positively, HIV testing rates remain low due to stigma and privacy concerns. This population continues to have misconceptions about HIV transmission and to use condoms inconsistently. The AHC is a successful intervention to engage African-born men in HIV awareness and education. More work is needed to enhance these AHC aspects and address stigma and privacy concerns related to using onsite health screenings. Continuing to develop novel strategies to educate African-born immigrants about HIV is urgently needed.
In 1990, New York State instituted Comprehensive Medicaid Case Management, also known as Target Case Management (TCM), for people dealing with multiple comorbid conditions, including HIV. The goal of TCM is to assist clients in navigating the health care system to increase care engagement and treatment adherence for individuals with complex needs. HIV-positive individuals engaged in care are more likely to be virally suppressed, improving clinical outcomes and decreasing chances of HIV transmission. The purpose of this study was to understand the impact of TCM management on outcomes for people with HIV. Data were obtained from Amida Care, which operates not-for-profit managed care Medicaid and Medicare Special Needs Plans (SNPs) for HIV clients. Changes in clinical, cost, as well as medical and pharmacy utilization data among TCM clients were examined between January 2011 through September 2012 from the start of case management enrollment through the end of the study period (i.e., up to 6 months after disenrollment). Additionally, CD4 counts were compared between Amida Care TCM clients and non-TCM clients. Notable findings include increased CD4 counts for TCM clients over the one-year study period, achieving parity with non-TCM clients (i.e., Mean CD4 count > 500). When looking exclusively at TCM clients, there were increases in medication costs over time, which were concomitant with increased care engagement. Current findings demonstrate that TCM is able to achieve its goals of improving care engagement and treatment adherence. Subsequent policy changes resulting from the Affordable Care Act and the New York State Medicaid Redesign have made the Health Home the administrator of TCM services. Government entities charged with securing and managing TCM and care coordination for people with HIV should provide
thoughtful and reasonable guidance and oversight in order to maintain optimal clinical outcomes for TCM clients and reduce the transmission of HIV.


HIV-stigma is a major reason why HIV continues to be a global epidemic. Interventions targeting HIV-stigma are therefore necessary. To find an intervention that is worthwhile, a Cost-Benefit Analysis is needed which compares costs and benefits. There are many documented costs of HIV-stigma. What is missing is a valuation of the benefits of reducing HIV-stigma. The purpose of this paper is to present a general method that can be used to value the benefits of stigma reduction programs. The method involves estimating the marginal rate of substitution (MRS) between stigma and income in the utility function of older people with HIV. To illustrate how our framework can be used, we applied it to a sample of just over 900 people coming from the 2005-06 ROAH study (Research on Older Adults with HIV) in New York City.


HIV continues to disproportionately affect men who have sex with men (MSM). Depression and substance use have been shown to be risk factors of partner violence among male same-sex couples. However, research exploring the risk factors for partner violence victimization after HIV disclosure among MSM is limited. The aim of this study was to determine the association between depressive symptoms, substance use, and disclosure-associated verbal and/or physical violence from a partner among MSM. Data were obtained from 340 HIV-positive MSM. Multivariable logistic regression was used to determine the associations between Center for Epidemiologic Studies-Depression and substance use scores, and disclosure-associated partner violence. After adjusting for age and income, every one-unit increase in substance use scores resulted in a 9 % (OR 1.09; 95 % CI 1.01-1.16) increase in the odds of disclosure-associated partner violence. HIV disclosure interventions for MSM populations should address substance use and potential violence from partners after disclosure.


Psychological reactance is defined as the drive to re-establish autonomy after it has been threatened or constrained. People living with HIV may have high levels of psychological reactance due to the restrictions that they may perceive as a result of living with HIV. People living with HIV may also exhibit levels of HIV-related stigma. The relationship between psychological reactance and HIV-related stigma is complex yet understudied. Therefore, the main aim of this study was to examine the association between psychological reactance and HIV-related stigma among women living with HIV. Data were obtained from one time-point (a cross-sectional assessment) of a longitudinal HIV disclosure study. Psychological reactance was measured using the 18-item Questionnaire for the Measurement of Psychological Reactance. HIV-related stigma was measured using the HIV Stigma Scale, which has four domains: personalized, disclosure concerns, negative self-image, and concerns with public attitudes. Principal component analysis was used to derive components of psychological reactance. Linear regression models were used to determine the association between overall psychological reactance and its components, and stigma and its four domains, and depressive and anxiety symptoms. The associations between stigma and mental health were also examined. Three components of psychological reactance were derived: Opposition, Irritability, and Independence. Overall psychological reactance and irritability were associated with all forms of stigma. Opposition was linked to overall and negative self-image stigma. Overall psychological reactance, opposition, and irritability were positively associated with anxiety symptoms while opposition was also associated with Centers for Epidemiologic Studies-Depression depressive symptoms. There were also positive associations between all forms of stigma, and depressive and anxiety symptoms. Health-care providers and counselors for women living with HIV addressing feelings of irritability and opposition toward others may reduce HIV-related stigma. Future research should examine the link between psychological reactance, mental health, and HIV-related stigma among other populations living with HIV.


Little is known about pathways to homelessness among older adults. We identified life course experiences associated with earlier versus later onset of homelessness in older homeless adults and examined current health and functional status by

BACKGROUND: The current syphilis epidemic among urban men who have sex with men (MSM) has serious implications for those co-infected with human immunodeficiency virus (HIV). Routine and frequent syphilis screening has the potential to ensure early detection and treatment, minimize disease burden, and help control the ongoing spread of syphilis and HIV. We aim to enhance syphilis screening among HIV-positive men by conducting a clinic-based intervention that incorporates opt-out syphilis testing into routine HIV laboratory evaluation for this population. Trial objectives are to determine the degree to which the intervention (1) increases the detection rate of untreated syphilis, (2) increases screening coverage, (3) increases screening frequency, and (4) reaches men at highest risk according to sexual behaviors. METHODS/DESIGN: The trial is a pragmatic, stepped wedge cluster-randomized controlled trial that introduces the intervention stepwise across four urban HIV clinics in Ontario, Canada. The intervention includes standing orders for syphilis serological testing whenever a male in HIV care undergoes HIV viral load testing, which typically occurs every 3-6 months. The control condition is the maintenance of current, provider-initiated syphilis testing practice. Approximately 3100 HIV-positive men will be followed over 30 months. Test results will be obtained from the centralized provincial laboratory in Ontario and will be supplemented by a standardized clinical worksheet and medical chart review at the clinics. Detailed clinical, psychosocial, and behavioral data is available for a subset of men receiving HIV care who are also participants of the province-wide Ontario HIV Treatment Network Cohort Study. Process evaluation plans include audit and feedback of compliance of the participating centers to identify potential barriers to the introduction of this type of practice into routine care. Health economic components include evaluation of the impact and cost-effectiveness of the intervention. DISCUSSION: This trial will be the first of its kind in Canada and will provide evidence regarding the feasibility, clinical effectiveness, and cost-effectiveness of a clinic-based intervention to improve syphilis screening among HIV-positive men. Involvement of knowledge users in all stages of trial design, conduct, and analysis will facilitate scale-up should the intervention be effective. TRIAL REGISTRATION: ClinicalTrials.gov NCT02019043.


Alzheimer's disease (AD) ranks as the 6th leading cause of death in the United States, yet unlike other diseases in this category, there are no disease-modifying medications for AD. Currently there is significant interest in exploring the benefits of pharmacological treatment before the onset of dementia (e.g., in those with mild cognitive impairment); however, recruitment for such studies is challenging. The current study examined interest in pharmacological intervention trials relative to other types of clinical interventions. A total of 67 non-demented older adults enrolled in a longitudinal cognitive aging study completed a questionnaire assessing interest in participating in a variety of hypothetical research study designs. Consistent with past research, results showed that the opportunities for participants to advance science, receive feedback about their current health, and help themselves or others, were associated with increased interest in clinical trial participation. Some factors were not associated with change in interest (e.g., a doctor not recommending participation) while others were associated with decreased interest (e.g., having to come in for multiple visits each week). Relative to other types of interventions, pharmacological intervention trials were associated with the least interest in participation, despite pharmacological interventions being rated as more likely to result in AD treatment. Decreased interest was not predicted by subjective memory concerns, number of current medications, cardiovascular risk, or beliefs about the likely success of pharmacological treatments. These results highlight the challenges faced by researchers investigating pharmacological treatments in non-demented older individuals, and suggest future research could contribute to more effective ways of recruiting participants in AD-related clinical trials.
INTRODUCTION: Adverse childhood experiences (ACEs) are associated with early mortality and morbidity. This study evaluated the association among ACEs, high-risk health behaviors, and comorbid conditions, as well as the independent effect of ACE components. METHODS: Data were analyzed on 48,526 U.S. adults from five states in the 2011 Behavioral Risk Factor Surveillance System survey. Exposures included psychological, physical, and sexual forms of abuse as well as household dysfunction such as substance abuse, mental illness, violence, and incarceration. Main outcome measures included risky behaviors and morbidity measures, including binge drinking, heavy drinking, current smoking, high-risk HIV behavior, obesity, diabetes, myocardial infarction, coronary heart disease, stroke, depression, disability caused by poor health, and use of special equipment because of disability. Multiple logistic regression assessed the independent relationship between ACE score categories and risky behaviors/comorbid conditions in adulthood, and assessed the independent relationship between individual ACE components and risky behaviors/comorbidities in adulthood controlling for covariates. RESULTS: A total of 55.4% of respondents reported at least one ACE and 13.7% reported four or more ACEs. An ACE score >/=4 was associated with increased odds for binge drinking, heavy drinking, smoking, risky HIV behavior, diabetes, myocardial infarction, coronary heart disease, stroke, depression, disability caused by health, and use of special equipment because of disability. In addition, the individual components had different effects on risky behavior and comorbidities. CONCLUSIONS: In addition to having a cumulative effect, individual ACE components have differential relationships with risky behaviors, morbidity, and disability in adulthood after controlling for important confounders.

Social support is important to the mental health and well-being of HIV-positive women. Limited information exists about the specific structure and composition of HIV-positive women's support networks or associations of these network properties with mental health outcomes. In this pilot study, the authors examine whether support network characteristics were associated with depressive symptoms. Survey and network data were collected from HIV-positive women (N = 46) via a web-based survey and an iPad application in August 2012. Data were analyzed using multivariate linear regression models in SAS. Depressive symptoms were positively associated with a greater number of doctors in a woman's network; having more HIV-positive network members was associated with less symptom reporting. Women who reported more individuals who could care for them had more family support. Those who reported feeling loved were less likely to report disclosure stigma. This work highlighted that detailed social network data can increase our understanding of social support so as to identify interventions to support the mental health of HIV-positive women. Most significant is the ongoing need for support from peers.

To reduce the many adverse health outcomes associated with intimate partner violence (IPV), high-risk groups need to be specifically targeted in the fight against domestic violence in India. This study aims to examine the prevalence and correlates of IPV in HIV-positive and HIV-negative women from India. A convenience sample of HIV-positive and HIV-negative women responded to questionnaires to assess their experience and perception of violence. Multivariate logistic regression analysis was used to model the association between IPV and age, education, employment status, contraception use, age at first marriage, and HIV status. Although adjusting for age, education, employment status, contraception use, age at first marriage, and HIV status, women who are employed were 3.5 times more likely to suffer IPV (confidence interval [CI] = [1.5, 8.5]), women aged 18 or above at first marriage are 0.3 times less likely to face IPV (CI = [0.1, 0.6]), and women who use contraception are 7 times more likely to suffer IPV (CI = [1.4, 30.2]). Also, HIV-positive women are 3 times more likely to face sexual violence compared with HIV-negative women (CI = [1.1, 7.6]).

Social stigma has deleterious effects on psychological well-being. Emerging empirical evidences suggest that resilience is an adaptive mindset that generally enables people to survive and thrive in adversity. The current study used a three-wave longitudinal data to examine the potential bidirectional association between perceived stigmatization and resilience. Children of
parents living with HIV (n=195) were assessed at the baseline and followed up for 12 months with 6-month intervals. Cross-lagged panel analyses were performed in the study. The findings showed that the autoregressive effects were stable for perceived stigmatization and resilience, suggesting stable individual differences over time. The cross-lagged effects indicated that perceived stigmatization negatively predicted the level of resilience. However, resilience did not predict perceived stigmatization during the study time. The study suggests a robust longitudinal effect of perceived stigmatization on resilience. The potential bidirectional association between perceived stigmatization and resilience should be examined in the future studies.

A crossed-lagged model of perceived stigmatization and resilience is proposed. Perceived stigmatization negatively predicts the level of resilience over time. Resilience does not predict perceived stigmatization during the study time.


Background Aging of persons with human immunodeficiency virus (HIV) resulted in high rates of osteopenia and osteoporosis. Multiple cohort studies have reported an increased prevalence of bone demineralization among HIV-infected individuals. The aim of this study was to evaluate bone mineral density (BMD) and risk factors for osteopenia/osteoporosis among HIV-positive patients attending the National Institute for Infectious Diseases "Prof.Dr. Matei Bals", Bucharest, Romania. Methods We performed a cross-sectional study that enrolled 60 patients with HIV. The association between BMD and lifestyle habits (smoking), body mass index (BMI), nadir cluster of differentiation 4 (CD4) cell count, current CD4 cell count, HIV viral load and history of combination antiretroviral therapy (cART) were investigated. The BMD was measured at the lumbar spine, hips and total body using dual-energy X-ray absorptiometry (DEXA). Results In the present study, DEXA evaluation showed an overall prevalence of osteoporosis of 16.66% (ten patients) and a prevalence of osteopenia of 48.33% (29 patients). In men, low BMI and cigarette smoking showed significant association with the diagnosis of lumbar spine demineralization (p=0.034 and p=0.041, respectively). Duration of exposure to cART classes in relation to BMD was also evaluated. The use of non-nucleoside reverse-transcriptase inhibitors (NNRTIs) was associated with low lumbar spine BMD in all patients (p=0.015). Reduced BMD was significantly associated with protease inhibitors (PIs)-containing treatment (p=0.043) in women. Conclusion At lumbar spine DEXA, male gender was statistically associated with reduced BMD. At the left hip Ward's area, decreased BMD T scores were significantly associated with aging. The reduced BMD was higher in patients receiving PI- or NNRTI-containing regimens.


Little research has focused on the ethical issues around using social media for HIV prevention in low- and middle-income countries (LMICs), such as Peru. This study surveyed participants from the HOPE social media HIV intervention HIV intervention in Peru to assess their experiences and perceptions of ethical issues in the study and the impact of age on their experiences and perceptions. This study found that, compared to younger participants, older participants were more likely to express higher levels of understanding of the consent form and trust that other participants were real. Older participants also reported being less likely to benefit in learning about their HIV status. Findings suggest that age plays a role in participants' experiences in a social media-based HIV intervention.


OBJECTIVE: To examine personal characteristics, disease-related impairment variables, activity limitations, and environmental factors as correlates of social participation in older adults with vision loss guided by the World Health Organization's International Classification of Functioning, Disability and Health Model. DESIGN: Baseline data of a larger longitudinal study. SETTING: Community-based vision rehabilitation agency. SUBJECTS: A total of 364 older adults with significant vision impairment due to age-related macular degeneration. MAIN MEASURES: In-person interviews assessing social participation (i.e. frequency of social support contacts, social/leisure challenges faced due to vision loss, and of social support provided to others) and hypothesized correlates (e.g. visual acuity test, Functional Vision Screening Questionnaire, ratings of attachment to house and neighborhood, environmental modifications in home). RESULTS: Regression analyses showed that indicators of physical, social, and mental functioning (e.g. better visual function, fewer difficulties with instrumental activities of daily living,
fewer depressive symptoms) were positively related to social participation indicators (greater social contacts, less challenges in social/leisure domains, and providing more support to others). Environmental factors also emerged as independent correlates of social participation indicators when functional variables were controlled. That is, participants reporting higher attachment to their neighborhood and better income adequacy reported having more social contacts; and those implementing more environmental strategies were more likely to report greater challenges in social and leisure domains. Better income adequacy and living with more people were related to providing more social support to others. CONCLUSION: Environmental variables may play a role in the social participation of older adults with age-related macular degeneration.


OBJECTIVES: To examine the association between social factors in faith-based settings (including religiosity and proximity to people living with HIV/AIDS) and HIV stigma. METHODS: A total of 1747 congregants from primarily African American faith-based organizations of Project FAITH (Fostering AIDS Initiatives That Heal), a South Carolina statewide initiative to address HIV-related stigma, completed a survey. RESULTS: Female gender (P = .001), higher education (P < .001), knowing someone with HIV/AIDS (P = .01), and knowing someone who is gay (P < .001), but not religiosity, were associated with lower levels of stigma and with lower odds of stigmatizing attitudes (P < .05). CONCLUSIONS: Opportunities for connection with people living with HIV/AIDS tailored to the social characteristics of faith-based organizations may address HIV stigma in African American communities.


To move society toward an AIDS-free generation, behavioral interventions for prevention and treatment of HIV/AIDS must be not only effective, but also cost-effective, efficient, and readily scalable. The purpose of this article is to introduce to the HIV/AIDS research community the multiphase optimization strategy (MOST), a new methodological framework inspired by engineering principles and designed to develop behavioral interventions that have these important characteristics. Many behavioral interventions comprise multiple components. In MOST, randomized experimentation is conducted to assess the individual performance of each intervention component, and whether its presence/absence/setting has an impact on the performance of other components. This information is used to engineer an intervention that meets a specific optimization criterion, defined a priori in terms of effectiveness, cost, cost-effectiveness, and/or scalability. MOST will enable intervention science to develop a coherent knowledge base about what works and does not work. Ultimately this will improve behavioral interventions systematically and incrementally.


This mixed methods study used an explanatory sequential design to examine the relationship between attachment and sexual behavior among young Black gay and bisexual men (YBGBM). Cross sectional online surveys and sex diaries were completed by a sample of YBGBM in New York City (n = 153) to assess the association between adult attachment insecurity and sexual risk behavior. The Experiences in Close Relationships Scale-Revised (ECR-R) was used to assess three types of adult attachment (i.e., secure, anxious, and avoidant). Participants reported condomless sex encounters, as well as serodiscordant condomless anal sex encounters, as measures of sexual risk. Quantitative findings suggested that there were few associations between attachment type and sexual risk behavior; only men with attachment avoidance were likely to engage in condomless sex. However, qualitative findings illuminated some of the social complexities of the association between attachment in childhood, attachment in young adulthood and intimate partnerships, which could be linked to young adult sexual risk behavior. The study findings highlight the need for researchers to further examine the process by which individual differences in attachment orientation are related to YBGBM's sexual behavior.

Cox, L. E. and M. Brennan-Ing (2017). "Medical, Social and Supportive Services for Older Adults with HIV." Interdiscip Top Gerontol Geriatr 42: 204-221.

Older people living with HIV are increasingly requiring formal supportive community-based services. Supportive services are essential to medical care and treatment for older people living with HIV/AIDS. This chapter considers Andersen's behavioral
model of health services, and explores the predisposing, enabling, and need factors that affect service utilization among the older HIV population. The Andersen model provides a lens to understand the need for supportive services to go beyond primary medical care. Examples of such services and referrals typically include medical and non-medical case management, clinical provider referrals, mental health and substance use treatment, housing assistance, legal services, nutrition, transportation, home care, emergency assistance, patient education support groups, and other programs such as the AIDS Drug Assistance Program and secondary prevention services. Barriers to assistance and support, and consequences and resources for caregivers are addressed. Aspects surrounding structural inequities, multiple-minority status, and HIV stigma are examined with the goal of offering insight and advocacy ideas for community-based providers and policy makers. In future, the healthcare and supportive services infrastructure must be better equipped to manage the distinctive treatment and care needs of HIV-positive older adults.


The purpose of this research was to explore primary care providers’ willingness and ability to increase HIV prevention efforts among older adults and to gain recommendations for improving HIV prevention in primary care settings. Data were collected through 24 semistructured interviews with primary care providers. The results of the study reveal that the majority of providers find it necessary to increase HIV prevention efforts in primary care settings and are willing to do so; however, they cannot do so without assistance. Providers suggested strategies to increase HIV prevention in primary care, for instance, expanding the use of electronic reminders to include HIV prevention and increasing collaboration among providers of different specialties. As a result of the interviews, additional recommendations for increasing HIV prevention have been identified. These findings will aid in improving the quality of care provided to individuals older than 50 in primary care settings.


HIV-related stigma affects people living with HIV (PLWH), especially in communities of color. In our study, African American and Latina/Hispanic women living with HIV (WLWH) described experiences of stigma through PhotoVoice, a community-based participatory method of documentary photography. Ten WLWH from Los Angeles documented stigma experiences through photographs for up to 5 weeks and discussed their images during a focus group or semi-structured individual interview. Qualitative interpretive phenomenological analysis of participant narratives and photographs revealed lack of education and cultural myths as the main triggers of the stigma our participants faced. Stigma was experienced in health care settings, and participants identified depression, fear of intimate relationships, and nondisclosure of HIV status as its consequences. Social support and faith were noted as key coping mechanisms. WLWH recommended involving PLWH and public health officials in stigma reduction campaigns and youth education. PhotoVoice was perceived as a useful tool for education and self-improvement.


As part of the chronic disease paradigm now widely used for HIV in sub-Saharan Africa, antiretroviral treatment programs emphasize self-care. In the informal settlements of Mombasa, Kenya, the management of stress-associated with economic precariousness-plays a significant role in self-care practices and ideologies. Based on ethnographic fieldwork, we examine how local narratives of stress and self-care intertwine with social responsibilities of older HIV-positive people. For older Mombassans, living with 'chronic' HIV means living with an unpredictable body, which affects how they are able to care for their kin. The physical reality of living with HIV thus shapes relational networks, making self-care a social practice. While, for some self-care entails managing the body so that its needs are hidden from loved ones, a kind of 'protective secrecy,' others enlist the support of their children and grandchildren in managing their body, and in that process subtly redefine generational expectations and responsibilities. [Figure: see text].


Ageism, in the form of prejudice, stereotyping, and discrimination targeting older adults, represents a barrier to addressing the graying of the HIV epidemic. There is widespread misperception on the part of older adults themselves, as well as
service providers and society in general that HIV risk is low as one ages. In addition, internalized ageism may play a role in poorer physical and mental health outcomes, as the negative stereotypes associated with aging become a self-fulfilling prophecy. A number of steps can be taken to address HIV and aging in the context of ageism with regard to: prevention, education, and outreach; treatment guidelines for older adults with HIV; funding to address the aging of the epidemic; engagement of communities, health and social service organizations, and other providers around mental health and social support, and addressing the needs of special populations. Caring for an aging population with HIV represents a challenge, which is exacerbated in low and/or middle-income countries that typically lack the infrastructure of high resource settings. How we address the aging-related issues of the HIV epidemic across regions and settings could serve as a model in dealing with aging in our society in general regardless of HIV status.


OBJECTIVES: To inform church-based stigma interventions by exploring dimensions of HIV stigma among African American and Latino religious congregants and determining how these are related to drug addiction and homosexuality stigmas and knowing someone HIV-positive. METHOD: In-person, self-administered surveys of congregants 18+ years old across 2 African American and 3 Latino churches (n = 1,235, response rate 73%) in a western U.S. city with high HIV prevalence. Measures included 12 items that captured dimensions of HIV stigma, a 5-item scale that assessed attitudes toward people who are addicted to drugs, a 7-item scale assessing attitudes toward homosexuality, and questions regarding sociodemographics and previous communication about HIV. RESULTS: Of the survey participants, 63.8% were women, mean age was 40.2 years, and 34.4% were African American, 16.8% were U.S.-born Latinos, 16.0% were foreign-born, English-speaking Latinos, and 32.9% were foreign-born, Spanish-speaking Latinos. Exploratory and confirmatory factor analyses identified 4 dimensions of HIV stigma: discomfort interacting with people with HIV (4 items, alpha = .86), feelings of shame "if you had HIV" (3 items, alpha = .78), fears of rejection "if you had HIV" (3 items, alpha = .71), and feelings of blame toward people with HIV (2 items, alpha = .65). Across all dimensions, after controlling for sociodemographic characteristics and previous communication about HIV, knowing someone with HIV was associated with lower HIV stigma, and greater stigma concerning drug addiction and homosexuality were associated with higher HIV stigma. CONCLUSIONS: Congregation-based HIV stigma reduction interventions should consider incorporating contact with HIV-affected people. It may also be helpful to address attitudes toward drug addiction and sexual orientation. (PsycINFO Database Record


In a recent needs assessment survey of older lesbian, gay, bisexual and transgender or LGBT citizens in Niagara, conducted by a community health centre and an HIV/AIDS support agency, organizers found it was difficult to locate older citizens to interview. Given that queer folk make up five to 10 per cent of the population, the fact is disturbing...


Objectives We investigated risk and protective factors associated with sleep quality among a national sample of HIV-positive gay, bisexual, and other men who have sex with men (GBMSM).

Design This study reports on findings from both an eligibility survey and baseline assessment for an online HIV risk reduction intervention.


Background. Limited data exist on human immunodeficiency virus (HIV)-infected individuals' ability to work after receiving combination antiretroviral therapy (cART). We aimed to investigate predictors of regaining full ability to work at 1 year after starting cART. Methods. Antiretroviral-naive HIV-infected individuals <60 years who started cART from January 1998 through December 2012 within the framework of the Swiss HIV Cohort Study were analyzed. Inability to work was defined as a medical judgment of the patient's ability to work as 0%. Results. Of 5800 subjects, 4382 (75.6%) were fully able to work, 471 (8.1%) able to work part time, and 947 (16.3%) were unable to work at baseline. Of the 947 patients unable to work, 439 (46.3%) were able to work either full time or part time at 1 year of treatment. Predictors of recovering full ability to work were non-white
ethnicity (odds ratio [OR], 2.06; 95% confidence interval [CI], 1.20-3.54), higher education (OR, 4.03; 95% CI, 2.47-7.48), and achieving HIV-ribonucleic acid <50 copies/mL (OR, 1.83; 95% CI, 1.20-2.80). Older age (OR, 0.55; 95% CI, .42-.72, per 10 years older) and psychiatric disorders (OR, 0.24; 95% CI, .13-.47) were associated with lower odds of ability to work. Recovering full ability to work at 1 year increased from 24.0% in 1998-2001 to 41.2% in 2009-2012, but the employment rates did not increase. Conclusions. Regaining full ability to work depends primarily on achieving viral suppression, absence of psychiatric comorbidity, and favorable psychosocial factors. The discrepancy between patients' ability to work and employment rates indicates barriers to reintegration of persons infected with HIV.


LGBT older adults are a heterogeneous population with collective and unique strengths and challenges. Health, personal, and economic disparities exist in this group when compared to the general population of older adults, yet subgroups such as transgender and bisexual older adults and individuals living with HIV are at greater risk for disparities and poorer health outcomes. As this population grows, further research is needed on factors that contribute to promoting health equity, while decreasing discrimination and improving competent service delivery.


Federal acknowledgement of LGBT elders remains scant, including in the 2015 White House Conference on Aging report and the Older Americans Act. This article outlines the many reforms and policy changes necessary for LGBT elders to age independently, in good health, and be financially secure in their homes and communities, without discrimination, and also stresses the need for more research on LGBT aging.


HIV Patient care should include psychological and psychiatric care, which is necessary for early detection thereof. Should suicidal ideation occur, refer the patient to a psychiatric unit. Pharmacological treatment is recommended when there is comorbidity with moderate or severe depression. You should look for the aetiology of neuropsychiatric disorder before using psychoactive drugs in HIV patients. The overall management of the health of HIV adolescents should include an assessment of mental health, environmental stressors and support systems. Training in the management of the patient both own emotions is critical to getting to provide optimal care. These new guidelines updated previous recommendations regarding psychiatric and psychological disorders, including the most common pathologies in adults and children.


Recent HIV research suggested assessing adverse childhood experiences (ACEs) as contributing factors of HIV risk behaviors. However, studies often focused on a single type of adverse experience and very few utilized population-based data. This population study examined the associations between ACE (individual and cumulative ACE score) and HIV risk behaviors. We analyzed the 2012 Behavioral Risk Factor Surveillance Survey (BRFSS) from 5 states. The sample consisted of 39,434 adults. Eight types of ACEs that included different types of child abuse and household dysfunctions before the age of 18 were measured. A cumulative score of ACEs was also computed. Logistic regression estimated of the association between ACEs and HIV risk
behaviors using odds ratio (OR) with 95% confidence intervals (CIs) for males and females separately. We found that ACEs were positively associated with HIV risk behaviors overall, but the associations differed between males and females in a few instances. While the cumulative ACE score was associated with HIV risk behaviors in a stepwise manner, the pattern varied by gender. For males, the odds of HIV risk increased at a significant level as long as they experienced one ACE, whereas for females, the odds did not increase until they experienced three or more ACEs. Future research should further investigate the gender-specific associations between ACEs and HIV risk behaviors. As childhood adversities are prevalent among general population, and such experiences are associated with increased risk behaviors for HIV transmission, service providers can benefit from the principles of trauma-informed practice.


This article includes personal reflections on the future of LGBT aging, informed by findings from the author’s landmark study: Aging with Pride: National Health, Aging, Sexuality and Gender Study. Using an equity framework (pursuit of fairness and opportunity for all to reach their full potential), the article outlines a blueprint for action in services, policies, and research to address the growing needs of LGBT older adults now and for generations to come.


Though functional social support has been shown to serve as a protective factor for HIV viral load suppression in other populations, scant research has examined this relationship among men who have sex with men (MSM) in the United States. We assessed characteristics of social support, effects of social support on HIV viral load, and moderation by social support of the relationship between psychosocial indicators of a synergistic epidemic (syndemic) and HIV viral load. We analyzed longitudinal data from HIV-positive MSM using antiretroviral therapy who were enrolled in the Multicenter AIDS Cohort Study between 2002 and 2009 (n = 712). First, we conducted reliability assessments of a one-item social support measure. Then, we conducted a series of generalized longitudinal mixed models to assess our research questions. Moderation was assessed using an interaction term. A three-level (low/medium/high) social support variable demonstrated high reliability (intraclass correlation coefficients = 0.72; 95% CI: 0.70, 0.75). Black and Hispanic MSM reported lower social support than their White counterparts (p < .0001). Recent seroconversion was associated with higher social support (p < .05). Higher numbers of concomitant syndemic indicators (depression, polysubstance use, and condomless anal sex) were associated with lower social support (p < .0001). Medium and high social support levels were associated with greater viral load suppression and lower viral load means (p < .0001). Social support moderated the relationships between syndemic and HIV viral load (p < .05). HIV-positive MSM, particularly those of color, may benefit greatly from interventions that can successfully boost functional social support. Creating strengths-based interventions may also have particularly high impact among HIV-positive MSM with the highest psychosocial burdens.


Globally, aging populations and older persons living with HIV (OPLWH) are emerging socioeconomic and health care concerns. Aging adults living in rural communities have less access to and lower utilization of health care services; they rely heavily on available peer and family networks. Although social networks have been linked to positive mental and physical health outcomes, there is a lack of understanding about social networks in rural-dwelling OPLWH. The purpose of this integrative literature review was to compare emerging themes in the social network components of rural versus urban-dwelling OPLWH and network benefits and barriers. Overarching themes include: limited and/or fragile networks, social inclusion versus social isolation, social capital, and health outcomes. Results demonstrate an overall lack of rural-focused research on OPLWH and a universal lack of informal and formal networks due to isolation, lack of health care services, and omnipresent HIV stigma.
Black men who have sex with men (BMSM) bear an increasingly disproportionate burden of HIV in the United States. The Centers for Disease Control and Prevention recommends high-impact combination prevention for populations at high risk for HIV infection, such as BMSM. However, few scholars have considered the types of behavioral interventions that combined with biomedical prevention could prove effective for mitigating the epidemic among BMSM. Between June 2013 and May 2014, we conducted three in-depth interviews each with 31 BMSM, interviews with 17 community stakeholders, and participant observation in New York City to understand the sociocultural and structural factors that may affect the acceptance of and adherence to oral preexposure prophylaxis among BMSM and to inform an adherence clinical trial. BMSM and community leaders frequently described condomless sex as a consequence of psychosocial factors and economic circumstances stemming from internalized homophobia resulting from rejection by families and religious groups. BMSM revealed that internalized homophobia and HIV stigma resulted in perceived lack of self- and community efficacy in accepting and adhering to preexposure prophylaxis. Our results indicate that addressing internalized homophobia and fostering emotional social support in peer networks are key elements to improve the effectiveness of combination prevention among BMSM.


Rates of both traumatic event exposure and posttraumatic stress disorder (PTSD; 22%-54%) are disproportionately elevated among people living with HIV/AIDS (PLHA). Trauma and related psychopathology significantly affect quality of life and disease management in this patient population. The current study examined associations between internalized HIV stigma, mindfulness skills, and the severity of PTSD symptoms in trauma-exposed PLHA. Participants included 137 PLHA (14.6% female; Mage = 48.94, SD = 8.89) who reported experiencing on average, five (SD = 2.67) traumatic events; 34% met diagnostic criteria for PTSD. Results indicate that after controlling for sex, age, education, and number of traumatic events, internalized HIV stigma was positively related to overall PTSD symptom severity (beta = .16, p < .05) and severity of re-experiencing (beta = .19, p < .05) and hyper-arousal (beta = .16, p = .05), but not avoidance, PTSD symptom clusters. Among the mindfulness facets measured, acting with awareness was uniquely negatively related to the overall severity of PTSD symptoms (beta = -.25, p < .01) and the severity of re-experiencing (beta = -.25, p < .05), avoidance (beta = -.25, p < .05), and hyper-arousal (beta = -.29, p < .01) PTSD symptom clusters. These effects were observed after accounting for covariates and shared variance with other mindfulness facets. Theoretically, the present findings suggest that internalized HIV stigma may serve as a vulnerability factor for the severity of certain PTSD symptoms, whereas acting with awareness may function as a protective or resiliency factor for the severity of PTSD symptoms. Implications for the treatment of trauma-exposed PLHA are discussed.


OBJECTIVES: Human immunodeficiency virus (HIV) remains a leading cause of morbidity and mortality in the United States, and adolescents account for a disproportionate number of new cases. We aimed to assess knowledge of HIV in relation to sexual risk behaviors among adolescents seeking care in our pediatric emergency department and to assess sources of HIV knowledge among this population. METHODS: Adolescents aged 14 to 21 years who presented to the pediatric emergency department participated in a questionnaire assessing HIV knowledge, sexual risk behaviors, and sources of HIV knowledge. For purposes of statistical analysis, patients were divided into a high-score (greater than or equal to the median score) or low-score (less than the median score) group based on the HIV-Knowledge Questionnaire 18 portion of the survey. RESULTS: A total of 240 adolescents were enrolled. Of those, 112 patients scored higher than or equal to the median HIV-Knowledge Questionnaire 18 score of 11. High-scoring knowledge was independently associated with patients 18 years or older (P = 0.001), any lifetime sexual activity (odds ratio [OR], 2.18; 95% confidence interval [CI], 1.30-3.67; P = 0.003), previous testing for HIV (OR, 2.40; 95% CI, 1.40-4.11; P = 0.002), and an "expert" source (school-based or medical professionals) as their primary source of knowledge (OR, 1.88;
95% CI, 1.05-3.41; P = 0.034). Age of first sexual encounter, number of partners, and condom use were not significantly associated with knowledge score. CONCLUSIONS: Education from "expert" sources is important in providing adolescents with accurate information. However, education alone is unlikely to change sexual practices. A more comprehensive approach to HIV prevention is needed to decrease HIV transmission among this patient population.


The purpose of this study was to identify key psychosocial characteristics of HIV-infected women who exhibit different levels of both ART adherence and risk behaviors. We analyzed baseline data from 193 predominately African American HIV-infected women participating in a behavioral clinical trial. Women were categorized into high/low groups based on levels of adherence and risky behaviors. There was a significant interaction effect for internal motivation for adherence. Women at high risk for poor health and transmitting HIV (low adherence/high risk group) had the lowest levels of internal motivation and also reported more difficult life circumstances. Gender roles, caretaking and reliance on men for economic and other support may promote external versus internal motivation as well as riskier behaviors in this group. The highest levels of internal motivation were found in those with High Adherence/High Risk behaviors. This group was highly knowledgeable about HIV and had the lowest VL. Compared to others, this group seems to tolerate risky behaviors given their high level of adherence. Adherence and risk reduction behaviors are key to individual and public health. Motivation and risk compensation should be addressed when providing interventions to women living with HIV.


We examined how functional social support, HIV-related discrimination, internalized HIV stigma, and social network structure and composition were cross-sectionally associated with network members' knowledge of respondents' serostatus among 244 HIV-positive African Americans in Los Angeles. Results of a generalized hierarchical linear model indicated people in respondents' networks who were highly trusted, well-known to others (high degree centrality), HIV-positive, or sex partners were more likely to know respondents' HIV serostatus; African American network members were less likely to know respondents' serostatus, as were drug-using partners. Greater internalized stigma among respondents living with HIV was associated with less knowledge of their seropositivity within their social network whereas greater respondent-level HIV discrimination was associated with more knowledge of seropositivity within the network. Additional research is needed to understand the causal mechanisms and mediating processes associated with serostatus disclosure as well as the long-term consequences of disclosure and network members' knowledge of respondents' serostatus.


OBJECTIVE: Sexual activity often begins in early adolescence, and adolescents with mental health symptoms are at greater risk for sexual activity and other health risks. This study aimed to evaluate a developmentally targeted intervention designed to enhance early adolescents' emotion regulation competencies as a strategy for reducing health risk behaviors, including sexual initiation. METHOD: Adolescents 12 to 14 years old (N = 420; 53% male) with mental health symptoms participated in either an emotion regulation (ER) or health promotion (HP) intervention consisting of 12 after-school sessions. Participants completed questionnaires on laptop computers at baseline, 2-, 6-, and 12-month follow-ups. RESULTS: Time to event analyses were used to compare intervention conditions on rate of initiation to vaginal sex. Results showed that participants in the ER condition were less likely to transition into vaginal sexual activity by 1-year follow-up than were those in the HP condition (adjusted hazard ratio = 0.58, 95% confidence interval [0.36, 0.94], p = .01). However, those who were sexually active did not report differences in sexual risk behaviors (e.g., condomless sex). Participants in the ER condition were significantly less likely to report violence behaviors and showed improvement on a behavioral measure of emotion identification; however, they did not differ from HP participants on self-reports of emotional competence. CONCLUSIONS: Emotion regulation strategies can be used to delay sexual initiation among early adolescents with mental health symptoms and may have an important role in health education. (PsycINFO Database Record


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HIV infection among older adults is increasing. Previous research suggests that many older adults do not see themselves as at risk for HIV and that many subscribe to myths related to HIV transmission. In this focus group study (N = 48) we solicited the beliefs that older adults held about HIV. The older adults in this study were knowledgeable about how HIV is typically transmitted. However, we also identified that they subscribed to misconceptions regarding casual contact transmission and were fearful of transmission from the medical system. Educational efforts aimed at older adults must be tailored to address these persistent misconceptions.


BACKGROUND: Studies of spirituality in initially healthy people have shown a survival advantage, yet there are fewer research studies in the medically ill, despite the widespread use of spirituality/religiousness to cope with serious physical illness. In addition, many studies have used limited measures such as religious service attendance. OBJECTIVE: We aimed to examine if, independent of medication adherence, the use of spirituality/religiousness to cope with HIV predicts survival over 17 years. DESIGN: This was a longitudinal study, started in 1997. Study materials were administered semi annually. PARTICIPANTS: A diverse sample of 177 HIV patients initially in the mid-stage of disease (150-500 CD4-cells/mm(3); no prior AIDS-defining symptoms) participated in the study. MAIN MEASURES: Participants were administered a battery of psychosocial questionnaires and a blood draw. They completed interviews and essays to assess current stressors. Spiritual coping (overall/strategies) was rated by qualitative content analysis of interviews regarding stress and coping with HIV, and essays. KEY RESULTS: Controlling for medical variables (baseline CD4/viral load) and demographics, Cox regression analyses showed that overall positive spiritual coping significantly predicted greater survival over 17 years (mortality HR = 0.56, p = 0.039). Findings held even after controlling for health behaviors (medication adherence, substance use) and social support. Particular spiritual coping strategies that predicted longer survival included spiritual practices (HR = 0.26, p < 0.001), spiritual reframing (HR = 0.27, p = 0.006), overcoming spiritual guilt (HR = 0.24, p < 0.001), spiritual gratitude (HR = 0.40, p = 0.002), and spiritual empowerment (HR = 0.52, p = 0.024), indicating that people using these strategies were 2-4 times more likely to survive. CONCLUSIONS: To our knowledge this is the first study showing a prospective relationship of spiritual coping in people who are medically ill with survival over such a long period of time, and also specifically identifies several strategies of spirituality that may be beneficial.


A cross sectional study was conducted on randomly selected 573 older persons aged 65 years and above to examine the effect of age identity on social exclusion and wellbeing. Using standardized rating scales, age identity, social exclusion and wellbeing was measured and bivariate and multivariate regression analyses was applied to test the key hypotheses of this study. Results revealed significant correlations between age identity, social exclusion and wellbeing. Age identity significantly increased social exclusion and is inversely related with wellbeing. Age identity inversely influenced older persons' wellbeing whereas age identity and social exclusion showed combined inverse effect on older persons' wellbeing. Thus, the study concludes that age identity severe social exclusion while it reduces wellbeing in older persons.


BACKGROUND: People living in poverty face multiple structural challenges to medication adherence including lack of transportation, inadequate housing and food insecurity. The degree to which individuals' motivations to remain adherent may overcome structural barriers has received limited attention. PURPOSE: To examine whether medication necessity and concerns beliefs predict antiretroviral therapy (ART) adherence over and above structural adherence barriers associated with poverty. METHODS: People living with HIV in a southern US city (N = 942) completed computerised interviews, an objective measure of adherence and HIV viral suppression obtained from medical records. Hierarchical logistic regression models were constructed to examine demographic and illness characteristics, structural barriers, mental health, substance use and medication necessity and concerns beliefs as predictors of ART adherence. RESULTS: In multivariable models, current drug use and medication necessity and concerns beliefs predicted treatment adherence over and above demographic, health, mental health and structural factors. CONCLUSIONS: Medication beliefs are proximal and powerful motivating factors that predict adherence. Adherence interventions should directly address medication beliefs in developing strategies to manage barriers facing people with HIV living in poverty.


OBJECTIVES: We examined the relationship between cumulative experiences of racial discrimination and HIV-related risk taking, and whether these relationships are mediated through alcohol use among African Americans in semi-rural southeast Louisiana. METHODS: Participants (N = 214) reported on experiences of discrimination, HIV sexual risk-taking, history of sexually transmitted infection (STI), and health behaviors including alcohol use in the previous 90 days. Experiences of discrimination (scaled both by frequency of occurrence and situational counts) as a predictor of a sexual risk composite score as well as a history of STI was assessed using multivariate linear and logistic regression, respectively, including tests for mediation by alcohol use.

RESULTS: Discrimination was common in this cohort, with respondents confirming their experience on average 7 of the 9 potential situations and on more than 34 separate occasions. After adjustment, discrimination was significantly associated with increasing sexual risk-taking and lifetime history of STI when measured either by frequency of occurrence or number of situations, although there was no evidence that these relationships were mediated through alcohol use. CONCLUSIONS: Cumulative experiences of discrimination may play a significant role in sexual risk behavior and consequently increase vulnerability to HIV and other STIs.


With increasing success in treating HIV, infected persons are living longer, and a new challenge has emerged - the need to understand how HIV-infected adults are aging. What are the similarities with typical aging and what are the unique aspects that may have resulted from HIV infection, interacting with characteristic life style factors and other comorbid conditions? Are specific diseases and conditions (comorbidities), typically seen as part of the aging process, occurring at accelerated rates or with higher frequency (accentuated) in HIV-infected adults? At this juncture, conclusions should be tentative. Certainly, biological processes that correlate with aging occur earlier in the older adult HIV population. Clinical manifestations of these biological processes are age-associated illnesses occurring in greater numbers (multimorbidity), but they are not accelerated. Specifically cardiovascular disease, certain cancers, and renal disease are more common with other comorbidities less certain. Management of this elevated risk for developing multimorbidity is a major concern for patients and their healthcare teams. The medical system must respond to the evolving needs of this aging and growing older adult population who will dominate the epidemic. Adopting a more holistic approach to their health care management is needed to achieve optimal health and well-being in the HIV-infected older adult. Geriatric care principles best embody this approach.


HIV disproportionately affects older gay and bisexual men and transgender women (GBT). While successful treatments for HIV have been available for two decades, many people aging with the virus experience multi-morbidity at higher rates than those without HIV. Caring for older GBT adults with HIV is an emerging challenge, complicated by a lack of traditional informal social supports. The LGBT community mobilized during the early days of the HIV epidemic to provide care and support. Will this community step up to the challenge of caring for its older members aging with HIV?


There is substantial body of evidence that psychosocial factors influence the disease progression in HIV infection. In particular, stress or stressful life events are considered important in terms of impacting the key biological markers of the disease – viral load and CD4 cell count. Both animal models and human research seem to prove that stance by examining various groups of patients (children and adults, males and females, MSM and heterosexual persons). There is no consensus as to the effects of stress-reducing interventions on improving the immune functioning of the patients, although there is research indicating that these techniques may be of benefit to the patients if used properly. There are two most often discussed biological models for explaining the mechanisms behind the mentioned effects – one relating to the actions of hypothalamus–pituitary–adrenal axis (HPA axis) and the second pointing to sympathetic nervous system (SNS) or sympathomedullary pathway (SAM). These two mechanisms should not be viewed as exclusive, but rather synergetic in action. Both of them, however, are not clearly...
understood and there are studies pointing to gaps in these theories. Further research is needed to examine the biological mechanisms and to distinguish the groups of patients that may benefit the most from psychological interventions.


Research has consistently demonstrated a link between the experience of adverse childhood experiences (ACEs) and adult health conditions, including mental and physical health problems. While a focus on the prevention or mitigation of adversity in childhood is an important direction of many programs, many individuals do not access support services until adulthood, when health problems may be fairly engrained. It is not clear which interventions have the strongest evidence base to support the many adults who present to services with a history of ACEs. The current review examines the evidence base for psychosocial interventions for adults with a history of ACEs. The review focuses on interventions that may be provided in primary care, as that is the setting where most patients will first present and are most likely to receive treatment. A systematic review of the literature was completed using PsycInfo and PubMed databases, with 99 studies identified that met inclusion and exclusion criteria. These studies evaluated a range of interventions with varying levels of supportive evidence. Overall, cognitive-behavioral therapies (CBT) have the most evidence for improving health problems - in particular, improving mental health and reducing health-risk behaviors - in adults with a history of ACEs. Expressive writing and mindfulness-based therapies also show promise, whereas other treatments have less supportive evidence. Limitations of the current literature base are discussed and research directions for the field are provided.


Medication adherence among HIV-infected individuals is critical to limit disease progression and onward transmission. Evidence indicates that among youth living with HIV (YLH), adherence is suboptimal and related to co-morbid psychosocial conditions. Cross-sectional data from 212 YLH, ages 16-29, collected between 2011-2014 in Chicago were analyzed to assess the relationship of multiple psychosocial conditions (e.g., depressive symptoms, anxiety symptoms, moderate/heavy marijuana use, moderate/heavy alcohol use, HIV-related stigma) to ART adherence (i.e., a "syndemic.") Adherence was regressed on an index of increasing numbers of psychosocial conditions, controlling for demographic and treatment factors as well as enrollment site. The mean age of participants was 24, 89% were male, 87% black, and 91% behaviorally infected. Psychosocial conditions were prevalent, including 38% and 34% with high depressive and anxiety symptoms, respectively, 54% and 25% with a moderate/high level of marijuana and alcohol use, respectively, and 46% reporting high HIV-related stigma. In regression analysis, the likelihood of ART adherence decreased with the number of syndemic conditions (linear dose response, p = 0.02) as did the odds of viral load suppression (p = 0.008). Interventions to address these conditions in concert with biomedical treatment as prevention for YLH are needed.


OBJECTIVES: To identify a simplified factor structure for the PROQOL-HIV questionnaire to improve the measurement of the health-related quality of life (HRQL) of HIV-positive patients in clinical care and research settings. STUDY DESIGN AND SETTING: HRQL data were collected using the eight-dimension PROQOL-HIV questionnaire from 2,537 patients (VESPA2 study). Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) validated a simpler four-factor structure and assessed measurement invariance (MI). Multigroup analysis assessed the effect of sex, age, and antiretroviral therapy (ART) on the resulting factor scores. Correlations with symptom and Short Form (SF)-12 self-reports assessed convergent validity. RESULTS: Item analysis, EFA, and CFAs confirmed the validity (comparative fit index (CFI), 0.948; root mean square error of approximation, 0.064) and reliability (alpha’s >/= 0.8) of four dimensions: physical health and symptoms, health concerns and mental distress, social and intimate relationships, and treatment-related impact. Strong MI was demonstrated across sex and age (decrease in CFI <0.01). A multiple-cause multiple-indicator model indicated that HRQL correlated as expected with sex, age, and the ART status. Correlations of HRQL, symptom reports, and SF-12 scores evidenced convergent validity criterion. CONCLUSION: The simplified factor structure and scoring scheme for PROQOL-HIV will allow clinicians to monitor with greater reliability the HRQL of patients in clinical care and research settings.

This paper presents a systematic review of the quantitative HIV research that assessed the relationships between religion, spirituality, HIV syndemics, and individual HIV syndemics-related health conditions (e.g. depression, substance abuse, HIV risk) among men who have sex with men (MSM) in the United States. No quantitative studies were found that assessed the relationships between HIV syndemics, religion, and spirituality. Nine studies, with 13 statistical analyses, were found that examined the relationships between individual HIV syndemics-related health conditions, religion, and spirituality. Among the 13 analyses, religion and spirituality were found to have mixed relationships with HIV syndemics-related health conditions (6 nonsignificant associations; 5 negative associations; 2 positive associations). Given the overall lack of inclusion of religion and spirituality in HIV syndemics research, a conceptual model that hypothesizes the potential interactions of religion and spirituality with HIV syndemics-related health conditions is presented. The implications of the model for MSM's health are outlined.


INTRODUCTION: Transfemale youth (TFY) are an underserved and understudied population at risk for numerous poor physical and mental health outcomes, most notably HIV. Research suggests that parental acceptance and social support may serve as protective factors against HIV and other risks for TFY; however, it is unclear whether TFY receive primary social support from parents with or without parental acceptance of their gender identity. This study examines differences in parental acceptance, mental health and the HIV risk factors of history of sex work, age at sexual debut and engagement in condomless anal intercourse between TFY with two types of primary social support - non-parental primary social support (NPPSS) and parental primary social support (PPSS). METHODS: Cross-sectional data collected from 301 TFY from 2012 to 2014 in the San Francisco Bay Area were analyzed to determine differences in parental acceptance, mental health and HIV risk factors between youth with and without PPSS. Univariate statistics and chi-squared tests were conducted to determine if parental acceptance and health outcomes were correlated with type of social support. RESULTS: Two-hundred fifty-one participants (83.7%) reported having NPPSS, and 49 (16.3%) reported PPSS. Significantly more youth with PPSS reported affirmative responses on parental acceptance items than their NPPSS counterparts. For example, 87.8% of youth with PPSS reported that their parents believed they could have a happy future as a trans adult, compared with 51.6% of youth with NPPSS (p<0.001). Fewer participants with PPSS reported symptoms of psychological distress (2.0% vs. 12.5%, p=0.057), though this finding was not statistically significant; no significant associations were found between primary social support type and HIV risk factors. CONCLUSIONS: These results suggest that TFY with parental acceptance of their gender identity may be more likely to reach out to their parents as their primary source of social support. Interventions focused on parental acceptance of their child’s gender identity may have the most promise for creating parental social support systems in the lives of TFY.


OBJECTIVE: Suboptimal adherence to antiretroviral therapy (ART) among HIV-infected people who use illicit drugs (PWUD) remains a significant concern, and there is a lack of effective adherence interventions for this population. Therefore, we sought to identify psychosocial determinants of optimal adherence, including adherence self-efficacy and outcome expectancies, with the aim of informing interventions designed to improve adherence among PWUD. METHOD: From December 2005 to November 2013, we collected data from the AIDS Care Cohort to evaluate Exposure to Survival Services (ACCESS), a prospective cohort of PWUD in Vancouver, Canada. We used multivariable generalized estimating equations (GEE) analysis to identify longitudinal factors independently associated with 95% or greater adherence to ART. RESULTS: Among 667 participants, including 220 (33%) women, 391 (59%) had 95% or greater ART adherence at baseline. In multivariable GEE analysis, adherence self-efficacy, adjusted odds ratio (AOR) = 1.16, 95% confidence interval (CI) [1.11, 1.21] per 10-point increase, was independently and positively associated with adherence, while negative outcome expectancy, AOR = 0.95, 95% CI [0.93, 0.98], was negatively associated. CONCLUSION: In light of the ongoing challenges associated with ART adherence among HIV-positive PWUD, and our findings of associations between adherence, self-efficacy, and outcomes expectancies, tailored intervention strategies based on constructs of social learning theory should be implemented and evaluated to improve adherence among HIV-infected PWUD.


We explored perceived HIV stigma by community members in a low-HIV-prevalence setting toward people living with HIV (PLWH) and physicians associated with HIV in order to develop operational stigma reduction recommendations for HIV referral hospitals. In-depth interviews (N = 30) were conducted with educated and less-educated men and women in Egypt. Thematic analysis was applied to identify drivers, manifestations, and outcomes of stigma. Stigma toward PLWH was rooted in values and fears, manifesting in reluctance to use the same health facilities as PLWH. Stigma toward physicians providing care for PLWH was caused by fear of infection and developed into unwillingness to use those physicians' services. Stigma toward physicians who refused to provide care was linked to perceptions of unethical behavior. HIV referral hospitals in low HIV prevalence settings could benefit from stigma reduction interventions with a special focus on addressing moral-based stigma and fear of casual transmission.


The purpose of this study was to determine whether distinct latent profiles of religiousness/spirituality exist for ALWH, and if so, are latent profile memberships associated with health-related quality of life (HRQoL). Latent profile analysis of religiosity identified four profiles/groups. Compared to the other three groups, higher levels of emotional well-being were found among young perinatally infected adolescents who attended religious services, but who did not pray privately, feel God's presence or identify as religious or spiritual. Social HRQoL was significantly higher among the highest overall religious/spiritual group. Understanding adolescent profiles of religiousness/spirituality on HRQoL could inform faith-based interventions. Trial registration NCT01289444.


This study examines different types and sources of social support in relation to psychological distress levels among older Australian gay men. A national community-based survey was conducted involving 242 gay-identified men aged 50 years and older. In univariable regressions, psychological distress was less likely if men were receiving emotional support, practical support, or had a sense of belonging, and also if they had a greater number of close friends and received some or a lot of support from family and gay friends but not from straight friends. Of all these factors, a multivariable regression showed that receiving emotional support was the only significant independent factor. Emotional support appears to play a greater role in the mental health of older gay men than many other types and sources of support. Ensuring access to emotional support may need to be considered when promoting healthier aging among gay men.


Most HIV infections among young men who have sex with men (YMSM) occur within primary partnerships. Research on YMSM’s knowledge, motivation, and behavioral skills regarding relationship-related HIV prevention, and how these correspond to HIV risk and partnership characteristics, is limited. We examined links among the Relationship-Oriented Information-Motivation-Behavioral Skills (RELO-IMB) model, relationship characteristics, and HIV risk in 96 YMSM. Condomless sex with a primary partner was associated with low relationship-related HIV preventive information, motivation, and behavioral skills. Lack of HIV testing and alcohol use before sex were associated with low behavioral skills. In multivariate analyses, behavioral skills were the only consistent predictor of these outcomes. Regarding relationship characteristics, feeling trapped in the relationship or being physically abused by a partner was associated with low motivation and behavioral skills. The RELO-IMB model can be used to understand HIV risk in relationships and points to targets for relationship-specific HIV prevention education for YMSM.
Annual incidence rates totaling 2898 Black MSM, the weighted mean incidence was 4.16% per year (95% CI 2.76-5.56). Using this prevalence within a simulated cohort of Black MSM (who were all HIV-negative at the start) from ages 18 through 40. Based on confidence intervals (CIs) were calculated using random effects models. Using the average incidence rate, we modeled HIV prevalence over time within a simulated cohort, which we subsequently compared to prevalence under realized and 'housed' scenarios were obtained by averaging these probabilities across the study population. Bootstrapping was conducted to calculate 95% confidence limits. RESULTS: Of 706 individuals interviewed between January 2005 and December 2013, the majority were men (66.0%), of white race/ethnicity (55.1%), and had a history of injection drug use (93.6%). At first study visit, 223 (31.6%) reported recent homelessness, and 37.8% were subsequently identified as virally suppressed. Adjusted marginal models estimated a 15.1% relative increase [95% confidence interval (CI) 9.0-21.7%) in viral suppression in the entire population - to 43.5% (95% CI 39.4-48.2%) - if all homeless individuals were housed. Among those homeless, eliminating this exposure would increase viral suppression from 22.0 to 40.1% (95% CI 35.1-46.1%), an 82.3% relative increase. CONCLUSION: Interventions to house homeless, HIV-positive individuals who use drugs could significantly increase population viral suppression. Such interventions should be implemented as a part of renewed HIV/AIDS prevention and treatment efforts.

OBJECTIVE: We sought to estimate the change in viral suppression prevalence if homelessness were eliminated from a population of HIV-infected people who use drugs. DESIGN: Community-recruited prospective cohort of HIV-infected people who use drugs in Vancouver, Canada. Behavioural information was collected at baseline and linked to a province-wide HIV/AIDS treatment database. The primary outcome was viral suppression (<50 copies/ml) measured during subsequent routine clinical care. METHODS: We employed an imputation-based marginal modelling approach. First, we used modified Poisson regression to estimate the relationship between homelessness and viral suppression (adjusting for sociodemographics, substance use, addiction treatment, and other confounders). Then, we imputed an outcome probability for each individual while manipulating the exposure (homelessness). Population viral suppression prevalence under realized and 'housed' scenarios were obtained by averaging these probabilities across the study population. Bootstrapping was conducted to calculate 95% confidence limits.

Black men who have sex with men (MSM) in the United States are disproportionately impacted by HIV. To better understand this public health problem, we reviewed the literature to calculate an estimate of HIV incidence among Black MSM. We used this rate to model HIV prevalence over time within a simulated cohort, which we subsequently compared to prevalence from community-based samples. We searched all databases accessible through PubMed, and Conference on Retroviruses and Opportunistic Infections abstracts for HIV incidence estimates among Black MSM. Summary HIV incidence rates and 95% confidence intervals (CIs) were calculated using random effects models. Using the average incidence rate, we modeled HIV prevalence within a simulated cohort of Black MSM (who were all HIV-negative at the start) from ages 18 through 40. Based on five incidence rates totaling 2898 Black MSM, the weighted mean incidence was 4.16% per year (95% CI 2.76-5.56). Using this annual incidence rate, our model predicted that 39.94% of Black MSM within the simulated cohort would be HIV-positive by age


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30, and 60.73 % by 40. Projections were similar to HIV prevalence found in community-based samples of Black MSM. High HIV prevalence will persist across the life-course among Black MSM, unless effective prevention and treatment efforts are increased to substantially reduce HIV transmission among this underserved and marginalized population.


Several studies have implicated the sexual networks of Black men who have sex with men (MSM) as facilitating disproportionally high rates of new HIV infections within this community. Although structural disparities place these networks at heightened risk for infection, HIV prevention science continues to describe networks as the cause for HIV disparities, rather than an effect of structures that pattern infection. We explore the historical relationship between public health and Black MSM, arguing that the current articulation of Black MSM networks is too often incomplete and counterproductive. Public health can offer a counternarrative that reconciles epidemiology with the social justice that informs our discipline, and that is required for an effective response to the epidemic among Black MSM.


BACKGROUND: Despite the success of antiretroviral therapy (ART), HIV-infected older African Americans experience higher mortality rates compared to their white counterparts. This disparity may be partly attributable to the differences in ART adherence by different racial and gender groups. The purpose of this study was to describe demographic, psychosocial, and HIV disease-related factors that influence ART adherence and to determine whether race and gender impact ART adherence among HIV-infected adults aged 50 years and older. METHODS: This descriptive study involved a secondary analysis of baseline data from 426 participants in "PRIME," a telephone-based ART adherence and quality-of-life intervention trial. Logistic regression was used to examine the association between independent variables and ART adherence. RESULTS: Higher annual income and increased self-efficacy were associated with being >/=95% ART adherent. Race and gender were not associated with ART adherence. CONCLUSION: These findings indicated that improvements in self-efficacy for taking ART may be an effective strategy to improve adherence regardless of race or gender.


This phenomenological study captured the unique perspectives and insight of how 10 black women experience and define leadership in their HIV/AIDS community work. Black feminist epistemology provided the framework for understanding how these women experienced leadership at the intersection of race/gender/power while working on behalf of marginalized and stigmatized community members. Salient themes that emerged from the analysis include leadership is situational and contextual, leadership is inclusive and collective, intent is more important than label, leadership is transformative, leadership is scrutinized, and power is centered in mothering relationships. Their leadership builds on the efforts of the liberation and racial uplift work of the 19th-century Black Women’s Club Movement and emerged as black feminist leadership to address the contemporary social injustice of HIV/AIDS.


Much attention has been given to the relationship between religion/spirituality (R/S) and HIV in recent years, but comparatively little has been explored in regard to R/S and HIV testing, retention in care, and adherence to medication. Religious views concerning HIV risk behavior pose challenges to communication and education about sexual health in religious communities and may serve as barriers to HIV treatment and care. Conversely, religious coping and spiritual well-being, as well as social support could serve as facilitators to HIV treatment and care. This study aims to fill a gap in the literature by addressing the following questions: (1) what dimensions of R/S have been found to be factors associated with HIV outcomes?; (2) which R/S factors function as barriers or facilitators to care among people living with HIV (PLWH)?; and (3) which R/S factors, if any, vary across socio-demographic groups? Thirty-three empirical articles were identified for systematic review. Of the 33 empirical studies included, 24 studies found that at least one measure of R/S was associated with better adherence and clinical health outcomes. Twelve studies found at least one measure of R/S to be associated with poorer adherence and clinical health

This study determined whether a novel (single-item) measure of poverty is associated with elevated sexual risk among young Black men who have sex with men who reside in a US city with high HIV seroprevalence. A convenience sample of 600 Black men who have sex with men (ages 16-29) completed a computer-assisted self-interview. The questionnaire included an item asking men, "In the past 12 months have you missed meals because you did not have enough money to eat?" Selected measures of sexual risk and prevalence of chlamydia, gonorrhea, and HIV were assessed as outcomes of this novel measure of poverty. About 22% had missed meals due to lack of money. In age-adjusted analyses, these men were more likely to report: (1) having concurrent sex partners (P = .03), (2) having sex with partners who were generally five or more years older (P = .02), (3) not using condoms the first time they had sex with their most recent new partner (P = .015), (4) having sex with persons not known by name (P = .02), (5) depending on sex partners for food, money, and shelter (P < .0001), and (6) testing positive for Chlamydia at study enrollment (P < .02). Of interest, an association in frequency of recent condomless anal sex as top (P = .04) was observed; however, the association for recent condomless sex as bottom (P = .37) was not significant. For young Black men who have sex with men, a novel method of assessing poverty may be predictive of many sexual risk behaviors. Clinicians may benefit this population by including this question as part of their patient interview and prioritizing services when indicated.


OBJECTIVES: This study examined how community levels of implicit HIV prejudice are associated with the psychological and physical well-being of people with HIV living in those same communities. It also examined whether community motivation to control prejudice and/or explicit HIV prejudice moderates the relationship of implicit prejudice and well-being. METHOD: Participants were 206 people with HIV living in 42 different communities in New England who completed measures that assessed psychological distress, thriving, and physical well-being. Telephone surveys of 347 residents of these same communities (selected via random digit dialing) were used to assess community explicit HIV prejudice and motivation to control HIV prejudice. These community residents then completed an online measure of implicit prejudice toward people with HIV, the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). RESULTS: Multilevel analyses showed that higher community implicit HIV prejudice was associated with greater psychological distress among residents with HIV living in that community. The physical well-being of participants with HIV was negatively related to community implicit HIV prejudice in communities in which residents were unmotivated to control HIV prejudice or had high levels of explicit HIV prejudice. CONCLUSIONS: These findings indicate that implicit prejudice of residents of real-world communities may create an environment that may impair the well-being of stigmatized people. Implicit prejudice can therefore be considered an element of macro-level or structural stigma. The discussion considered the possible role of implicit HIV prejudice on a community's social capital as a pathway by which it compromises the well-being of residents with HIV. (PsycINFO Database Record)


PURPOSE: To explore whether the prevalence and determinants of insufficient work ability (WA) of older HIV-positive workers differ from a comparable group of HIV-negative workers. METHODS: Cross-sectional data from 359 HIV-negative and 264 HIV-positive middle-aged individuals (45-65 years) participating in paid labor, collected within the AGEhIV Cohort Study between October 2010-September 2012, were selected. Data were collected by self-administered questionnaires and physical examination. Participants self-rated their current WA, ranging from 0 to 10. WA was dichotomized into insufficient (<6) and sufficient (>/=6). Using univariable and multivariable logistic regression, we studied the independent effect of HIV status on insufficient WA and determinants of insufficient WA. RESULTS: Overall, 8% of participants reported insufficient WA (HIV-positive 9% vs. HIV-negative 7%, P = 0.20). Twice as many HIV-positive as HIV-negative individuals were declared partly unfit for work (6 vs. 3%, P = 0.02). HIV status itself was not associated with WA in univariable and multivariable analyses. Multivariable analyses...
revealed that low educational level, working fewer hours, being partly unfit for work, experiencing a high need for recovery after work, staying home from work ≥2 times in the past 6 months, and reporting depressive symptoms were associated with insufficient WA, independent of HIV status. CONCLUSIONS: HIV-positive individuals aged 45-65 years participating in paid labor seem to function as well at work as HIV-negative individuals. HIV-positive participants were more often formally declared partly unfit for work, but percentages were low in both groups. Knowledge of determinants of insufficient WA may help employers and professionals to optimize WA.


HIV infection has been historically considered a disease of young adults; however, adults aged 50 years and older represent now an increasing proportion of HIV cases worldwide, including in Portugal. In this context, given the considerable burden associated with living with HIV, the topic of quality-of-life (QoL) assessment has become increasingly relevant. The aims of this study were to examine the age-related differences in QoL and depressive symptoms of younger and middle-aged and older adults with HIV as well as the sociodemographic, HIV-related and depressive symptoms (cognitive-affective and somatic) associated with QoL domains. The sample consisted of 1194 HIV-infected patients, recruited from 10 Portuguese hospitals. QoL data were collected using the WHOQOL-HIV-Bref questionnaire. Patients also completed the Beck Depression Inventory. Of the 1194 patients, 185 (15.5%) were over 50 years old. Middle-aged and older patients reported significantly lower QoL in the physical, independence and social relationships domains. Regarding the specific facets of QoL, middle-aged and older patients reported significantly lower scores in seven of the 29 specific facets of the WHOQOL-HIV-Bref and higher scores in one facet (financial resources). Overall, among middle-aged and older patients, higher education, being employed, a shorter time since HIV diagnosis, use of combination anti-retroviral therapy and fewer depressive symptoms were significantly associated with higher QoL ratings. Our findings suggest that both cognitive-affective and somatic depressive symptoms account for significant variability in QoL scores in middle-aged and older patients. Because an important feature of healthy ageing is maintaining QoL, these data may provide useful information for tailoring age-appropriate and effective interventions to improve the mental health and QoL of middle-aged and older patients living with HIV.


OBJECTIVE: This study aimed to examine the feasibility, acceptability, and initial validity of using smartphone-based ecological momentary assessment (EMA) to assess daily functioning and other behavioral factors among older HIV+ adults. METHODS: Twenty older HIV+ adults (mean age: 59 years) completed laboratory-based neurobehavioral and functional assessments then completed EMA surveys via smartphones five times per day for one week. RESULTS: Excellent EMA adherence (86.4%) was found, and participants rated their experience with EMA methods positively. Time-use data indicated participants were spending 74% of their waking-sampled time at home, 63% of their time alone, and 32% of their time engaged in passive leisure activities (e.g., watching TV). Better neurocognitive and functional capacity abilities were correlated with less time spent in passive leisure activities. Lastly, mood and cognitive symptom data collected via EMA were significantly associated with scores from laboratory-based assessments of these same constructs. CONCLUSIONS: EMA via smartphones is a feasible and acceptable data collection method among older HIV+ adults and appears to be a promising mobile tool to assess daily functioning behaviors in HIV. These preliminary findings indicate older HIV+ adults are spending a considerable amount of time at home, alone, and engaged in passive leisure activities, primarily watching TV. EMA may contribute to future research examining functional disability among the growing population of older HIV+ adults.


Little is known about how lesbians and gay men perceive the turning points that define their life trajectories. This study uses qualitative interview data to understand which experiences lesbian women and gay men age 50 and older identify as turning points and explore gender differences. In depth, face-to-face qualitative interviews were conducted with a subset of participants (n=33) from the Caring and Aging with Pride survey. The most common turning points identified were relationship and occupation related. Lesbians more frequently identified the break-up of a relationship and occupational and educational related experiences as turning points. Gay men more commonly indicated that the beginning of a relationship and HIV/AIDS related experiences were turning points. The turning points were analyzed according to principles of the life course theory and narrative analysis.

BACKGROUND: Mental disorders are the leading global cause of years lived with disability; the majority of this burden exists in low and middle income countries (LMICs). Over half of mental illness is attributable to depression and anxiety disorders, both of which have known treatments. While the scarcity of mental health care providers is recognized as a major contributor to the magnitude of untreated disorders in LMICs, studies in LMICs find that evidence-based treatments for depression and anxiety disorders, such as brief, structured psychotherapies, are feasible, acceptable and have strong efficacy when delivered by local non-specialist personnel. However, most mental health treatment studies using non-specialist providers in LMICs deploy traditional efficacy designs (T1) without the benefit of integrated mental health treatment models shown to succeed over vertical interventions or methods derived from new implementation science to speed policy change. Here, we describe an effectiveness-implementation hybrid study that evaluates non-specialist delivery of mental health treatment within an HIV clinic for HIV-positive (HIV+) women affected by gender-based violence (GBV) (HIV+ GBV+) in the Nyanza region of Kenya. METHODS/DESIGN: In this effectiveness-implementation hybrid type I design, 200 HIV+ women with major depressive disorder (MDD) and posttraumatic stress disorder (PTSD) who are receiving care at a Family AIDS Care Education and Services (FACES)-supported clinic in Kisumu, Kenya will be randomized to: (1) interpersonal psychotherapy (IPT) + treatment as usual (TAU) or (2) TAU, both delivered within the HIV clinic. IPT will consist of 12 weekly 60-minute individual IPT sessions, delivered by non-specialists trained to provide IPT. Primary effectiveness outcomes will include MDD and PTSD diagnosis on the Mini International Diagnostic Interview (MINI). Primary implementation outcomes will include treatment cost-benefit, acceptability, appropriateness, feasibility and fidelity of the IPT delivery within an HIV clinic. DISCUSSION: This trial leverages newly defined effectiveness-implementation hybrid designs to gather data on mental health treatment implementation within an HIV care clinic, while testing
the effectiveness of an evidence-based treatment for use with a large underserved population (HIV+ GBV+ women) in Kenya. TRIAL REGISTRATION: CLINICAL TRIALS IDENTIFIER: NCT02320799, registered on 9 September 2014.


OBJECTIVES: Compared the effectiveness of religious cognitive-behavioral therapy (RCBT) versus conventional CBT (CCBT) on reducing spiritual struggles in persons with major depressive disorder (MDD) and medical illness. METHODS: Participants were randomized to receive 10 sessions of RCBT (n = 65) or CCBT (n = 67). Spiritual struggles were assessed at baseline, 12, and 24 weeks using the Brief RCOPE. Mixed effects growth curve models compared the effects of treatment on change in spiritual struggles. RESULTS: RCBT and CCBT reduced spiritual struggles to a similar degree over time (B = -0.48, SE = 0.31, df = 151, t = -1.53, p = .127, d = 0.25). Similar results were found in those with high religiosity and with high spiritual struggles at baseline. Higher baseline spiritual struggles predicted a slower decline in MDD (B = 0.47, SE = 0.20, t = 2.30, p = .022) independent of treatment group. CONCLUSIONS: RCBT and CCBT are equally effective in reducing spiritual struggles in persons with MDD and medical illness. High spiritual struggles decrease the response of MDD to both RCBT and CCBT. These findings have treatment implications.


Men who have sex with men (MSM) in primary relationships engage in condomless sex both within and outside their relationships and a majority of HIV transmission risk may actually occur within primary relationships. Sexual agreements regarding non-monogamy are a critical component to understanding HIV prevention in male couples. Relationship factors have been associated with how sexual agreements function and power is one dyadic construct likely to affect couple’s maintenance of non-monogamy agreements. Multilevel modeling was used in a cross-sectional study of gay male couples (N = 566 couples) to examine associations between partners’ demographic characteristics traditionally used to define relationship power, a scale of decision-making power, and outcomes related to sexual agreements, including investment, agreement breaks, and break disclosure. Results indicated that decision-making power relative to one’s partner was not associated with any agreement outcome, contrary to hypotheses. However, controlling for decision-making power, demographic bases of power were variably associated with sexual agreements’ functioning. Younger partners were less invested in and more frequently broke their agreements. Lower-earning partners broke their agreements more frequently, but also disclosed breaks more often. White men in white-minority relationships broke their agreement more often than their partners. Concordant HIV-positive couples were less invested in their agreements and HIV-positive men disclosed breaks more frequently. HIV prevention efforts for same-sex couples must attend to the social, developmental, and cultural influences that affect their agreements around non-monogamy.


Macro-social/structural events (“big events”) such as wars, disasters, and large-scale changes in policies can affect HIV transmission by making risk behaviors more or less likely or by changing risk contexts. The purpose of this study was to develop new measures to investigate hypothesized pathways between macro-social changes and HIV transmission. We developed novel scales and indexes focused on topics including norms about sex and drug injecting under different conditions, involvement with social groups, helping others, and experiencing denial of dignity. We collected data from 300 people who inject drugs in New York City during 2012-2013. Most investigational measures showed evidence of validity (Pearson correlations with criterion variables range = 0.12-0.71) and reliability (Cronbach’s alpha range = 0.62-0.91). Research is needed in different contexts to evaluate whether these measures can be used to better understand HIV outbreaks and help improve social/structural HIV prevention intervention programs.


BACKGROUND: Minority stress theory represents the most plausible conceptual framework for explaining health disparities for gay and bisexual men (GBM). However, little focus has been given to including the unique stressors experienced by HIV-positive GBM. PURPOSE: We explored the role of HIV-related stress within a minority stress model of mental health and condomless anal sex. METHODS: Longitudinal data were collected on a diverse convenience sample of 138 highly sexually active, HIV-positive GBM in NYC regarding sexual minority (internalized homonegativity and gay-related rejection sensitivity) and HIV-related stressors (internalized HIV stigma and HIV-related rejection sensitivity), emotion dysregulation, mental health (symptoms of depression, anxiety, sexual compulsivity, and hypersexuality), and sexual behavior (condomless anal sex with all male partners and with serodiscordant male partners). RESULTS: Across both sexual minority and HIV-related stressors, internalized stigma was significantly associated with mental health and sexual behavior outcomes while rejection sensitivity was not. Moreover, path analyses revealed that emotion dysregulation mediated the influence of both forms of internalized stigma on symptoms of depression/anxiety and sexual compulsivity/hypersexuality as well as serodiscordant condomless anal sex. CONCLUSIONS: We identified two targets of behavioral interventions that may lead to improvements in mental health and reductions in sexual transmission risk behaviors-maladaptive cognitions underlying negative self-schemas and difficulties with emotion regulation. Techniques for cognitive restructuring and emotion regulation may be particularly useful in the development of interventions that are sensitive to the needs of this population while also highlighting the important role that structural interventions can have in preventing these disparities for future generations.


We tested an intervention designed to increase human immunodeficiency virus (HIV) testing among men who have sex with men and transgender persons within existing and commonly used social media. At follow-up, intervention communities had significantly higher past 12-month HIV testing than the comparison communities. Findings suggest that promoting HIV testing via social media can increase testing.


Studies of disclosure amongst older people living with HIV (PLWH) are uninformed by critical social-gerontological approaches that can help us to appreciate how older PLWH see and treat age as relevant to disclosure of their HIV status. These approaches include an ethnomethodologically-informed social constructionism that explores how ‘the’ life course (a cultural framework depicting individuals' movement through predictable developmental stages from birth to death) is used as an interpretive resource for determining self and others' characteristics, capacities, and social circumstances: a process Rosenfeld and Gallagher (2002) termed ‘lifecoursing’. Applying this approach to our analysis of 74 life-history interviews and three focus groups with older (aged 50+) people living with HIV in the United Kingdom, we uncover the central role that lifecoursing plays in participants’ decision-making surrounding disclosure of their HIV to their children and/or older parents. Analysis of participants' accounts uncovered four criteria for disclosure: the relevance of their HIV to the other, the other's knowledge about HIV, the likelihood of the disclosure causing the other emotional distress, and the other's ability to keep the disclosed confidential. To determine if these criteria were met in relation to specific children and/or elders, participants engaged in lifecoursing, evaluating the other's knowledge of HIV, and capacity to appropriately manage the disclosure, by reference to their age. The use of assumptions about age and life-course location in decision-making regarding disclosure of HIV reflects a more nuanced engagement with age in the disclosure decision-making process than has been captured by previous research into HIV disclosure, including on the part of people aging with HIV.
African American men who have sex with men (AAMSM) are vastly overrepresented among people with HIV/AIDS. Using data from 595 AAMSM in Philadelphia, we explored differences in sociodemographics, psychosocial characteristics related to beliefs about ethnicity, sexuality and masculinity, and sexual behavior with men and women by self-reported sexual identity (gay, bisexual, down low, straight). Roughly equivalent numbers identified as gay (40.6 %) and bisexual (41.3 %), while fewer identified as straight (7.6 %) or down low (10.5 %), with significant differences in age, income, history of incarceration, HIV status, alcohol and drug problems, childhood sexual abuse, and connection to the gay community evident among these groups. Analysis of psychosocial characteristics theorized to be related to identity and sexual behavior indicated significant differences in masculinity, homophobia, and outness as MSM. Gay and straight men appeared to be poles on a continuum of frequency of sexual behavior, with bisexual and down low men being sometimes more similar to gay men and sometimes more similar to straight men. The percentage of men having total intercourse of any kind was highest among down low and lowest among gay men. Gay men had less intercourse with women, but more receptive anal intercourse with men than the other identities. There were no significant differences by identity in frequency of condomless insertive anal intercourse with men, but gay men had significantly more condomless receptive anal intercourse. There were significant differences by identity for condomless vaginal and anal intercourse with women. This study demonstrates the importance of exploring differences in types of sex behavior for AAMSM by considering sexual identity.


OBJECTIVES: Methods to develop core outcome sets, the minimum outcomes that should be measured in research in a topic area, vary. We applied social network analysis methods to understand outcome co-occurrence patterns in human immunodeficiency virus (HIV)/AIDS systematic reviews and identify outcomes central to the network of outcomes in HIV/AIDS.

STUDY DESIGN AND SETTING: We examined all Cochrane reviews of HIV/AIDS as of June 2013. We defined a tie as two outcomes (nodes) co-occurring in >/=2 reviews. To identify central outcomes, we used normalized node betweenness centrality (nNBC) (the extent to which connections between other outcomes in a network rely on that outcome as an intermediary). We conducted a subgroup analysis by HIV/AIDS intervention type (i.e., clinical management, biomedical prevention, behavioral prevention, and health services).

RESULTS: The 140 included reviews examined 1,140 outcomes, 294 of which were unique. The most central outcome overall was all-cause mortality (nNBC = 23.9). The most central and most frequent outcomes differed overall and within subgroups. For example, "adverse events (specified)" was among the most central but not among the most frequent outcomes, overall.

CONCLUSION: Social network analysis methods are a novel application to identify central outcomes, which provides additional information potentially useful for developing core outcome sets.


This study carried out to survey the relationship between personality traits and Acquired Immunodeficiency Syndrome (AIDS) in patients with human immunodeficiency virus. This case-control study was conducted on 79 AIDS patients of Triangle Clinic in Arak (case group) and 80 healthy people of Valiasr Hospital in Arak (control group). Demographic information checklist and Cloninger’ Temperament and Character inventory (TCI) were two instruments applied in the study. SPSS software V.19 and tests independent t-tests, Chi squared and Spearman correlation coefficient were used for data analysis with significant level of <0.05. The average of innovativeness variables (M:74.12), harm avoidance (M: 65.17), reward dependence (M:50.030), and self-directedness (M:35.02) in case group in comparison with control group was significantly higher, and there was a significant difference between two groups variables (P-0.000). The novelty seeking had the highest average in the AIDS patients with a history of addiction (M:74.00), and there was statistically significant difference between perseverance variable (P-0.021) and cooperativeness variable (P-0.041) in the two groups of AIDS patients. There was a significant relationship between novelty seeking and age at the onset of AIDS (P-0.038), harm avoidance and age at the onset of addiction (P-0.046), persistence and age at the onset of AIDS (P-0.035) and the time infected with HIV (P-0.033). It is found that two groups are different due to the personalities, so it is essential to consider the personality traits in order to prevent AIDS and also successfully treat patients suffering from AIDS.


The study of collectivism has implications for HIV prevention research, especially in studies that use a social networking or community mobilization approach. However, research on collectivism in race/ethnicity and sexual minority groups is limited. We psychometrically evaluated a brief version of the Individualism-Collectivism Interpersonal Assessment Inventory (ICIAI) in a chain-referral sample of 400 Latino, 393 Asian/Pacific Islander, and 403 African American men who have sex with men (MSM). Data were collected via a one-time survey on demographics, the ICIAI, acculturation, and ethnicity identity. We conducted a multiple groups confirmatory factor analysis to assess for measurement invariance across the three groups of MSM, as well as tested its reliability and validity. The ICIAI evidenced good psychometric properties and was invariant across all groups. We highlight implications for how this measure of collectivism can be applied toward the study of HIV prevention and in lesbian, gay, bisexual and transgender communities.

OBJECTIVE: To assess the impact of a multidisciplinary lifestyle intervention on cardiovascular risk and carotid intima-media thickness (c-IMT) in HIV-infected patients with Framingham scores (FS) > 10%. DESIGN: Randomized pilot study; follow-up 36 months. METHODS: Virologically suppressed adult HIV-1-infected patients with FS >10% were randomized 1:1 to the intervention group (multidisciplinary lifestyle intervention) or control group (routine care). At baseline and months 12, 24 and 36, lipid parameters were analyzed and carotid ultrasound was performed to determine c-IMT and presence of plaques. Biomarkers were measured at baseline and month 36. The primary endpoints were lipid and FS changes at 36 months. RESULTS: Fifty-four patients were included, 27 in each arm. Median age was 50.5 years, all patients but one were men, and FS was 16.5%. Relative to controls, total and LDL cholesterol had significantly decreased in the intervention group at 24 months (p = 0.039, p = 0.011, respectively). However, no differences between groups were found at month 36 in lipid variables, neither in FS. Tobacco use decreased in the intervention group (p = 0.031). At baseline, 74.5% of patients had subclinical atherosclerosis, and at month 36, we observed a progression in c-IMT that was greater in the intervention group (p = 0.030). D-dimer increased (p = 0.027) and soluble intercellular adhesion molecule-1 decreased (p = 0.018) at 36 months. CONCLUSIONS: In this cohort of HIV-infected patients with FS>10% and a high percentage of subclinical atherosclerosis, a multidisciplinary lifestyle intervention resulted in a slight improvement in some cardiovascular risk factors and the FS during the first 2 years, but did not prevent c-IMT progression.


Improved survival with combination antiretroviral therapy has led to a dramatic increase in the number of human immunodeficiency virus (HIV)-infected individuals 50 years of age or older such that by 2020 more than 50% of HIV-infected persons in the United States will be above this age. Recent studies confirm that antiretroviral therapy should be offered to all HIV-infected patients regardless of age, symptoms, CD4+ cell count, or HIV viral load. However, when compared with HIV-uninfected populations, even with suppression of measurable HIV replication, older individuals are at greater risk for cardiovascular disease, malignancies, liver disease, and other comorbidities.


This study examines the relationships between Social Support and Intimate Partner Violence (IPV) among women living with HIV/AIDS. During the Jail of 2011, women living with H1V/A1DS and receiving services from AIDS Outreach Center located in the south-western part of the United States were recruited to participate in a study through the purposive sampling method. They were asked to complete surveys about their H1V/A1DS diagnosis, the level of IPV experienced, and their level of social support. Sixty-jour women completed the Revised Conflict Tactic Scale (Straus et al., 1996), the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988), and a HIV/ AIDS Questionnaire. The majority (51.6%) of the research participants were African-Americans with a mean age. oj46years. Many women in the study were separated/divorced (34.4%); 29.7 % were married and 12.5% were cohabiting. Social support (β = -.206, p<05) significantly predicted severity of emotional violence experienced by women living with HIV/AIDS.. This research emphasizes on the importance of teaching social work students about the co-occurrence of IPV and HIV/AIDS.


OBJECTIVES: HIV-positive people have increased risk of infection-related malignancies (IRMs) and infection-unrelated malignancies (IURMs). The aim of the study was to determine the impact of aging on future IRM and IURM incidence. METHODS: People enrolled in EuroSIDA and followed from the latest of the first visit or 1 January 2001 until the last visit or death were included in the study. Poisson regression was used to investigate the impact of aging on the incidence of IRMs and IURMs, adjusting for demographic, clinical and laboratory confounders. Linear exponential smoothing models forecasted future incidence. RESULTS: A total of 15 648 people contributed 95 033 person-years of follow-up, of whom 610 developed 643 malignancies [IRMs: 388 (60%); IURMs: 255 (40%)]. After adjustment, a higher IRM incidence was associated with a lower CD4 count [adjusted incidence rate ratio (aIRR) CD4 count < 200 cells/muL: 3.77; 95% confidence interval (CI) 2.59, 5.51; compared with >/= 500 cells/muL], independent of age, while a CD4 count < 200 cells/muL was associated with IURMs in people aged < 50 years only (aIRR: 2.51; 95% CI 1.40-4.54). Smoking was associated with IURMs (aIRR: 1.75; 95% CI 1.23, 2.49) compared with never
smokers in people aged ≥ 50 years only, and not with IRMs. The incidences of both IURMs and IRMs increased with older age. It was projected that the incidence of IRMs would decrease by 29% over a 5-year period from 3.1 (95% CI 1.5-5.9) per 1000 person-years in 2011, whereas the IURM incidence would increase by 44% from 4.1 (95% CI 2.2-7.2) per 1000 person-years over the same period. CONCLUSIONS: Demographic and HIV-related risk factors for IURMs (aging and smoking) and IRMs (immunodeficiency and ongoing viral replication) differ markedly and the contribution from IURMs relative to IRMs will continue to increase as a result of aging of the HIV-infected population, high smoking and lung cancer prevalence and a low prevalence of untreated HIV infection. These findings suggest the need for targeted preventive measures and evaluation of the cost-benefit of screening for IURMs in HIV-infected populations.


Prospective memory (PM) is associated with antiretroviral (ARV) adherence in HIV, but little is known about how pill burden and age might affect this association. One hundred seventeen older (≥50 years) and 82 younger (<50 years) HIV-infected adults were administered a measure of PM in the laboratory and subsequently were monitored for ARV adherence for 30 days using the Medication Event Monitoring System. In the older group, better time-based PM performance was associated with higher likelihood of adherence, irrespective of pill burden. Within the younger sample, time-based PM was positively related to adherence only in participants with lower pill burdens. Younger HIV-infected individuals with higher pill burdens may overcome the normal effects of time-based PM on adherence through compensatory medication-taking strategies, whereas suboptimal use of these strategies by younger HIV-infected individuals with lower pill burdens may heighten their risk of ARV nonadherence secondary to deficits in time-based PM.


BACKGROUND: While low social support is a risk factor for mental illness, anxiety and depression's relationship with social impairment specifically resulting from a medical condition is poorly understood. We hypothesize that when a medical illness makes it difficult for people to form and maintain close relationships with others, they will be at increased risk for anxiety and depression. METHODS: Two nationally representative surveys, the National Comorbidity Survey-Replication and National Latino and Asian American Study, included 6805 adults with at least one medical illness and information on social impairment attributed to a medical condition. The Composite International Diagnostic Interview evaluated a 12-month history of anxiety and depressive disorders. RESULTS: 8.2% of our sample had at least moderate difficulty in forming and maintaining close relationships due to a medical condition. In bivariate analyses, younger age, Latino ethnicity, less education, worse financial status, more chronic illnesses, physical health and discomfort, and problems with mobility, home management, and self-care were associated with this social impairment. In multivariable analyses accounting for possible confounders, there was a dose-dependent relationship between social impairment and the prevalence of anxiety and depression. LIMITATIONS: Data are cross-sectional and our analyses are therefore unable to determine cause-and-effect relationships. CONCLUSIONS: Among adults with one or more medical conditions, social impairment attributed to medical illness was associated with a significantly greater odds of anxiety and depression. Further clarification of this relationship could inform more targeted, personalized interventions to prevent and/or alleviate mental illness in those with chronic medical conditions.


Behavioral disorders are common in persons infected with human immunodeficiency virus (HIV). The differential includes preexisting psychiatric diseases, substance abuse, direct effects of HIV infection, opportunistic infection, and the adverse effects of medical therapies. Many patients have more than one contributing or comorbid problem to explain these behavioral changes. The differential should always include consideration of psychosocial, genetic, and medical causes of disease. Treatment strategies must take into account the coadministration of antiretroviral therapy and the specific neurologic problems common in patients infected with HIV.

BACKGROUND: Substance use disorders consistently rank among the most stigmatized conditions worldwide. Thus, substance use stigma fosters health inequities among persons with substance use disorders and remains a key barrier to successful screening and treatment efforts. Current efforts to measure substance use stigma are limited. This study aims to advance measurement efforts by drawing on stigma theory to develop and evaluate the Substance Use Stigma Mechanisms Scale (SU-SMS). The SU-SMS was designed to capture enacted, anticipated, and internalized Substance Use Stigma Mechanisms among persons with current and past substance use disorders, and distinguish between key stigma sources most likely to impact this target population. METHODS: This study was a cross-sectional evaluation of the validity, reliability, and generalizability of the SU-SMS across two independent samples with diverse substance use and treatment histories. RESULTS: Findings support the structural and construct validity of the SU-SMS, suggesting the scale was able to capture enacted, anticipated, and internalized stigma as distinct stigma experiences. It also further differentiated between two distinct stigma sources (family and healthcare providers). Analysis of these mechanisms and psychosocial metrics suggests that the scale is also associated with other health-related outcomes. Furthermore, the SU-SMS demonstrated high levels of internal reliability and generalizability across two independent samples of persons with diverse substance use disorders and treatment histories. CONCLUSION: The SU-SMS may serve as a valuable tool for better understanding the processes through which substance use stigma serves to undermine key health behaviors and outcomes among persons with substance use disorders.


The purpose of the current study was to examine whether syndemic stress in partnered gay men might undermine communication processes essential to the utilization of negotiated safety and other harm reduction strategies that rely on partners’ HIV status disclosure. Participants included 100 gay male couples (N = 200 individuals) living in the U.S., who responded to an online survey. Participants completed measures of five syndemic factors (depression, poly-drug use, childhood sexual abuse, intimate partner violence, and sexual compulsivity). They also reported on whether condoms were used during first intercourse together and the timing of first condomless anal intercourse (CAI) relative to HIV disclosure in their relationship. Results of binary logistic regression analyses supported the hypothesis that the sum of partners' syndemic stress was negatively associated with condom use at first intercourse and with HIV disclosure prior to first CAI. Syndemic stress may contribute to HIV transmission risk between main partners in part because it accelerates the progression to CAI and interferes with communication processes central to harm reduction strategies utilized by gay men in relationships. Implications for prevention strategies and couples interventions, such as couples HIV counseling and testing, that facilitate communication skill-building, are discussed.


Patients with chronic illness are often stigmatized, which can lead to distress and poorer health. To address these problems, researchers must be able to effectively measure disease stigma. In line with Weiner’s attribution theory (Weiner, 1985), we developed the Measure of Disease-Related Stigma (MDRS) to assess the cognitive, emotional, and behavioral components of enacted disease stigma. In each of 3 studies, participants read about a hypothetical patient who developed a condition through controllable, uncontrollable, or unknown means. In Study 1, participants rated a hypothetical HIV patient using a pool of 81 items that we wrote or adapted from past studies. This pool was reduced to a 28-item scale following psychometric analyses. The MDRS subscales that assess the cognitive and emotional components were reliable in 2 other disease contexts—lung cancer (Study 2) and anorexia nervosa (Study 3). Using this scale, participants reported greater stigma of a patient described as having control over disease onset. In addition, in all studies, the theorized mediation model of cognitive attribution predicting behavioral intentions through emotions was significant, supporting the construct validity of the scale. The MDRS is a reliable measure that improves the measurement of disease stigma. (PsycINFO Database Record (c) 2016 APA, all rights reserved). (journal abstract)

This paper provides a review of the quantitative literature on HIV-related stigma and medication adherence, including: (1) synthesis of the empirical evidence linking stigma to adherence, (2) examination of proposed causal mechanisms of the stigma and adherence relationship, and (3) methodological critique and guidance for future research. We reviewed 38 studies reporting either cross-sectional or prospective analyses of the association of HIV-related stigma to medication adherence since the introduction of antiretroviral therapies (ART). Although there is substantial empirical evidence linking stigma to adherence difficulties, few studies provided data on psychosocial mechanisms that may account for this relationship. Proposed mechanisms include: (a) enhanced vulnerability to mental health difficulties, (b) reduction in self-efficacy, and (c) concerns about inadvertent disclosure of HIV status. Future research should strive to assess the multiple domains of stigma, use standardized measures of adherence, and include prospective analyses to test mediating variables.


OBJECTIVES: Stigma related to later life sexuality could produce detrimental effects for older adults, through individual concerns and limited sexual health care for older adults. Identifying groups at risk for aging sexual stigma will help to focus interventions to reduce it. Accordingly, the purpose of this study was to examine cross-sectional trends in aging sexual stigma attitudes by age group, generational status, and gender. METHOD: An online survey was administered to a national sample of adults via a crowdsourcing tool, in order to examine aging sexual stigma across age groups, generational status, and gender (N = 962; 47.0% male, 52.5% female, and .5% other; mean age = 45 years). An aging sexual stigma index was formulated from the attitudinal items of the Aging Sexual Knowledge and Attitudes Scale. RESULTS: This sample reported moderately permissive attitudes toward aging sexuality, indicating a low level of aging sexual stigma. Though descriptive data showed trends of stigma attitudes increasing with age and later generations, there were no significant differences between age groups or generations in terms of aging sexual stigma beliefs. Men, regardless of age and/or generation, were found to espouse significantly higher stigmatic beliefs than women or those reporting ‘other’ gender. CONCLUSIONS: Aging sexual stigma beliefs may not be prevalent among the general population as cohorts become more sexually liberal over time, though men appear more susceptible to these beliefs. However, in order to more comprehensively assess aging sexual stigma, future research may benefit from measuring explicit and implicit aging sexual stigma beliefs.


Improvements in survival due to advances in antiretroviral therapy (ART) have led to a shift in the age distribution of those receiving HIV care, with increasing numbers of women living with HIV (WLHIV) reaching menopausal age. We present a narrative literature review of 26 studies exploring the menopause transition in WLHIV, focusing on: (1) natural history (2) symptomatology and management, and (3) immunologic and virologic effects. Data are conflicting on the association between HIV and earlier age at menopause, and the role of HIV-specific factors such as HIV viral load and CD4 count. There are some data to suggest that WLHIV experience more vasomotor and psychological symptoms during the menopause than HIV-negative women, and that uptake of hormone replacement therapy by WLHIV is comparatively low. There is no evidence that menopause affects either CD4 count or response to ART, although there may be increased immune activation in older WLHIV. We conclude that menopause in WLHIV is a neglected area of study. Specific information gaps include qualitative studies on experiences of reproductive ageing; data on the impact of the menopause on women’s quality of life and ability to adhere to health-sustaining behaviors; as well as studies investigating the safety and efficacy of pharmacological and psychosocial interventions. There is likely to be a burden of unmet health need among this growing population, and better data are required to inform optimal provision of care, supporting WLHIV to maintain their health and wellbeing into their post-reproductive years.


There is limited research examining the sexual health and well-being of older women living with HIV (OWLH). Most studies focus on sexual dysfunction, leaving aside the richer context of sexuality and sexual health, including the effect of age-related psychosocial and interpersonal changes on sexual health behaviors. Guided by the integrative biopsychosocial model and the sexual health model, this study explored the importance of sex and sexuality among OWLH to identify their sexual health and
OBJECTIVE: We assessed the association of neighborhood poverty with HIV diagnosis rates for males and females in New York City. METHODS: We calculated annual HIV diagnosis rates by ZIP Code, sex, and neighborhood poverty level using 2010-2011 New York City (NYC) HIV surveillance data and data from the U.S. Census 2010 and American Community Survey 2007-2011. Neighborhood poverty levels were percentage of residents in a ZIP Code with incomes below the federal poverty threshold, categorized as 0%-<10% (low poverty), 10%-<20% (medium poverty), 20%-<30% (high poverty), and 30%-100% (very high poverty). We used sex-stratified negative binomial regression models to measure the association between neighborhood poverty and HIV diagnosis rates, controlling for neighborhood-level education, race/ethnicity, age, and percentage of men who have sex with men. RESULTS: In 2010-2011, 6,184 people were newly diagnosed with HIV. Median diagnosis rates per 100,000 population increased by neighborhood poverty level overall (13.7, 34.3, 50.6, and 75.6 for low-, medium-, high-, and very high-poverty ZIP Codes, respectively), for males, and for females. In regression models, higher neighborhood poverty remained associated with higher diagnosis rates among males (adjusted rate ratio [ARR] = 1.63, 95% confidence interval [CI] 1.34, 1.97) and females (ARR=2.14, 95% CI 1.46, 3.14) for very high- vs. low-poverty ZIP Codes. CONCLUSION: Living in very high- vs. low-poverty urban neighborhoods was associated with increased HIV diagnosis rates. After controlling for other factors, the association between poverty and diagnosis rates was stronger among females than among males. Alleviating poverty may help decrease HIV-related disparities.


BACKGROUND: Internalization of HIV-related stigma may inhibit a person's ability to manage HIV disease through adherence to treatment regimens. Studies, mainly with white men, have suggested an association between internalized stigma and suboptimal adherence to antiretroviral therapy (ART). However, there is a scarcity of research with women of different racial/ethnic backgrounds and on mediating mechanisms in the association between internalized stigma and ART adherence.

METHODS: The Women's Interagency HIV Study (WIHS) is a multicenter cohort study. Women living with HIV complete interviewer-administered questionnaires semiannually. Cross-sectional analyses for the current article included 1168 women on ART for whom data on medication adherence were available from their last study visit between April 2013 and March 2014, when the internalized stigma measure was initially introduced. RESULTS: The association between internalized stigma and self-reported suboptimal ART adherence was significant for those in racial/ethnic minority groups (AOR = 0.69, P = 0.009, 95% CI: 0.52 to 0.91), but not for non-Hispanic whites (AOR = 2.15, P = 0.19, 95% CI: 0.69 to 6.73). Depressive symptoms, loneliness, and low perceived social support mediated the association between internalized stigma and suboptimal adherence in the whole sample, as well as in the subsample of minority participants. In serial mediation models, internalized stigma predicted less-perceived social support (or higher loneliness), which in turn predicted more depressive symptoms, which in turn predicted suboptimal medication adherence. CONCLUSIONS: Findings suggest that interconnected psychosocial mechanisms affect ART adherence, and that improvements in adherence may require multifaceted interventions addressing both mental health and interpersonal factors, especially for minority women.


OBJECTIVE: We conducted 8 focus groups and 41 in-depth interviews with 50 African American and Latina OWLH aged 50-69 years old in three U.S. cities. The triangulation approach was used to synthesize the data. Six salient themes emerged: sexual pleasure changes due to age, sexual freedom as women age, the role of relationships in sexual pleasure, changes in sexual ability and sexual health needs, sexual risk behaviors, and ageist assumptions about older women's sexuality. We found that sexual pleasure and the need for intimacy continue to be important for OWLH, but that changing sexual abilities and sexual health needs, such as the reduction of sexual desire, as well as increased painful intercourse due to menopause-associated vaginal drying, were persistent barriers to sexual fulfillment and satisfaction. Particular interpersonal dynamics, including low perceptions of the risk of HIV transmission as related to gender, viral suppression, and habitual condomless sex with long-term partners without HIV transmission have resulted in abandoning safer sex practices with serodiscordant partners. These findings suggest that HIV prevention for OWLH should focus on how sexual function and satisfaction intersect with sexual risk. HIV prevention for OWLH should promote ways to maintain satisfying and safe sex lives among aging women.

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Despite the fact that LGBT aging often is discussed, the unique needs of the transgenderidentified and gender non-conforming-identified (GNC) populations are still very much overlooked. This article examines some of the historical challenges faced by this population, and reviews their current status, and also discusses some of the important steps to support the well-being of these populations in the future.


Although the HIV epidemic continues to spread among older adults over 50 years old in China, little empirical research has investigated the interrelationships among ageism, adaptability, family support, and quality of life among older people living with HIV/AIDS (PLWHAs). In this cross-sectional study, among 197 older PLWHAs over 50 years old, path analytic modelling was used to assess the interrelationships among ageism, resilience, coping, family support, and quality of life. Compared with female PLWHAs, male PLWHAs had a higher level of resilience and coping. There were no significant differences in the scores of quality of life, ageism, family support, HIV knowledge, and duration since HIV diagnosis between males and females. The following relationships were statistically significant in the path analysis: (1) family support --> resilience [beta (standardised coefficient) = 0.18], (2) resilience --> ageism (beta = -0.29), (3) resilience --> coping (beta = 0.48), and (4) coping --> quality of life (beta = 0.24). In addition, male PLWHAs were more resilient than female PLWHAs (beta = 0.16). The findings indicate that older PLWHAs do not only negatively accept adversity, but build their adaptability to positively manage the challenges. Family-based interventions need take this adaptability to adversity into consideration.


The present study investigated the influence of HIV-related stigma and social support on posttraumatic growth (PTG) in adults with HIV (N = 126). The study examined if social support moderated the relationship between stigma and PTG. Results from the study revealed that the predictor variables contributed significantly to PTG following an HIV diagnosis; however, no significant interaction effect between the 2 variables was found. Implications for counselors and directions for future research are provided.