Annotated Bibliography
Journal Articles Published in 2017
On HIV and Aging

For www.HIV-AGE.org

prepared by Stephen Karpiak PhD

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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In the My Smart Age with HIV (MySAwH) project 1, an innovative mobile and IoMT framework has been developed to empower patients via health promotion, assessing reduction in health deficit and improvement in quality of life. The MySAwH IoMT framework has been designed to expand the traditional healthcare infrastructure providing patient monitoring and support outside the hospitals. It allows the collection of patient's data from smartphone and wearable devices, the integration and analysis of the collected data, and provide real-time insights of patient's health status. Health coaches can monitor the patient's care path and establish a direct communication channel through an integrated secure chat system. This paper describes the MySAwH IoMT framework features and demonstrate how the IoMT, mobile and wearable technologies have been successfully exploited to provide: i) physicians with a continuous patient monitoring to measure the response to illness and the life quality improvement; ii) patients with an up to date insight of health conditions and a constant support via a direct communication with the health coaches.


The adherence threshold for combination antiretroviral therapy (cART) has historically been set at 95% or greater. We examined whether different levels of cART adherence (/>=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 (>/>=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 >/=95% adherence. There were no significant differences in likelihood of having an ED visit and longer duration of hospital admission between participants who reported >/=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.

- Western countries report a decline in lymphoma frequency.
- South African cohort shows increase in head and neck lymphomas from 1993 to 2012.
- Plasmablastic lymphoma is the most common histologic type.
- Non-Hodgkin lymphomas occur with increasing frequency in HIV/AIDS.

Objectives Non-Hodgkin lymphoma occurs with increasing frequency in HIV/AIDS. As South Africa has the highest incidence of HIV/AIDS worldwide, an epidemiologic study of this nature provides insight into head and neck lymphomas in a defined South African population. This retrospective review evaluated frequency and clinico-pathologic characteristics of patients diagnosed with head and neck lymphoma at the Oral Pathology Department, University of Witwatersrand between 1993 and 2012.

Materials and methods Histopathology reports of patients with head and neck lymphomas (n=504) were reviewed. Demographic (age, gender), clinical (site and size of tumour), laboratory and histological parameters were recorded.

Results There were 504 patients with head and neck lymphomas. The mean age was 40.4 years. The male:female ratio was 1.1:1. The cervical lymph node was the most common anatomic site (115 cases) and the maxilla (60 cases) the most common extranodal site. Plasmablastic lymphoma (159 cases) was the most common histologic subtype, seen more frequently as a result of its strong association with HIV/AIDS. The most common Hodgkin’s lymphoma was the nodular sclerosing variant (21 cases). Of the head and neck lymphomas in patients with a known HIV status, 56% had plasmablastic lymphoma, 43.9% diffuse large B cell lymphoma and 25% Burkitt lymphoma.

Conclusion There is an increase in head and neck lymphoma frequency, contrary to that found in Western countries. The high HIV prevalence in certain lymphomas provides strong indication of the role of HIV/AIDS in pathogenesis of lymphomas. This study serves as a baseline for future studies, especially in South Africa.


INTRODUCTION: Antiretroviral treatment of HIV infection reduces, but does not eliminate, viral replication and down modulates immune activation. The persistence of low level HIV replication in the host, nevertheless, drives a smouldering degree of immune activation that is observed throughout the natural history of disease and is the main driving force sustaining morbidity and mortality. Areas covered: Early start of antiretroviral therapy (ART) and intensive management of behavioural risk factors are possible but, at best, marginally successful ways to manage immune activation. We review alternative, possible strategies to reduce immune activation in HIV infection including timing of ART initiation and ART intensification to reduce HIV residual viremia; switch of ART to newer molecules with reduced toxicity; use of anti inflammatory/immunomodulatory agents and, finally, interventions aimed at modifying the composition of the microbiota. Expert commentary: Current therapeutic strategies to limit immune activation are only marginally successful. Because HIV eradication is currently impossible, intensive studies are needed to determine if and how immune activation can be silenced in HIV infection.


BACKGROUND: Gait and balance deficits are reported in adults with HIV infection and are associated with reduced quality of life. Current research suggests an increased fall-incidence in this population, with fall rates among middle-aged adults with HIV approximating that in seronegative elderly populations. Gait and postural balance rely on a complex interaction of the motor system, sensory control, and cognitive function. However, due to disease progression and complications related to ongoing inflammation, these systems may be compromised in people with HIV. Consequently, locomotor impairments may result that can contribute to higher-than-expected fall rates. The aim of this review was to synthesize the evidence regarding objective gait and balance impairments in adults with HIV, and to emphasize those which could contribute to increased fall risk. METHODS: This review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. An electronic search of published observational studies was conducted in March 2016. Methodological quality was assessed using the NIH Quality...
Assessment Tool for Observational Cohort and Cross-Sectional Studies. Narrative synthesis of gait and balance outcomes was performed, and meta-analyses where possible. RESULTS: Seventeen studies were included, with fair to low methodological quality. All studies used clinical tests for gait-assessment. Gait outcomes assessed were speed, initiation-time and cadence. No studies assessed kinetics or kinematics. Balance was assessed using both instrumented and clinical tests. Outcomes were mainly related to center of pressure, postural reflex latencies, and timed clinical tests. There is some agreement that adults with HIV walk slower and have increased center of pressure excursions and long loop postural reflex latencies, particularly under challenging conditions. CONCLUSIONS: Gait and balance impairments exist in people with HIV, resembling fall-associated parameters in the elderly. Impairments are more pronounced during challenging conditions, might be associated with disease severity, are not influenced by antiretroviral therapy, and might not be associated with peripheral neuropathy. Results should be interpreted cautiously due to overall poor methodological quality and heterogeneity. Locomotor impairments in adults with HIV are currently insufficiently quantified. Future research involving more methodological uniformity is warranted to better understand such impairments and to inform clinical decision-making, including fall-prevention strategies, in this population.


OBJECTIVES: We sought to evaluate whether people living with HIV (PLWH) using effective antiretroviral therapy (ART) have worse respiratory health status than similar HIV-negative individuals. METHODS: We recruited 197 HIV-positive and 93 HIV-negative adults from HIV and sexual health clinics. They completed a questionnaire regarding risk factors for respiratory illness. Respiratory health status was assessed using the St George's Respiratory Questionnaire (SGRQ) and the Medical Research Council (MRC) breathlessness scale. Subjects underwent spirometry without bronchodilation. RESULTS: PLWH had worse respiratory health status: the median SGRQ Total score was 12 [interquartile range (IQR) 6-25] in HIV-positive subjects vs. 6 (IQR 2-14) in HIV-negative subjects (P < 0.001); breathlessness was common in the HIV-positive group, where 47% compared with 24% had an MRC breathlessness score >/= 2 (P = 0.001). Eighteen (11%) HIV-positive and seven (9%) HIV-negative participants had airflow obstruction. In multivariable analyses (adjusted for age, gender, smoking, body mass index and depression), HIV infection remained associated with higher SGRQ and MRC scores, with an adjusted fold-change in SGRQ Total score of 1.54 [95% confidence interval (CI) 1.14-2.09; P = 0.005] and adjusted odds ratio of having an MRC score of >/= 2 of 2.45 (95% CI 1.15-5.20; P = 0.02). Similar findings were obtained when analyses were repeated including only HIV-positive participants with a viral load < 40 HIV-1 RNA copies/mL. CONCLUSIONS: Despite effective ART, impaired respiratory health appears more common in HIV-positive adults, and has a significant impact on health-related quality of life.


BACKGROUND: People with HIV with access to treatment are growing older and living healthier lives than in the past, and while health improvements and increased survival rates are welcome, the psychological and social consequences and quality of life of ageing are complex for this group. Understanding how ageing, HIV and quality of life intersect is key to developing effective interventions to improve QoL. METHODS: One hundred people with HIV over the age of 50 (range 50-87, mean 58), were recruited through HIV community organizations, and clinics, and included men who have sex with men (MSM), and Black African and White heterosexual men and women. The WHOQOL-HIV BREF was used, as well as the Every Day Memory Questionnaire, and additional
questions on anxiety and depression to supplement the WHOQOL. RESULTS: While most rated their quality of life (QoL) positively, bivariate analysis showed that better QoL (total score and most domains) was strongly associated with being a man; in a relationship; in paid employment; having higher level of income; not on benefits, and to a lesser degree with being MSM, having higher level of education, and diagnosed after the age of 40. Multivariate analysis showed that not being on benefits was the variable most consistently associated with better quality of life, as was being partnered. Concerns about everyday memory difficulties, and anxiety and depression scores were strong predictors of poorer quality of life. CONCLUSION: While the cross-sectional nature of the investigation could not establish that the associations were causal, the findings indicate that concerns about memory difficulties, anxiety and depression, as well as gender, ethnicity, financial factors, and relationship status, are important contributors to QoL in this group. These findings point towards the need for further research to clarify the mechanisms through which the factors identified here affect QoL, and to identify possible interventions to improve the QoL of older people living with HIV.


HIV/AIDS is one of the most urgent and challenging public health issues, especially since it is now considered a chronic disease. In this project, we used text mining techniques to extract meaningful words and word patterns from 45 transcribed in-depth interviews of people living with HIV/AIDS (PLWHA) conducted in Taipei, Beijing, Shanghai, and San Francisco from 2006 to 2013. Text mining analysis can predict whether an emerging field will become a long-lasting source of academic interest or whether it is simply a passing source of interest that will soon disappear. The data were analyzed by age group (45 and older vs. 44 and younger). The highest ranking fragments in the order of frequency were: "care", "daughter", "disease", "family", "HIV", "hospital", "husband", "medicines", "money", "people", "son", "tell/disclosure", "thought", "want", and "years". Participants in the 44-year-old and younger group were focused mainly on disease disclosure, their families, and their financial condition. In older PLWHA, social supports were one of the main concerns. In this study, we learned that different age groups perceive the disease differently. Therefore, when designing intervention, researchers should consider to tailor an intervention to a specific population and to help PLWHA achieve a better quality of life. Promoting self-management can be an effective strategy for every encounter with HIV-positive individuals.


It has nearly been more than three decades; yet, the research on aging seropositive African American men who have sex with men (MSM) is scarce. Exploring issues for an aging population of seropositive MSM is critical given that earlier epidemiological data suggested that by 2015, half of the AIDS cases will be in adults aged 50 years and older. A qualitative approach with the aim to examine perspectives about HIV risk from a group of seropositive African American MSM 50 years of age and older was conducted. Two separate focus groups with a total N = 30 were conducted. Four themes emerged: feeling left out, no place to call home, not a priority, and no one to grow older with.


Objective:: To describe the process of manufacturing and validation of an educational booklet for HIV/Aids prevention in older adults. Methods:: Methodological study developed in two phases - manufacturing of the booklet and validation of the educational material by judges. The manufacturing process involved a situational diagnosis with older adults, and its result indicated gaps in the knowledge with respect to HIV/Aids. The validation process was performed by nine judges, selected by convenience. It was considered an agreement index of at least 0.80, analyzed through the content validity index. Results:: We opted for a dialogue between two older adults divided into three categories: myths and taboos; ignorance; and prevention and importance of diagnosis. The average of the items was 0.90. The suggestions made by the judges were observed and modified for the final version. Conclusion:: The material had relevant content for the judges, in addition to being able to be used by health professionals in the education and clarification of issues on the subject.
OBJECTIVES: There is a clear trajectory towards cohort ageing in the UK. HIV infection is associated with an increased prevalence of traditionally age-related comorbidities and geriatric syndromes. Some HIV services have been proactive in innovating models that cater for adapting needs. We aimed to describe how widespread this practice is and what form such services take.

METHODS: We conducted an evaluation of the perceived need for and current provision of specialist ageing services, and the need for formal guidance on monitoring or treatment of older adults with HIV infection. A web-based questionnaire was sent to the audit lead at every British HIV Association (BHIVA)-registered HIV clinic. RESULTS: A total of 102 clinics responded, with a broad geographical spread. Five of the 102 clinics have a clinician with an interest in ageing. Two dedicated HIV ageing services exist, practising different models. A quarter (23 of 98; 23%) of clinics reported a need for an ageing service, with three in development. The majority (65 of 95; 68%) supported dedicated guidance for monitoring in older adults, but fewer (39 of 94; 41%) felt that dedicated guidance on treatment was necessary. CONCLUSIONS: We identified two existing and three proposed HIV ageing services. Another 20 clinics (20%) reported an unmet need for a specialist ageing service, with three in development. This is the first survey of its kind to attempt to describe the current landscape and opinion around such services. HIV-infected cohorts will continue to age and current models of care may be insufficient, which should prompt services, their users and commissioners to consider what models may best fit current and future demand.


BACKGROUND: Although the overall life expectancy at birth has increased for both blacks and whites and the gap between these populations has narrowed, disparities in life expectancy and the leading causes of death for blacks compared with whites in the United States remain substantial. Understanding how factors that influence these disparities vary across the life span might enhance the targeting of appropriate interventions. METHODS: Trends during 1999-2015 in mortality rates for the leading causes of death were examined by black and white race and age group. Multiple 2014 and 2015 national data sources were analyzed to compare blacks with whites in selected age groups by sociodemographic characteristics, self-reported health behaviors, health-related quality of life indicators, use of health services, and chronic conditions. RESULTS: During 1999-2015, age-adjusted death rates decreased significantly in both populations, with rates declining more sharply among blacks for most leading causes of death. Thus, the disparity gap in all-cause mortality rates narrowed from 33% in 1999 to 16% in 2015. However, during 2015, blacks still had higher death rates than whites for all-cause mortality in all groups aged <65 years. Compared with whites, blacks in age groups <65 years had higher levels of some self-reported risk factors and chronic diseases and mortality from cardiovascular diseases and cancer, diseases that are most common among persons aged >/=65 years. CONCLUSIONS AND IMPLICATIONS FOR PUBLIC HEALTH PRACTICE: To continue to reduce the gap in health disparities, these findings suggest an ongoing need for universal and targeted interventions that address the leading causes of deaths among blacks (especially cardiovascular disease and cancer and their risk factors) across the life span and create equal opportunities for health.


Biological aging is associated with immune activation (IA) and declining immunity due to systemic inflammation. It is widely accepted that HIV infection causes persistent IA and premature immune senescence despite effective antiretroviral therapy and virologic suppression; however, the effects of combined HIV infection and aging are not well defined. Here, we assessed the relationship between markers of IA and inflammation during biological aging in HIV-infected and -uninfected populations. Antibody response to seasonal influenza vaccination was implemented as a measure of immune competence and relationships between IA, inflammation, and antibody responses were explored using statistical modeling appropriate for integrating high-dimensional data sets. Our results show that markers of IA, such as coexpression of HLA antigen D related (HLA-DR) and CD38 on CD4+ T cells, exhibit strong associations with HIV infection but not with biological age. Certain variables that showed a strong relationship with aging, such as declining naive and CD38+ CD4 and CD8+ T cells, did so regardless of HIV infection. Interestingly, the variable of biological age was not identified in a predictive model as significantly impacting vaccine responses in either group, while distinct IA and inflammatory variables were closely associated with vaccine response in HIV-infected and -uninfected populations. These findings shed light on the most relevant and persistent immune defects during virological suppression with antiretroviral therapy.


BACKGROUND AND AIMS: HIV has reached high prevalence in many non-injecting drug user (NIDU) populations. The aims of this study were to (1) examine the trend in HIV prevalence among non-injecting cocaine and heroin NIDUs in New York City, (2) identify factors potentially associated with the trend and (3) estimate HIV incidence among NIDUs. DESIGN: Serial-cross sectional surveys of people entering drug treatment programs. People were permitted to participate only once per year, but could participate in multiple years. SETTING: Mount Sinai Beth Israel drug treatment programs in New York City, USA. PARTICIPANTS: We recruited 3298 non-injecting cocaine and heroin users from 2005 to 2014. Participants were 78.7% male, 6.1% white, 25.7% Hispanic and 65.8% African American. Smoking crack cocaine was the most common non-injecting drug practice. MEASURES: Trend tests were used to examine HIV prevalence, demographics, drug use, sexual behavior and use of antiretroviral treatment (ART) by calendar year; chi(2) and multivariable logistic regression were used to compare 2005-10 versus 2011-14. FINDINGS: HIV prevalence declined approximately 1% per year (P < 0.001), with a decline from 16% in 2005-10 to 8% in 2011-14 (P < 0.001). The percentages of participants smoking crack and having multiple sexual partners declined and the percentage of HIV-positive people on ART increased. HIV incidence among repeat participants was 1.2 per 1000 person-years (95% confidence interval = 0.03/1000-7/1000). CONCLUSIONS: HIV prevalence has declined and a high percentage of HIV-positive non-injecting drug users (NIDUs) are receiving antiretroviral treatment, suggesting an end to the HIV epidemic among NIDUs in New York City. These results can be considered a proof of concept that it is possible to control non-injecting drug use related sexual transmission HIV epidemics.


OBJECTIVES: To examine whether racial/ethnic disparities persist at the "end of the HIV epidemic" (prevalence of untreated HIV infection < 5%; HIV incidence < 0.5 per 100 person-years) among persons who inject drugs (PWID) in New York City. METHODS: We recruited 2404 PWID entering New York City substance use treatment in 2001 to 2005 and 2011 to 2015. We conducted a structured interview, and testing for HIV and herpes simplex virus 2 (HSV-2; a biomarker for high sexual risk). We estimated incidence by using newly diagnosed cases of HIV. Disparity analyses compared HIV, untreated HIV, HIV-HSV-2 coinfection, HIV monoinfection, and estimated HIV incidence among Whites, African Americans, and Latinos. RESULTS: By 2011 to 2015, Whites, African Americans, and Latino/as met both criteria of our operational "end-of-the-epidemic" definition. All comparisons that included HIV-HSV-2-coinfected persons had statistically significant higher rates of HIV among racial/ethnic minorities. No comparisons limited to HIV monoinfected persons were significant. CONCLUSIONS: "End-of-the-epidemic" criteria were met among White, African American, and Latino/a PWID in New York City, but elimination of disparities may require a greater focus on PWID with high sexual risk.
Hepatic steatosis can occur with any antiretroviral therapy (cART). Although single nucleotide polymorphisms (SNPs) have been identified to predispose to alcoholic and non-alcoholic fatty liver disease, their role for treatment-associated steatosis in HIV-positive patients remains unclear. We determined the frequency of PNPLA3 (rs738409), CSPG3/NCAN (rs2228603), GCKR (rs780094), PPP1R3B (rs4240624), TM6SF (rs8542926), LYPLAL1 (rs12137855) and MBOAT7 (rs626283) by RT-PCR in 117 HIV-positive patients on cART and stratified participants based on their “controlled attenuation parameter” (CAP) into probable (CAP: 215–300 dB/m) and definite (CAP >300 dB/m) hepatic steatosis. We analyzed CAP values and routine metabolic parameters according to the allele frequencies. Sixty-five (55.6%) and 13 (11.1%) patients were allocated to probable and definite steatosis. CAP values (p = 0.012) and serum triglycerides (p = 0.043) were increased in carriers of the GCKR (rs780094) A allele. Cox logistic regression identified triglycerides (p = 0.006), bilirubin (p = 0.021) and BMI (p = 0.068), but not the genetic parameters as risk factors for the occurrence of hepatic steatosis. Taken together, according to the limited sample size, this exploratory study generates the hypothesis that genetic polymorphisms seem to exert minor effects on the risk for fatty liver disease in HIV-positive patients on cART. Nevertheless, SNPs may modify metabolic complications once metabolic abnormalities have developed. Hence, subsequent analysis of a larger cohort is needed. [ABSTRACT FROM AUTHOR]


For twenty-five years, the Ryan White HIV/AIDS Program has supported a comprehensive system of health services for vulnerable and under- or uninsured people living with HIV. Using data from the Health Resources and Services Administration about people living with HIV and served by the Ryan White HIV/AIDS Program, we found reductions in disparities in viral suppression rates between 2010 and 2014-with rates for Blacks/African Americans, adolescents and young adults, and people living in the South becoming more similar to rates for Whites, older adults, and people in other regions of the United States, respectively. Although absolute viral suppression rates for people without stable housing and transgender people improved during the same time period, disparities were not reduced between these groups and those with stable housing and nontransgender people, respectively. Addressing persistent disparities through the effective use of this program will be one of the key ways to meet the goals of the National HIV/AIDS Strategy.


In older adults, pathophysiologic, clinical, and environmental factors all affect the presentation of infections. We explore how age-related changes influence the manifestation and evaluation of infections in this population. Specific topics include immunosenescence, age-related organ-specific physiologic changes, and frailty. We also describe clinical factors influencing infection risk and presentation in older adults, including temperature regulation, cognitive decline, and malnutrition. Finally, we discuss the influence of the setting in which older adults reside on the clinical evaluation of infection. Understanding the influence of all these changes may facilitate the prevention, early recognition, and treatment of infections in older adults.


Objective: Although most HIV-infected individuals achieve undetectable viremia during antiretroviral therapy (ART), a subset have low-level viremia (LLV) of varying duration and magnitude. The impact of LLV on treatment outcomes is unclear. We investigated the association between LLV and virological failure and/or all-cause mortality among Swedish patients receiving ART. Methods: HIV-infected patients from two Swedish HIV centers were identified from the nationwide register InfCare HIV. Subjects aged ≥15 years with triple agent ART were included at 12 months after treatment initiation if ≥2 following viral load measurements were available. Patients with 2 consecutive HIV RNA values ≥1000 copies/mL at this time point were excluded. Participants were stratified into four categories depending on viremia profiles: permanently suppressed viremia (<50 copies/mL), LLV 50–199...

Worldwide approximately 3.6 million people aged 50 and older are living and ageing with the human immunodeficiency virus (HIV). Few studies have explored successful ageing from the insider perspective of those living well and ageing with HIV. This study draws upon the lived experience and wisdom of older, HIV-positive adults living in Ontario, Canada in order to understand their views and strategies for successful ageing. This qualitative study involved semi-structured interviews with 30 individuals age 50 years and older who are HIV-positive. Purposive sampling techniques were used to recruit individuals who shared their experiences of successful ageing. Constructivist grounded theory coding techniques were used for analysis. Themes related to successful ageing included resilience strategies and challenges, social support and environmental context. Stigma and struggles to maintain health were identified as impediments to successful ageing. Models of successful ageing must take into account the potential for a subjective appraisal of success in populations suffering from chronic and life-threatening illnesses including HIV. Practitioners can draw upon organically existent strengths in this population in order to provide intervention development for older adults around the world who are struggling to manage their HIV. [ABSTRACT FROM AUTHOR]


The mortality rate associated with HIV infection plummeted after the introduction of effective antiretroviral therapy pioneered two decades ago. As a result, HIV-infected people now have life expectancies comparable to that of HIV-uninfected individuals. Despite this, increased rates of osteoporosis, chronic liver disease, and in particular cardiovascular disease have been reported among people living with HIV infection. With the aging HIV-infected population, the burden of these comorbid illnesses may continue to accrue over time. In this paper, we present an overview of the aging HIV-infected population, its epidemiology and the many challenges faced. How to define and measure successful aging will also be reviewed. Finally, opportunities that may help mitigate the challenges identified and ensure successful aging among people living with HIV infection will be examined.


OBJECTIVE: Research has demonstrated that gay men are at increased risk for internalizing disorders compared with heterosexual men and that minority stressors are risk factors. However, the mechanisms underlying the associations between minority stressors and internalizing symptoms remain unclear. The current study examined coping strategies (active and disengaged coping) as mediators of the associations between minority stressors (internalized homonegativity [IH] and rejection sensitivity [RS]) and internalizing symptoms. METHOD: A sample of 147 gay men completed a baseline questionnaire and weekly questionnaires for seven consecutive weeks. RESULTS: At the between-person level, higher IH and RS were associated with higher disengaged coping, but not active coping. In turn, higher disengaged coping was associated with higher internalizing symptoms. Disengaged coping mediated the between-person association between IH and internalizing symptoms. At the within-person level, higher IH and RS were associated with higher disengaged coping, which, in turn, was associated with higher internalizing symptoms. Higher RS was also associated with higher active coping. Disengaged coping mediated the within-person associations between both minority
stressors and internalizing symptoms. Of note, some associations with IH became nonsignificant controlling for RS, suggesting that the latter has a stronger influence on coping and internalizing symptoms. CONCLUSIONS: Findings demonstrate that gay men’s negative thoughts and feelings about their sexual orientation and anxious expectations of rejection vary from week to week and this weekly fluctuation has an impact on mental health. Further, findings implicate disengaged coping as a mechanism through which minority stressors influence internalizing symptoms. [PsycINFO Database Record]


Historical, environmental, and cultural contexts intersect with aging, sexuality, and gender across communities and generations. My scholarship investigates health and well-being over the life course across marginalized communities, including LGBTQ (lesbian, gay, bisexual, transgender, and queer) midlife and older adults, native communities experiencing cardiovascular risk, and families in China living with HIV, in order to balance the realities of unique lives in contemporary society. By probing the intersection of age, sexuality, and gender, my analysis is informed by both personal and professional experiences. With the death of my partner occurring at a time of profound invisibility and silence before HIV/AIDS, I found my life out of sync, experiencing a loss without a name. My life was thrust into a paradox: My relationship was defined by a world that refused to recognize it. This essay provides an opportunity for me to weave together how such critical turning points in my own life helped shape my approach to gerontology and how gerontology has informed my work and life. Reflecting on this journey, I illustrate the ways in which historical, structural, environmental, psychosocial, and biological factors affect equity, and the health-promoting and adverse pathways to health and well-being across marginalized communities. Although gerontology as a discipline has historically silenced the lives of marginalized older adults, it has much to learn from these communities. The growing and increasingly diverse older adult population provides us with unique opportunities to better understand both cultural variations and shared experiences in aging over the life course. [ABSTRACT FROM AUTHOR]


OBJECTIVES: Stressful life events (SLEs) have been linked to depression, anxiety, and reduced life satisfaction. The inoculation hypothesis of aging suggests older adults may be less vulnerable to poor psychological outcomes following SLEs than working-age adults. The current study compared relationships between SLEs, mood and life satisfaction among older adults (65+), and adults aged 50-64, and investigated whether group identification and loneliness moderate these relationships. METHOD: A community-based sample of 121 Scottish participants responded to measures of SLEs (modified Social Readjustment Rating Scale), symptoms of depression and anxiety (Hospital Anxiety and Depression Scale), life satisfaction (Life Satisfaction Index A), group identification (Group Identification Scale), and loneliness (UCLA Loneliness Scale). RESULTS: In the 50-64 age group, the number of SLEs was significantly associated with greater symptoms of depression and anxiety, and reduced life satisfaction. Group identification and loneliness did not moderate these relationships. There were no significant relationships in the older adult group. CONCLUSION: The finding of relationships in working-age, but not older adults, supports the inoculation hypothesis of aging. Further research to better understand changes across the lifespan, and inter-relationships with related variables, would be valuable from both theoretical and clinical perspectives.


BACKGROUND: Despite the growing population of older adults living with human immunodeficiency virus/ acquired immune deficiency syndrome (HIV/AIDS), few studies have examined this population in terms of timing of HIV diagnosis. This study explores resilience and protective factors among HIV-positive older adults, 17 of whom were diagnosed prior to the development of highly active antiretroviral therapy (HAART), and 13 of whom were diagnosed after the development of HAART. METHODS: We explored the concepts of resilience and protective factors in 30 older adults living with HIV in Ontario, Canada. A qualitative approach was used to conduct in-depth interviews and grounded theory techniques were used to analyze the interview transcripts. RESULTS: Having lived with HIV for nearly 30 years, the pre-HAART group had developed more personal strategies for enhancing

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resilience, including self-care behaviors. They were more regimented and dedicated to their daily health, and were more engaged in their medical care as opposed to the post-HAART group who viewed self-care as staying adherent and refraining from risky health behaviors. IMPLICATIONS: Although HAART has radically changed the prognosis of HIV, we have limited information about the differences between those who were diagnosed before and after the development of HAART. We will present recommendations for addressing previous trauma and improving self-care.


PURPOSE: To estimate lifetime risk of receiving an HIV diagnosis in the United States if existing infection rates continue. METHODS: We used mortality, census, and HIV surveillance data for 2010 to 2014 to calculate age-specific probabilities of an HIV diagnosis. The probabilities were applied to a hypothetical cohort of 10 million live births to estimate lifetime risk. RESULTS: Lifetime risk was 1 in 68 for males and 1 in 253 for females. Lifetime risk for men was 1 in 22 for blacks, 1 in 51 for Hispanic/Latinos, and 1 in 140 for whites; and for women was 1 in 54 for blacks, 1 in 256 for Hispanic/Latinas, and 1 in 941 for whites. By risk group, the highest risk was among men who have sex with men (1 in 6) and the lowest was among male heterosexuals (1 in 524). Most of the states with the highest lifetime risk were in the South. CONCLUSIONS: The estimates highlight different risks across populations and the need for continued improvements in prevention and treatment. They can also be used to communicate the risk of HIV infection and increase public awareness of HIV.


Little is known about food insecurity and its association with geriatric outcomes in older people living with HIV (PLWH). This was a cross-sectional study of 230 HIV-infected patients aged 50 and older recruited in December 2012 through June 2016. Poisson logistic regression models estimated the prevalence ratio (PR) and 95% confidence intervals (CI) for the association between food insecurity and the following geriatric outcomes: frailty, physical health and function, social support, mental health and cognition, and behavioral health. 157 (68%) participants were food secure, 35 (15%) had low food security, and 38 (17%) had very low food security. After adjusting the analyses for other significant covariates, at risk alcohol or drug use (PR = 3.14; 95% CI 1.75-5.64), being sedentary (PR = 3.30; 95% CI 1.09-10.00) depressive symptoms (PR = 1.77; 95% CI 1.13-2.76), and dependent instrumental activities of daily living (PR = 2.46; 95% CI 1.13-5.36) were significantly associated with very low food security. These results highlight a need for structural HIV interventions that incorporate targeted food assistance strategies for older PLWH.


<b>Introduction:</b> Human immunodeficiency virus (HIV) has taken a disproportionate toll on the lives of African Americans, and many previous studies suggest HIV conspiracy beliefs and physician mistrust play important roles in this racial disparity. Because many HIV conspiracy theories tie government involvement with the origin and potential cure for HIV, an area for further examination is HIV+ African American veterans in Veterans Health Administration (VHA) care. In addition to HIV conspiracy beliefs, veterans may already be mistrustful of the VHA as a government healthcare provider. This mistrust is significantly associated with poor health outcomes, among both minority and nonminority persons living with HIV.<b>Materials and Methods:</b> We conducted interviews with 32 African American veterans at three VHA hospitals to assess HIV conspiracy beliefs and mistrust in physicians providing HIV care. A semistructured interview format allowed respondents to talk freely about their personal history with HIV, their perceptions about living with HIV, and their views on HIV conspiracy beliefs. <b>Results:</b> Five major themes arose from these interviews, including that the government uses HIV to control minority populations; the Veterans Affairs healthcare providers may play a role in withholding HIV treatment, and many HIV-infected veterans are suspicious of HIV treatment regimens. Additionally, several HIV-infected veterans in our study disclosed that they did not follow the prescribed treatment recommendations to ensure adherence. <b>Conclusion:</b> A veteran’s beliefs drive views of the healthcare system and trust of HIV-infected veterans’ healthcare providers, and impact HIV-infected veterans’ willingness to accept treatment for their medical conditions. Further research should continue to examine the impact of mistrust and endorsement of conspiracy beliefs among veterans receiving care in VHA. [ABSTRACT FROM AUTHOR]

In the current era of therapy for human immunodeficiency virus (HIV), life expectancy for persons living with HIV (PLWH) approaches that of the general population. This newly prolonged survival among PLWH is associated with an increased prevalence of comorbidities due to the inflammation, immune activation and immune senescence associated with HIV infection. Higher prevalence of tobacco and alcohol use, co-infection with viral hepatitis and traditional cardiovascular risk factors such as hypertension and hyperlipidemia contribute as well. In this review, we hope to describe the current comorbidities occurring among PLWH and bring increased awareness for conditions that may otherwise not be considered given the younger age at time of presentation.


People with HIV are living around a decade longer than they did 20 years ago, according to a new report. Doctors and charities called the increase in life expectancy for people with the virus in Europe and the US a “tremendous medical achievement” – but warned many are missing out on life-saving drugs as they have not yet been diagnosed as HIV positive. [ABSTRACT FROM PUBLISHER]


The prevalence of HIV-infected people aged 50 years or older is increasing rapidly; the proportion will increase from 28% to 73% in 2030. In addition, HIV-infected individuals may be more vulnerable to age-related condition. There is growing evidence that the prevalence of comorbidities and other age-related conditions (geriatric syndromes, functional or neurocognitive/mental problems, polypharmacy, and social difficulties) is higher in the HIV-infected population than in their uninfected counterparts. However, despite the potential impact of this situation on health care, little information exists about the optimal clinical management of older HIV-infected people. Here we examine the age-related conditions in older HIV-infected persons and address clinical management according to author expertise and published literature. Our aim is to advance the debate about the most appropriate management of this population, including less well-studied aspects, such as frequency of screening for psychological/mental and social and functional capabilities. [ABSTRACT FROM AUTHOR]


Approximately half of all people living with HIV in the US are age 50 and older. Existing research highlights the health challenges of these individuals, but little work has focused on gathering input about concerns in participating in HIV and aging research. Prior to designing a prospective cohort study on HIV and aging, we elicited feedback from potential participants on general attitudes toward participation in a prospective HIV cohort study, and perspectives on important research topics relevant to older
adults living with HIV. Three qualitative focus groups were formed. Three focus groups (5–7 participants each; N = 18) were held with older adults living with HIV. All discussions were audiorecorded and transcribed. Transcripts were analyzed using content analysis. Participants emphasized the importance of data confidentiality, shared concerns about study biases arising from sponsored research, and suggested that conflicts of interest should be independently assessed by "representative" boards made of community members. They urged researchers to be mindful of research "burnout," because many people with HIV participate in multiple research studies. A number of priority research areas emerged, including the gap in provision of end-of-life services. Many older adults with HIV are knowledgeable about the research process and offer valuable insights to researchers. Addressing participant concerns can facilitate inclusion and enhance HIV research success.


Aging is a gradual loss of physiological functions as organisms' progress in age. Although aging in multicellular organisms is complex, some fundamental mechanisms and pathways may be shared from the single cellular yeast to human. Budding yeast Saccharomyces cerevisiae has been established model system for aging studies. A yeast cell divides asymmetrically to produce two cells that differ in size and age. The one that is smaller coming from bud is a newborn cell that with a full replicative potential head irrespective of the replicative age of its mother—the larger cell from which the bud grows out before division. The age asymmetry between daughter and mother is thought to be dependent on asymmetric segregation of certain factors such as protein aggregates, extrachromosomal DNA (ERCs) and dysfunctional organelles during successive cell divisions of the yeast replicative lifespan (RLS). It is also thought that certain plasma membrane proteins, in particular multidrug-resistant (MDR) proteins, asymmetrically partition between the mother and the bud based on the age of the polypeptides. Functional decline associated with the molecular aging of those proteins contributes to the fitness decline at advance age. In our recent study, we showed that sphingolipids facilitate the age-dependent segregation of MDRs between daughter and mother cell. In this review, we highlight and discuss the potential mechanisms by which sphingolipids regulate the aging process in yeast and cells of vertebrate animals including human.


As people living with HIV (PLWH) live longer, increased understanding of individuals' values and perceptions of successful aging can assist health providers in working with PLWH to set meaningful goals as they age. The purpose of this qualitative study was to understand how PLWH define successful aging and their perceptions of contributors to successful aging. Fourteen men and ten women over the age of 50 years (mean age 57 years; mean time since diagnosis 18 years) participated in individual interviews. Interviews were analyzed using directed content analysis. Six themes emerged: accepting limitations, staying positive, maintaining social supports, taking responsibility, living a healthy lifestyle, and engaging in meaningful activities. The participants emphasized individual control. This highlights the importance of working with PLWH to understand their values and aspirations, and create patient-centered goals. From a research perspective this reinforces calls to include the subjective experiences of older adults in developing successful aging criteria.


Purpose of review: This article critically reviews the utility of 'phenotypes' as behavioral descriptors in aging/HIV research that inform biological underpinnings and treatment development. We adopt a phenotypic redefinition of aging conceptualized within a broader context of HIV infection and of aging. Phenotypes are defined as dimensions of behavior, closely related to fundamental mechanisms, and, thus, may be more informative than chronological age. Primary emphasis in this review is given to comorbid aging and cognitive aging, though other phenotypes (i.e., disability, frailty, accelerated aging, successful aging) are also discussed in relation to comorbid aging and cognitive aging. Recent findings: The main findings that emerged from this review are as follows: (1) the phenotypes, comorbid aging and cognitive aging, are distinct from each other, yet overlapping; (2) associative
relationships are the rule in HIV for comorbid and cognitive aging phenotypes; and (3) HIV behavioral interventions for both comorbid aging and cognitive aging have been limited. Summary: Three paths for research progress are identified for phenotype-defined aging/HIV research (i.e., clinical and behavioral specification, biological mechanisms, intervention targets), and some important research questions are suggested within each of these research paths. [ABSTRACT FROM AUTHOR]


We use the individual-level data from all available Demographic and Health Surveys (DHS) from 27 sub-Saharan African countries conducted between 2003 and 2012 (40 population-based and nationally representative surveys in total) to calculate HIV testing consent rates and HIV prevalence for each country separately, as well as for the pooled sample. The pooled sample comprised of 427,130 individuals. In most countries HIV prevalence in adults aged 45 years and above is higher than in the total population. We further show that over the past decade HIV prevalence has increased in older age groups, while it has decreased in younger ones. While the age patterns of HIV consent rates vary across the 27 countries included in our sample, analysis of the pooled sample across all countries reveals a u-shaped relationship with lowest consent rates around age 35 years and higher consent rates among younger and older people. We argue that future DHS and other population-based HIV surveys should offer HIV testing to all adults without age limits.


CARE – PATIENT MANAGEMENT

2017 UPDATED CHAPTERS - in The HIV and Aging Consensus Project: Recommended Treatment Strategies for Clinicians Managing Older Patients with HIV http://hiv-age.org/clinical-recommendations/

- Managing the Care of Older Adults with HIV
- Assessing Frailty and Functional Capacity
- Multi-Morbidity
- Detection and Screening for HIV in Older Adults
- When to Initiate Antiretroviral Therapy in HIV and Aging
- Immunizations in HIV and Aging
- Smoking in HIV and Aging
- Cardiovascular Disease Screening and Prevention in HIV
- Diabetes Mellitus in HIV and Aging
- Drug-drug Interactions and Polypharmacy in HIV and Aging
- Cancer in HIV and Aging
- Viral Hepatitis Screening in HIV and Aging
- Chronic Obstructive Pulmonary Disease in HIV and Aging
- Sexual Health in HIV and Aging
- Osteoporosis in HIV and Aging
- The Kidney in HIV and Aging
- Hypertension in HIV and Aging
- Older Age and HIV-Associated Neurocognitive Disorder (HAND)
- Depression in HIV and Aging
- Anxiety Disorders in HIV and Aging
- Substance Use Disorders
- HIV-1 Associated Peripheral Neuropathologies in HIV and Aging
- Advance Care Planning in HIV and Aging
- PrEP and the Older Adult with HIV
- Nutrition in HIV and Aging


(2017). "HIV patients 65 years or older face higher rates of serious non-HIV illnesses." HIV Treatment ALERTS!: 6. The article discusses a study conducted by the U.S. Centers for Disease Control and Prevention (CDC), focusing on the increase risk for older HIV patients to develop serious non-HIV illnesses in the U.S.


Questionnaires over a 9-year study period (2002-2010) were used to characterize cannabis, stimulant, and alcohol use among 3099 HIV-infected men participating in the Veterans Aging Cohort Study (VACS) to determine whether use of these substances is associated with changes in the VACS Index, a validated prognostic indicator for all-cause mortality. At baseline, 18% of participants reported no substance use in the past year, 24% lower risk alcohol use only, 18% unhealthy alcohol use only, 15% cannabis use (with or without alcohol), and 24% stimulant use (with or without alcohol or cannabis). In adjusted longitudinal analyses, cannabis use [beta = -0.97 (95% CI -1.93, 0.00), p = 0.048] was not associated with mortality risk, while stimulant use [1.08 (0.16, 2.00), p = 0.021] was associated with an increased mortality risk, compared to lower risk alcohol use. Our findings show no evidence of a negative effect of cannabis use on mortality risk, while stimulant use was associated with increased mortality risk among HIV-infected men. Interventions to reduce stimulant use in this patient population may reduce mortality.


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.


BACKGROUND: The prevalence of lipodystrophy ranges from 31 to 65%, depending on the criteria adopted for diagnosis. The usual methods applied in the diagnosis vary from self-perception, medical examination, skinfolds measurements, or even imaging assessment for confirmation of fat distribution changes. Although several methods have been developed, there is no gold standard for characterization of LA and LH, or mixed forms. This study aimed to compare self-reported signs of lipodystrophy with objective measures by skinfolds and circumferences, and to evaluate the prevalence of lipoatrophy (LA) and lipohypertrophy (LH) among subjects living with HIV/AIDS on ART. METHODS: A cross-sectional study enrolled participants living with HIV/AIDS receiving ART, aged 18 years or older from an outpatient health care center, in Southern Brazil. Self-reported body fat enlargement in the abdomen, chest or breasts, and dorsocervical fat pad were used to determine LH, while LA was identified by self-reported fat wasting of the face, neck, legs, arms or buttocks. Measurements were obtained with a scientific caliper for infraorbital, buccal, and submandibular skinfolds, and using an inelastic tape to measure circumferences of waist, hip, neck, and arm. LH and LA were established by the presence of at least one self-reported sign. RESULTS: Comparisons of self-reported signs with objective measurements for men and women were carried out in 815 participants on ART, out of 1240 participants with HIV infection. Self-reported body fat enlargement increased in HIV-infected patients was estimated based on data from the National Centre of Epidemiology. We divided the study period into four calendar periods (1997-1999, 2000-2003, 2004-2007, and 2008-2013). Patients were classified according to HCV coinfection. The number of HIV-infected patients was estimated based on data from the National Centre of Epidemiology. We calculated incidence rates (events per 10,000 patient-years) and in-hospital case fatality rates (CFR). The incidence of ischemic stroke (IS) decreased in HIV-infected patients (15.8 [1997-1999] to 6.5 [2008-2013]; P<0.001) and increased in HIV/HCV-coinfected patients (1.3 [1997-1999] to 5.5 [2008-2013]; P<0.001). The incidence of ischemic stroke (IS) decreased in HIV-monoinfected patients (27.4 [1997-1999] to 21.7 [2008-2013]; P = 0.005) and increased in HIV/HCV-coinfected patients (1.8 [1997-1999] to 11.9 [2008-2013]; P<0.001). The CFR was 3.3 times higher for HS than for IS for the whole study period. The CFR of IS in HIV-monoinfected patients decreased significantly (47.4% [1997-1999] to 30.6% [2008-2013]; P = 0.010) but did not change significantly among HIV/HCV-coinfected patients (41.4% [1997-1999] to 44.7% [2008-2013]; P = 0.784). The CFR of IS in the whole HIV-infected population decreased significantly (14.6% [1997-1999] to 10.9% [2008-2013]; P = 0.034), although no significant differences were found when each group was analyzed separately. In conclusion, after the introduction of cART, HS and IS rates decreased in HIV-monoinfected individuals, but increased steadily in HIV/HCV-coinfected individuals.

Older adults have been largely overlooked in community studies of HIV in highly endemic African countries. In our rural study site in Mpumalanga Province, South Africa, HIV prevalence among those aged 50 and older is 16.5%, suggesting that older adults are at risk of both acquiring and transmitting HIV. This paper utilises community-based focus-group interviews with older rural South African men and women to better understand the normative environment in which they come to understand and make decisions about their health as they age in an HIV endemic setting. We analyse the dimensions of an inductively emerging theme: ku ti hlayisa (to take care of yourself). For older adults, 'taking care' in an age of AIDS represented: (1) an individualised pathway to achieving old-age respectability through the taking up of responsibilities and behaviours that characterise being an older person, (2) a set of gendered norms and strategies for reducing one’s HIV risk, and (3) a shared responsibility for attenuating the impact of the HIV epidemic in the local community. Findings reflect the individual, interdependent and communal ways in which older rural South Africans understand HIV risk and prevention, ways that also map onto current epidemiological thinking for improving HIV-related outcomes in high-prevalence settings.


Cardiovascular disease (CVD) rates among people living with HIV/AIDS (PHAs) are high. Rates of cigarette smoking, a leading contributor to CVD among PHAs, are 40-70% (2-3 times higher than the general population). Furthermore, PHAs have high rates of depression (40-60%), a risk factor for smoking cessation relapse. The current pilot study examined the effectiveness of a specifically tailored 5-session smoking cessation counselling programme for PHAs, which addressed depression, in combination with Nicotine Replacement Therapy (NRT) in a cohort of PHA smokers (n = 50). At 6-month follow-up, 28% of participants demonstrated biochemically verified abstinence from smoking. This result compares favourably to other quit-smoking intervention studies, particularly given the high percentage of HIV+ smokers with depression. At study baseline, 52% of HIV+ smokers scored above the clinical cut-off for depression on the Centre for Epidemiological Studies - Depression (CES-D) scale. HIV+ smokers with depression at study baseline demonstrated quantitatively lower depression at 6-month follow-up with a large effect size (d = 1), though it did not reach statistical significance (p = .058). Furthermore, those with depression were no more likely to relapse than those without depression (p = .33), suggesting that our counselling programme adequately addressed this significant barrier to smoking cessation among PHAs. Our pilot study indicates the importance of tailored programmes to help PHAs quit smoking, the significance of addressing depressive symptoms, and the need for tailored counselling programmes to enhance quit rates among PHAs.


INTRODUCTION: Methamphetamine (MA) abuse remains a global health challenge despite intense research interest in the development of pharmacological treatments. This review provides a summary of clinical trials and human studies on the pharmacotherapy of methamphetamine use disorder (MUD). Areas covered: We summarize published clinical trials that tested candidate medications for MUD and also conducted PubMed and Google Scholar searches to identify recently completed clinical trials using the keywords 'methamphetamine' 'addiction' 'pharmacotherapy' and 'clinical trial.' To determine the status of ongoing clinical trials targeting MUD, we also searched the ClinicalTrials.gov online database. We conclude this review with a discussion of current research gaps and future directions. Expert commentary: Clinical trials examining the potential for pharmacotherapies of MUD have largely been negative. Future studies need to address several limitations to reduce the possibility of Type II errors: small sample sizes, high dropout rates or multiple comorbidities. Additionally, new treatment targets, such as MA-induced disruptions in cognition and in the neuroimmune system, merit trials with agents that selectively modulate these processes.


www.HIV-AG.org
The progress on HIV infection treatment has allowed a longer survival for HIV-infected patients. However, chronic comorbidities are emerging. Peripheral Neuropathy (PN) represents one of the most prevalent neurologic disorders among these patients, and comprehensive studies may contribute to a reduction in the morbidity of this condition. This is a cross-sectional analytic study conducted in a tertiary referral hospital in southern Brazil. This study investigates the prevalence of PN among HIV-infected patients and associated demographic, clinical and laboratory variables. A number of 150 HIV-infected patients admitted between January and May 2016 were interviewed, submitted to physical and neurological examination, and data from their medical records were obtained. The prevalence of PN was 31.3%. It was increased among older patients (p=0.02), patients with higher CD4 lymphocytes levels (p=0.02), and smokers (OR=3.4; 95% CI 1.6-6.9; p<0.01). The research identified a high prevalence of PN in HIV-infected patients. Older age and higher CD4 levels have been associated with PN. To the best of our knowledge, this was one of the first studies reporting an association between tobacco use and PN among HIV-infected patients. Further studies are necessary to elucidate the pathological mechanisms linking PN and tobacco.


OBJECTIVES: This descriptive study explored whether patients with mental health conditions engage in personal medicine (self-care activities) as part of their treatment regimen. Personal medicine is patient-identified and -initiated activities of self-care that can improve mental health through various means, including physical activity, social engagement, and spiritual connectedness. The purpose of this study was to explore patient engagement in personal medicine within an underserved population and to evaluate the impact self-care might have on self-reported medication use and adherence and patient perception of mental health control. DESIGN: Cross-sectional study design with a face-to-face verbally administered survey assessing medication adherence, engagement in self-care activities, perception of self-care, and mental health control. SETTING: The study site was a nonprofit charitable pharmacy in an urban setting. The pharmacy provides medications and pharmacy services at no charge, including disease state education, point-of-care testing, and medication therapy management. PARTICIPANTS: Study participants included those who fill medications for mental health conditions and who are age 18 years and older. MAIN OUTCOME MEASURES: Main outcomes included engagement in self-care and self-reported medication adherence. Additional measures included stratification of dimensions of self-care, perception of mental health control, and patient knowledge of community resources. RESULTS: Overall, 81.7% of participants engaged in activities of self-care, with 98.3% recognizing self-care as important to improving and maintaining their mental health. Greater self-reported adherence rates and mental health control were seen with patients who participate in self-care. CONCLUSION: Participants who identify and engage in personal medicine recognize its value and are willing to incorporate it into their treatment regimen. As accessible and trusted health care providers, pharmacists can encourage patients to identify and use personal medicine to aid in the improvement of their mental health condition.


There are over 35 million people worldwide infected with the Human Immunodeficiency Virus (HIV) and its progression to Acquired Immunodeficiency Syndrome (AIDS; WHO, 2014). With the advent of combined antiretroviral therapy (i.e., cART) in 1996, persons living with HIV/AIDS (PLWHA) now have much longer life expectancies. However, living with HIV remains challenging, as it is associated with a number of significant and recurrent (chronic) stressors including physical pain, side effects of cART, social stigma, and discrimination, among other social stressors. Presumably, as a result of these types of stressors, a disproportionately high number of PLWHA struggle with clinically-significant psychiatric symptoms and disorders. Although much scientific and clinical attention has focused on depressed mood and psychopathology among PLWHA, there has been comparably less focus on anxiety and its disorders. The paucity of work in this area is concerning from a public health perspective, as anxiety symptoms and disorders are the most common class of psychiatric disorders and often maintain a large negative impact on life functioning.

HIV creates substantial uncertainty for people infected with the virus, which subsequently affects a host of psychosocial outcomes critical to successful management of the disease. This study assessed the efficacy and durability of a theoretically driven, one-on-one peer support intervention designed to facilitate uncertainty management and enhance psychosocial functioning for patients newly diagnosed with HIV. Using a pretest-posttest control group design, 98 participants received information and training in specific communication strategies (e.g., disclosing to friends and family, eliciting social support, talking to health care providers, using the Internet to gather information, and building social networks through AIDS service organizations). Participants in the experimental group attended six 1-hour sessions, whereas control participants received standard of care for 12 months (after which they received the intervention). Over time, participants in the intervention fared significantly better regarding (a) illness uncertainty, (b) depression, and (c) satisfaction with social support than did those in the control group. Given the utility and cost-effectiveness of this intervention and the uncertainty of a multitude of medical diagnoses and disease experiences, further work is indicated to determine how this program could be expanded to other illnesses and to address related factors, such as treatment adherence and clinical outcomes.


To address barriers to adequate engagement in medical care among people living with HIV, Wisconsin's AIDS/HIV Program created a new position, the Linkage to Care (LTC) Specialist. Specialists provide intensive, short-term case management and patient navigation services for small caseloads of individuals at high risk of disengaging with medical care. Clients are eligible if they are newly diagnosed with HIV or new to medical care, recently released from incarceration, recently out of care, nonadherent to scheduled medical care visits, or have detectable viral load while in care. Interviews with 30 clients of Specialists were conducted to understand experiences with the program and medical care. Common themes included the ability of Specialists to navigate complex systems of care and support services, the unique role Specialists played in their clients' lives, and the challenges of transitioning out of the program. Although the primary goal of Specialists is to address barriers to medical care, they often adopted a holistic approach that also included housing, financial assistance, and other social determinants of health. Descriptions of the Specialist's role in implementation manuals focus on their functional roles and the services provided. However, clients often discussed the emotional support they received, especially for clients without strong social support networks. Many clients also desired an ongoing relationship with their Specialists even after discharge, but had been able to establish independence and self-efficacy. The LTC Specialists are resource-intensive considering their small caseloads, but fill an important gap in existing, often overtaxed case management systems.


INTRODUCTION: Use of complementary and alternative medicines (CAMs) and over-the-counter (OTC) medications are very common among HIV-infected patients. These products can cause clinically significant drug-drug interactions (DDIs) with antiretroviral (ARV) medications, thereby increasing risk for negative outcomes such as toxicity or loss of virologic control. Areas covered: This article provides an updated review of the different mechanisms by which CAM and OTC products are implicated in DDIs with ARV medications. Expert commentary: Much of the literature published to date involves studies of CAMs interacting with older ARV agents via the cytochrome P450 (CYP450) system. However, the HIV treatment and prevention arsenal is continually evolving. Furthermore, our elucidation of the role of non-CYP450 mediated DDIs with ARV medications is greatly increasing. Therefore, clinicians are well served to understand the various mechanisms and extent by which new ARV therapies may be involved in drug interactions with CAMs and OTC medications.

Background: Patients with human immunodeficiency virus (HIV) and/or chronic hepatitis C virus (HCV) infection may be prescribed statins as treatment for metabolic/cardiovascular disease, but it remains unclear if the risk of acute liver injury (ALI) is increased for statin initiators compared to nonusers in groups classified by HIV/HCV status. Methods: We conducted a cohort study to compare rates of ALI in statin initiators vs nonusers among 7686 HIV/HCV-coinfected, 8155 HCV-monoinfected, 17739 HIV-monoinfected, and 36604 uninfected persons in the Veterans Aging Cohort Study (2000-2012). We determined development of (1) liver aminotransferases >200 U/L, (2) severe ALI (coagulopathy with hyperbilirubinemia), and (3) death, all within 18 months. Cox regression was used to determine propensity score-adjusted hazard ratios (HRs) with 95% confidence intervals (CIs) of outcomes in statin initiators compared to nonusers across the groups. Results: Among HIV/HCV-coinfected patients, statin initiators had lower risks of aminotransferase levels >200 U/L (HR, 0.66 [95% CI, .53-.83]), severe ALI (HR, 0.23 [95% CI, .12-.46]), and death (HR, 0.36 [95% CI, .28-.46]) compared with statin nonusers. In the setting of chronic HCV alone, statin initiators had lower risks of aminotransferase increases (HR, 0.57 [95% CI, .45-.72]), severe ALI (HR, 0.15 [95% CI, .06-.37]), and death (HR, 0.42 [95% CI, .32-.54]) than nonusers. Among HIV-monoinfected patients, statin initiators had lower risks of aminotransferase increases (HR, 0.52 [95% CI, .40-.66]), severe ALI (HR, 0.26 [95% CI, .13-.55]), and death (HR, 0.19 [95% CI, .16-.23]) compared with nonusers. Results were similar among uninfected persons. Conclusions: Regardless of HIV and/or chronic HCV status, statin initiators had a lower risk of ALI and death within 18 months compared with statin nonusers.


OBJECTIVES: The aim of the study was to assess plasma concentrations of darunavir/ritonavir and raltegravir in older patients compared with younger patients with HIV-1 infection. METHODS: In this observational, open-label study, adult HIV-infected out-patients aged <= 40 years (younger patients) or >= 60 years (older patients) and treated with tenofovir/emtricitabine plus darunavir/ritonavir (800/100 mg daily) or raltegravir (400 mg twice daily) were asked to participate. The trough concentrations (Ct) of darunavir/ritonavir and raltegravir were assessed at steady state using a validated high-performance liquid chromatography (HPLC)-tandem mass spectrometry method. RESULTS: A total of 88 HIV-positive patients were enrolled in the study. Forty-six patients were treated with darunavir/ritonavir, and 42 with raltegravir. The geometric mean plasma Ct of darunavir was comparable between the 19 older and 23 younger subjects: 106 ng/mL (151%) and 94 ng/mL (129%), respectively. The geometric mean plasma Ct of raltegravir was significantly higher among the 21 older patients (2209 ng/mL (139%)) than among the 25 younger patients (1876 ng/mL (162%)); GMR 1.56; 95% CI: 1.22-1.88; P = 0.004. Similarly, the geometric mean plasma Ct of ronavir was significantly higher among older than among younger individuals. CONCLUSIONS: The mean plasma Ct of darunavir and raltegravir was significantly higher in older patients than in younger patients with HIV-1 infection, while the mean plasma level of raltegravir was comparable in the two groups. However, both regimens showed good tolerability in both younger and older subjects.


BACKGROUND: Clinical guidelines vary with respect to the optimal monitoring frequency of HIV-positive individuals. We compared dynamic monitoring strategies based on time-varying CD4 cell counts in virologically suppressed HIV-positive individuals. METHODS: In this observational study, we used data from prospective studies of HIV-positive individuals in Europe (France, Greece, the Netherlands, Spain, Switzerland, and the UK) and North and South America (Brazil, Canada, and the USA) in The HIV-CAUSAL Collaboration and The Centers for AIDS Research Network of Integrated Clinical Systems. We compared three monitoring strategies that differ in the threshold used to measure CD4 cell count and HIV RNA viral load every 3-6 months (when below the threshold) or every 9-12 months (when above the threshold). The strategies were defined by the threshold CD4 counts of 200 cells per μL, 350 cells per μL, and 500 cells per μL. Using inverse probability weighting to adjust for baseline and time-varying confounders, we estimated hazard ratios (HRs) of death and of AIDS-defining illness or death, risk ratios of virological failure, and mean differences in CD4 cell count. FINDINGS: 47,635 individuals initiated an antiretroviral therapy regimen between Jan 1, 2000, and Jan 9, 2015, and...
met the eligibility criteria for inclusion in our study. During follow-up, CD4 cell count was measured on average every 4.0 months and viral load every 3.8 months. 464 individuals died (107 in threshold 200 strategy, 157 in threshold 350, and 200 in threshold 500) and 1091 had AIDS-defining illnesses or died (267 in threshold 200 strategy, 365 in threshold 350, and 459 in threshold 500). Compared with threshold 500, the mortality HR was 1.05 (95% CI 0.86-1.29) for threshold 200 and 1.02 (0.91,1.14) for threshold 350. Corresponding estimates for death or AIDS-defining illness were 1.08 (0.95-1.22) for threshold 200 and 1.03 (0.96-1.12) for threshold 350. Compared with threshold 500, the 24 month risk ratios of virological failure (viral load more than 200 copies per mL) were 2.01 (1.17-3.43) for threshold 200 and 1.24 (0.89-1.73) for threshold 350, and 24 month mean CD4 cell count differences were 0.4 (-25.5 to 26.3) cells per μL for threshold 200 and -3.5 (-16.0 to 8.9) cells per μL for threshold 350. INTERPRETATION: Decreasing monitoring to annually when CD4 count is higher than 200 cells per μL compared with higher than 500 cells per μL does not worsen the short-term clinical and immunological outcomes of virally suppressed HIV-positive individuals. However, more frequent virological monitoring might be necessary to reduce the risk of virological failure. Further follow-up studies are needed to establish the long-term safety of these strategies. FUNDING: National Institutes of Health.


BACKGROUND: The differential effects of commonly prescribed combined antiretroviral therapy (cART) regimens on AIDS-defining neurological conditions (neuroAIDS) remain unknown. SETTING: Prospective cohort studies of HIV-positive individuals from Europe and the Americas included in the HIV-CAUSAL Collaboration. METHODS: Individuals who initiated a first-line cART regimen in 2004 or later containing a nucleoside reverse transcriptase inhibitor backbone and either atazanavir, lopinavir, darunavir, or efavirenz were followed from cART initiation until death, lost to follow-up, pregnancy, the cohort-specific administrative end of follow-up, or the event of interest, whichever occurred earliest. We evaluated 4 neuroAIDS conditions: HIV dementia and the opportunistic infections toxoplasmosis, cryptococcal meningitis, and progressive multifocal leukoencephalopathy. For each outcome, we estimated hazard ratios for atazanavir, lopinavir, and darunavir compared with efavirenz via a pooled logistic model. Our models were adjusted for baseline demographic and clinical characteristics. RESULTS: Twenty six thousand one hundred seventy-two individuals initiated efavirenz, 5858 initiated atazanavir, 8479 initiated lopinavir, and 4799 initiated darunavir. Compared with efavirenz, the adjusted HIV dementia hazard ratios (95% confidence intervals) were 1.72 (1.00 to 2.96) for atazanavir, 2.21 (1.38 to 3.54) for lopinavir, and 1.41 (0.61 to 3.24) for darunavir. The respective hazard ratios (95% confidence intervals) for the combined end point were 1.18 (0.74 to 1.88) for atazanavir, 1.61 (1.14 to 2.27) for lopinavir, and 1.36 (0.74 to 2.48) for darunavir. The results varied in subsets defined by calendar year, nucleoside reverse transcriptase inhibitor backbone, and age. CONCLUSION: Our results are consistent with an increased risk of neuroAIDS after initiating lopinavir compared with efavirenz, but temporal changes in prescribing trends and confounding by indication could explain our findings.


INTRODUCTION: The number of older HIV-infected people is growing due to increasing life expectancies resulting from the use of antiretroviral therapy (ART). Both HIV and aging increase the risk of other comorbidities, such as cardiovascular disease, osteoporosis, and some malignancies, leading to greater challenges in managing HIV with other conditions. This results in complex medication regimens with the potential for significant drug-drug interactions and increased morbidity and mortality. Area covered: We review the metabolic pathways of ART and other medications used to treat medical co-morbidities, highlight potential areas of concern for drug-drug interactions, and where feasible, suggest alternative approaches for treating these conditions as suggested from national guidelines or articles published in the English language. Expert commentary: There is limited evidence-based data on ART drug interactions, pharmacokinetics and pharmacodynamics in the older HIV-infected population. Choosing and maintaining effective ART regimens for older adults requires consideration of side effect profile, individual comorbidities, interactions with concurrent prescriptions and non-prescription medications and supplements, dietary patterns with respect to dosing, pill burden and ease of dosing, cost and affordability, patient preferences, social situation, and ART resistance history. Practitioners must remain vigilant for potential drug interactions and intervene when there is a potential for harm.
Persons with human immunodeficiency virus (HIV) infection often develop complications related directly to the infection, as well as to treatment. Aging, lifestyle factors, and comorbidities increase the risk of developing chronic conditions such as diabetes mellitus and chronic kidney disease. HIV-associated neurologic complications encompass a wide spectrum of pathophysiology and symptomatology. Cardiovascular and pulmonary conditions are common among persons with HIV infection. Although some specific antiretroviral medications have been linked to disease development, traditional risk factors (e.g., smoking) have major roles. Prevention and management of viral hepatitis coinfection are important to reduce morbidity and mortality, and new anti-hepatitis C agents produce high rates of sustained virologic response. Antiretroviral-associated metabolic complications include dyslipidemia, hyperglycemia, and loss of bone mineral density. Newer options generally pose less risk of significant systemic toxicity and are better tolerated. Family physicians who care for patients with HIV infection have a key role in identifying and managing many of these chronic complications.

Medicaid can serve as a bridge to Medicare coverage for the long-term disabled with sufficient covered work experience. We perform multinomial logistic regression on 2007-2010 Medicare and Medicaid claims data to examine transitions to Medicare for people living with HIV/AIDS (PLWH) in California who had Medicaid coverage in 2007. We find only 16% had obtained Medicare coverage by 2010. African-Americans, women, individuals with schizophrenia diagnoses, alcohol or substance abuse disorders, and any physical comorbidity were significantly less likely than others to obtain Medicare (p < 0.001). This study contributes new information on the impact of eligibility requirements for Medicare long-term disability insurance for PLWH. About one-third of PLWH under age 65 are covered by Medicaid. Many PLWH get stuck in Medicaid because their disability prevents them from obtaining the additional employment experience needed to qualify for Medicare.

Studies of persons living with HIV (PLWH) have compared current non-drinkers to at-risk drinkers without differentiating whether current non-drinkers had a prior alcohol use disorder (AUD). The purpose of this study was to compare current non-drinkers with and without a prior AUD on demographic and clinical characteristics to understand the impact of combining them. We included data from six sites across the US from 1/2013 to 3/2015. Patients completed tablet-based clinical assessments at routine clinic appointments using the most recent assessment. Current non-drinkers were identified by AUDIT-C scores of 0. We identified a prior probable AUD by a prior AUD diagnosis in the electronic medical record (EMR) or a report of attendance at alcohol treatment in the clinical assessment. We used multivariate logistic regression to examine factors associated with prior AUD. Among 2235 PLWH who were current non-drinkers, 36% had a prior AUD with more patients with an AUD identified by the clinical assessment than the EMR. Higher proportions with a prior AUD were male, depressed, and reported current drug use compared to non-drinkers without a prior AUD. Former cocaine/crack (70% vs. 25%), methamphetamine/crystal (49% vs. 16%), and opioid/heroin use (35% vs. 7%) were more commonly reported by those with a prior AUD. In adjusted analyses, male sex, past methamphetamine/crystal use, past marijuana use, past opioid/heroin use, past and current cocaine/crack use, and cigarette use were associated with a prior AUD. In conclusion, this study found that among non-drinking PLWH in routine clinical care, 36% had a prior AUD. We found key differences between those with and without prior AUD in demographic and clinical characteristics, including drug use and depression. These results suggest that non-drinkers are heterogeneous and need further differentiation in studies and that prior alcohol misuse (including alcohol treatment) should be included in behavioral health assessments as part of clinical care.
improvements in survival and changing patterns of transmission mean that the population of people living with HIV (PLWH) is ageing. Increasing age is a risk factor for many varieties of cancer, including most non-AIDS-defining malignancies. Moreover, the premature ageing described in PLWH and the development of cancer share many molecular features. As a consequence, there has been a dramatic increase in the number of PLWH who are diagnosed with cancer. The treatment of older HIV-positive patients with cancer requires careful attention to details. It is particularly important to take into account comorbidities, pharmacological drug interactions, and opportunistic infection prophylaxis when deciding on clinical management for these patients. Thus, cancer in the ageing population living with HIV poses many challenges for both HIV physicians and oncologists.


Older people with HIV face discrimination and fragmented care, a charity has warned.


Importance: Achieving linkage to care and viral suppression in human immunodeficiency virus (HIV)-positive patients improves their well-being and prevents new infections. Current gaps in the HIV care continuum substantially limit such benefits. Objective: To evaluate the effectiveness of financial incentives on linkage to care and viral suppression in HIV-positive patients. Design, Setting, and Participants: A large community-based clinical trial that randomized 37 HIV test and 39 HIV care sites in the Bronx, New York, and Washington, DC, to financial incentives or standard of care. Interventions: Participants at financial incentive test sites who had positive test results for HIV received coupons redeemable for $125 cash-equivalent gift cards upon linkage to care. HIV-positive patients receiving antiretroviral therapy at financial incentive care sites received $70 gift cards quarterly, if virally suppressed. Main Outcomes and Measures: Linkage to care: proportion of HIV-positive persons at the test site who linked to care within 3 months, as indicated by CD4+ and/or viral load test results done at a care site. Viral suppression: proportion of established patients at HIV care sites with suppressed viral load (<400 copies/mL), assessed at each calendar quarter. Outcomes assessed through laboratory test results reported to the National HIV Surveillance System. Results: A total of 1061 coupons were dispensed for linkage to care at 18 financial incentive test sites and 39359 gift cards were dispensed to 9641 HIV-positive patients eligible for gift cards at 17 financial incentive care sites. Financial incentives did not increase linkage to care (adjusted odds ratio, 1.10; 95% CI, 0.73-1.67; P = .65). However, financial incentives significantly increased viral suppression. The overall proportion of patients with viral suppression was 3.8% higher (95% CI, 0.7%-6.8%; P = .01) at financial incentive sites compared with standard of care sites. Among patients not previously consistently virally suppressed, the proportion virally suppressed was 4.9% higher (95% CI, 1.4%-8.5%; P = .007) at financial incentive sites. In addition, continuity in care was 8.7% higher (95% CI, 4.2%-13.2%; P < .001) at financial incentive sites. Conclusions and Relevance: Financial incentives, as used in this study (HPTN 065), significantly increased viral suppression and regular clinic attendance among HIV-positive patients in care. No effect was noted on linkage to care. Financial incentives offer promise for improving adherence to treatment and viral suppression among HIV-positive patients. Trial Registration: clinicaltrials.gov Identifier: NCT01152918.


Background: Cancer remains an important cause of morbidity and mortality in people with human immunodeficiency virus (PWHIV) on effective antiretroviral therapy (ART). Estimates of cancer-attributable mortality can inform public health efforts. Methods: We evaluated 46956 PWHIV receiving ART in North American HIV cohorts (1995-2009). Using information on incident cancers and deaths, we calculated population-attributable fractions (PAFs), estimating the proportion of deaths due to cancer. Calculations were based on proportional hazards models adjusted for age, sex, race, HIV risk group, calendar year, cohort, CD4 count, and viral load. Results: There were 1997 incident cancers and 8956 deaths during 267145 person-years of follow-up, and
11.9% of decedents had a prior cancer. An estimated 9.8% of deaths were attributable to cancer (cancer-attributable mortality rate 327 per 100000 person-years). PAFs were 2.6% for AIDS-defining cancers (ADCs, including non-Hodgkin lymphoma, 2.0% of deaths) and 7.1% for non-AIDS-defining cancers (NADCs: lung cancer, 2.3%; liver cancer, 0.9%). PAFs for NADCs were higher in males and increased strongly with age, reaching 12.5% in PWHIV aged 55+ years. Mortality rates attributable to ADCs and NADCs were highest for PWHIV with CD4 counts <100 cells/mm3. PAFs for NADCs increased during 1995-2009, reaching 10.1% in 2006-2009. Conclusions: Approximately 10% of deaths in PWHIV prescribed ART during 1995-2009 were attributable to cancer, but this fraction increased over time. A large proportion of cancer-attributable deaths were associated with non-Hodgkin lymphoma, lung cancer, and liver cancer. Deaths due to NADCs will likely grow in importance as AIDS mortality declines and PWHIV age.


Overall, those infected with HIV are doing much better in terms of life expectancy and general health than 20 years ago and continue to do better. Antiretroviral therapy has become more effective, better tolerated and easier to take. Improved therapy is also leading to lower rates of complications. [ABSTRACT FROM AUTHOR]


OBJECTIVES: To inform the development of HIV care strategies for older women with HIV infection, an understudied group, we compared the psychosocial, behavioral, and clinical characteristics of HIV-positive women aged >/=50 (older women) with those aged 18-49 (younger women). METHODS: We examined factors among HIV-positive women in care using data from the 2009 through 2013 cycles of a nationally representative sample of HIV-positive adults in care (Medical Monitoring Project). We compared psychosocial, clinical, and behavioral factors among women aged >/=50 years at interview versus those aged <50 years. We calculated weighted frequency estimates and performed logistic regression to compute adjusted prevalence ratios (aPR) and 95% confidence intervals (CIs) for the comparison of characteristics among women aged >/=50 versus <50 years. RESULTS: Of 22,145 participants, 6186 were women; 40.7% (CI 39.1-42.3) were >/=50 years, and 32.7% of older women reported being sexually active. Compared with women <50 years, women aged >/=50 years were more likely to be dose adherent (aPR = 1.19; CI 1.07-1.33), prescribed antiretroviral therapy and have sustained viral load suppression (aPR = 1.03; CI 1.00-1.18), and were less likely to report any depression (aPR = 0.92; CI 0.86-0.99), to report condomless sex with a negative or unknown partner if sexually active (aPR = 0.56; CI 0.48-0.67), and to have received HIV/sexually transmitted infection (STI) prevention counseling from a healthcare provider (aPR = 0.82; CI 0.76-0.88). CONCLUSIONS: These data suggest that older women in HIV care have more favorable outcomes in some clinical areas, but may warrant increased HIV/STI prevention counseling from their care providers, especially if sexually active.


BACKGROUND: African American/Black and Hispanic persons living with HIV (AABH-PLWH) in the U.S. evidence insufficient engagement in HIV care and low uptake of HIV antiretroviral therapy, leading to suboptimal clinical outcomes. The present qualitative study used critical race theory, and incorporated intersectionality theory, to understand AABH-PLWH's perspectives on the mechanisms by which structural racism; that is, the macro-level systems that reinforce inequities among racial/ethnic groups, influence health decisions and behaviors. METHODS: Participants were adult AABH-PLWH in New York City who were not taking antiretroviral therapy nor well engaged in HIV care (N = 37). Participants were purposively sampled for maximum variation from a larger study, and engaged in semi-structured in-depth interviews that were audio-recorded and professionally transcribed verbatim. Data were analyzed using a systematic content analysis approach. RESULTS: We found AABH-PLWH experienced HIV care and medication decisions through a historical and cultural lens incorporating knowledge of past and present structural racism. This contextual knowledge included awareness of past maltreatment of people of color in medical research. Further, these understandings were linked to the history of HIV antiretroviral therapy itself, including awareness of the first HIV antiretroviral regimen; namely, AZT (zidovudine) mono-therapy, which was initially prescribed in unacceptably high doses, causing serious side
effects, but with only modest efficacy. In this historical/cultural context, aspects of structural racism negatively influenced health care decisions and behavior in four main ways: 1) via the extent to which healthcare settings were experienced as overly institutionalized and, therefore, dehumanizing; 2) distrust of medical institutions and healthcare providers, which led AABH-PLWH to feel pressured to take HIV antiretroviral therapy when it was offered; 3) perceptions that patients are excluded from the health decision-making process; and 4) an over-emphasis on antiretroviral therapy compared to other non-HIV related priorities. We found that although participants were located at the intersection of multiple social categories (e.g., gender, social class, AABH race/ethnicity), race/ethnicity and social class were described as primary factors. CONCLUSIONS: Critical race theory proved useful in uncovering how macro-level structural racism affects individual-level health decisions and behaviors. HIV clinical settings can counter-balance the effects of structural racism by building "structural competency," and interventions fostering core self-determination needs including autonomy may prove culturally appropriate and beneficial for AABH-PLWH.


BACKGROUND: End-of-life communication becomes increasingly difficult in terminal cancer, which inevitably entails conversations around dying and death. In resource-limited areas, the context of end-of-life communication is usually home-based palliative care comprising mostly women in the family who play critical roles as informal caregivers. This article examined the content and contexts of family end-of-life conversations and decisions based on the retrospective accounts of a sample of bereaved women family cancer caregivers in Nairobi, Kenya. METHOD: An interpretative phenomenological analysis approach was utilized to explore pertinent end-of-life communication themes. Four mini focus group interviews with a total of 13 participants [n = 5; n = 3; n = 3; n = 2] were conducted. RESULTS: Two end-of-life themes, advance directives as preparedness for death, and initiating death talk were examined. Findings (a) illustrate the role of family dynamics in influencing the nature of end-of-life conversations and decisions (b) demonstrate the transitional nature of family caregiver roles, and (c) underscore the paradox of the critical role played by family members in palliative care versus their ill preparedness in dealing with end-of-life issues. CONCLUSIONS: Findings are relevant in informing palliative psychosocial interventions and specifically the concerns and decisions of cancer patients and their families. This prompts further engagement with the question of how to equip family caregivers in resource-limited contexts for end of life care. Methodologically, these results demonstrate the possibility of simultaneous elucidation of individual experiences, interactive co-constructions and the socio-cultural contexts of experiences and meaning making processes in IPA research.


OBJECTIVES: To determine the incidence of fracture among aging HIV-infected (HIV+) and uninfected men (HIV-). To evaluate factors independently associated with fracture risk. DESIGN: Prospective, multicenter cohort study of men with or at risk for HIV. METHODS: Outcome measures: all fractures (excluding skull, face and digits) and fragility fractures (vertebral column, femur, wrist and humerus) were collected semiannually in 1221 HIV+ and 1408 HIV- men aged at least 40. Adjusted incident rate ratios (aIRR) with an interaction term for age (40-49, 50-59 and >/=60 years) and HIV serostatus were estimated with Poisson regression models accounting for additional risk factors. RESULTS: Fracture incidence increased with age among both HIV+ and HIV- men. Although there was no significant difference in fracture incidence by HIV serostatus among men aged 40-49 years, the HIV+ men aged 50-59 years had a significantly higher incidence of all fractures [aIRR: 2.06 (1.49, 2.84)] and fragility fractures [aIRR: 2.06 (1.21, 3.50)] compared with HIV- participants of similar age. HIV modified the effect of age on all fractures (P = 0.002) but did not significantly modify the effect for fragility fractures (P = 0.135). Hypertension increased the rate of all fractures by 32% after adjustment for covariates [aIRR: 1.32 (1.04, 1.69)]. CONCLUSION: Fracture incidence increased with age among HIV+ and HIV- men but was higher among HIV+ men. A significant increase in fracture incidence was found among 50-59-year-old HIV+ men, highlighting the importance of osteoporosis screening for HIV-infected men above the age of 50.

This review article addresses end-of-life care issues characterizing human immunodeficiency virus progression by delineating associated stages of medical and nursing care. The initial progression from primary medical and nursing care aimed at functional cure to palliative care is discussed. This transition is considered in accord with the major symptoms experienced, including fatigue, pain, insomnia; decreased libido, hypogonadism, memory, and concentration; depression; and distorted body image. From the stage of palliative care, progression is delineated onward through the stages of hospice care, death and dying, and the subsequent bereavement process.


INTRODUCTION: The proportion of older South African adults (aged >/=50 years old) with HIV infection requiring hospitalization is likely to increase in the near future. Clinical risk factors for in-hospital mortality (IHM) in these patients are not well described. We aimed to identify clinical risk factors associated with IHM and their overall contribution towards IHM in older South African adults with HIV infection. METHODS: Clinical data for 690 older adults with HIV infection was obtained from the hospital administrative database at the Hlabisa Hospital in KwaZulu-Natal, South Africa. Logistic regression was used to determine independent clinical risk factors for IHM. Population-attributable fractions (PAFs) were calculated for all independent clinical risk factors identified. RESULTS: Male gender (p=0.005), CD4 count <350 cells/mm(3) (p=0.035), unknown CD4 count (p=0.048), tuberculosis (p=0.033) and renal failure (p=0.013) were independently associated with IHM. Male gender contributed the most to IHM (PAF=0.22), followed by unknown CD4 count (PAF=0.14), tuberculosis (PAF=0.12), renal failure (PAF=0.06) and CD4 count <350 cells/mm(3) (PAF=0.01). CONCLUSION: Although further research is required to confirm our findings, there is potential for these clinical risk factors identified in our study to be used to stratify patient risk and reduce IHM in older adults with HIV infection.


OBJECTIVES: To evaluate the relationship between polypharmacy and ART, delivered as conventional multi-tablet three-drug regimens, single-tablet regimens or less-drug regimens (simplified mono or dual regimens). METHODS: We conducted a cross-sectional analysis of electronic data from the prospective Modena HIV Metabolic Clinic Cohort Study. We included the last clinical observation for each patient from January 2006 to December 2015. Polypharmacy was defined as the use of five or more medications (excluding ART). Multi-morbidity was classified as the presence of two or more non-infectious comorbidities. Factors associated with different ART regimens were analysed using multivariable multinomial logistic regression analyses with multi-tablet three-drug regimens as the reference. RESULTS: A total of 2944 patients (33.7% females) were included in the analysis. Multinomial logistic regression analysis identified polypharmacy to be negatively associated with single-tablet regimens [relative risk reduction (RRR) = 0.48, 95% CI = 0.28-0.81] independently from frailty (RRR = 0.68, 95% CI = 0.59-0.78), after correction for age, gender, HIV infection duration, current and nadir CD4 and calendar year. This association was not found comparing multi-tablet three-drug regimens and less-drug regimens. CONCLUSIONS: Single-tablet regimens are less likely to be prescribed in patients with polypharmacy. Single-tablet regimens are perceived to be less flexible in patients with multi-morbidity and at higher risk of drug-drug interaction.


: The increasing number of aging HIV-infected (HIV+) persons comprises a unique population at risk for illnesses and syndromes traditionally associated with the elderly. As a result, similar to the current need for primary care providers to manage
chronic noninfectious comorbidities among aging persons with well controlled HIV infection, HIV clinical care will need to routinely involve geriatric medicine in a new HIV-geriatric discipline. The objective of this article is to provide a conceptual framework in which HIV and geriatric management considerations for healthcare professionals caring for HIV+ persons are integrated. The provision of contemporary HIV clinical care extends well beyond the achievement of HIV virologic suppression and antiretroviral therapy management and includes a need for careful characterization of geriatric syndromes based upon functional capacity and extent of disability. Screening for geriatric syndromes is both a multidisciplinary and multidimensional process, designed to evaluate an older person’s functional ability, physical health, cognition, overall mental health, and socio-environmental circumstances. Although routine incorporation of geriatric assessment into clinical trials involving HIV+ persons is feasible, a current challenge is the availability of a consensus clinical definition of frailty or vulnerability. To maximize the efficiency, value, and convenience of outpatient care visits for older HIV+ persons, these visits should include encounters with multiple providers, including primary care clinicians, social workers, and geriatricians. Challenges may exist in the routine provision of these assessments to older HIV+ persons, but clearly such cross-disciplinary collaboration will not only markedly enhance the care of aging HIV+ persons but may also constitute a model of successful healthcare management that can be applied to all aging persons with changing healthcare needs.


BACKGROUND: More than half of persons living with HIV (PLWH) in the United States are insufficiently engaged in HIV primary care and not taking antiretroviral therapy (ART), mainly African Americans/Blacks and Hispanics. In the proposed project, a potent and innovative research methodology, the multiphase optimization strategy (MOST), will be employed to develop a highly efficacious, efficient, scalable, and cost-effective intervention to increase engagement along the HIV care continuum. Whereas randomized controlled trials are valuable for evaluating the efficacy of multi-component interventions as a package, they are not designed to evaluate which specific components contribute to efficacy. MOST, a pioneering, engineering-inspired framework, addresses this problem through highly efficient randomized experimentation to assess the performance of individual intervention components and their interactions. We propose to use MOST to engineer an intervention to increase engagement along the HIV care continuum for African American/Black and Hispanic PLWH not well engaged in care and not taking ART. Further, the intervention will be optimized for cost-effectiveness. A similar set of multi-level factors impede both HIV care and ART initiation for African American/Black and Hispanic PLWH, primarily among them individual- (e.g., substance use, distrust, fear), social- (e.g., stigma), and structural-level barriers (e.g., difficulties accessing ancillary services). Guided by a multi-level social cognitive theory, and using the motivational interviewing approach, the study will evaluate five distinct culturally based intervention components (i.e., counseling sessions, pre-adherence preparation, support groups, peer mentorship, and patient navigation), each designed to address a specific barrier to HIV care and ART initiation. These components are well-grounded in the empirical literature and were found acceptable, feasible, and promising with respect to efficacy in a preliminary study. METHODS/DESIGN: Study aims are: 1) using a highly efficient fractional factorial experimental design, identify which of five intervention components contribute meaningfully to improvement in HIV viral suppression, and secondary outcomes of ART adherence and engagement in HIV primary care; 2) identify mediators and moderators of intervention component efficacy; and 3) using a mathematical modeling approach, build the most cost-effective and efficient intervention package from the efficacious components. A heterogeneous sample of African American/Black and Hispanic PLWH (with respect to age, substance use, and sexual minority status) will be recruited with a proven hybrid sampling method using targeted sampling in community settings and peer recruitment (N = 512). DISCUSSION: This is the first study to apply the MOST framework in the field of HIV prevention and treatment. This innovative study will produce a culturally based HIV care continuum intervention for the nation’s most vulnerable PLWH, optimized for cost-effectiveness, and with exceptional levels of efficacy, efficiency, and scalability. TRIAL REGISTRATION: ClinicalTrials.gov, NCT02801747, Registered June 8, 2016.


HIV-associated neurocognitive disorder (HAND) is a frequently occurring comorbidity of HIV infection. Evidence suggests this condition starts subclinical before a progression to a symptomatic stage. Blood oxygenated level dependent (BOLD) fMRI has shown to be a sensitive tool to detect abnormal brain function in an early stage and might therefore be useful to evaluate the effect of HIV infection on brain function. An extensive literature search was performed in June 2015. Eligibility criteria for included studies were as follows: (1) conducting with HIV-positive patients, (2) using BOLD fMRI, and (3) including a HIV-negative control group. A
total of 19 studies were included in the review including 931 participants. Differences in activation between HIV-positive and -negative participants were found when testing multiple domains, i.e., attention, (working) memory, and especially executive functioning. Overall, HIV-positive patients showed hyperactivation in task-related brain regions despite equal performances as controls. Task performance was degraded only for the most complex tasks. A few studies investigated the effect of aging on fMRI, and most of them found no interaction with HIV infection. Only three studies evaluated the effect of combination antiretroviral therapy (cART) on functional data suggesting an increase in activation with the use of cART. fMRI is a sensitive instrument to detect subtle cognitive changes in HIV patients. Open questions remain regarding the effects of cART on fMRI and the effects of aging on fMRI.


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.


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, presenting unique characteristics distinguishing it from other long-term conditions (LTCs). Our aim in this qualitative descriptive study was to identify and explore these features in the context of LTCs. A focus group (FG) method was used to gather the views and experiences of multi-professional HIV specialists who worked in North West England. Twenty-four staff participated in FGs (n = 3), which were audio recorded, manually transcribed, and thematically analyzed. We found four main themes: (a) stigma, (b) challenges faced by HIV specialists, (c) lack HIV-related knowledge, and (d) unique features, termed "stand alone." We concluded that these distinguishing features hindered full recognition and acceptance of HIV as an LTC.


Background: Older human immunodeficiency virus (HIV)-infected adults may experience higher rates of frailty and disability than the general population. Improved understanding of the prevalence, risk factors, and types of impairment can better inform providers and the healthcare system. Methods: HIV-infected participants within the AIDS Clinical Trials Group A5322 HAILO study self-reported disability by the Lawton-Brody Instrumental Activities of Daily Living (IADL) Questionnaire. Frailty was measured by 4-m walk time, grip strength, self-reported weight loss, exhaustion, and low activity. Logistic regression models identified
characteristics associated with any IADL impairment. Agreement between IADL impairment and frailty was assessed using the weighted kappa statistic. Results: Of 1015 participants, the median age was 51 years, 15% were aged >/=60 years, 19% were female, 29% black, and 20% Hispanic. At least 1 IADL impairment was reported in 18% of participants, most commonly with housekeeping (48%) and transportation (36%) and least commonly with medication management (5%). In multivariable models, greater disability was significantly associated with neurocognitive impairment, lower education, Medicare/Medicaid insurance (vs private/other coverage), smoking, and low physical activity. Although a greater proportion of frail participants had IADL impairment (52%) compared to non-frail (11%) persons, agreement was poor (weighted kappa <0.18, 95% confidence interval, 0.13, 0.23). Conclusion: IADL disability occurs frequently among middle-aged and older HIV-infected adults on effective antiretroviral therapy. Potentially modifiable risk factors (smoking, physical activity) provide targets for interventions to maintain independent living. Systematic recognition of persons at greater risk for disability can facilitate connection to resources that may help preserve independence.


HIV infection is now clinically manageable with antiretroviral therapy (ART). However, a significant number of people with HIV do not benefit from ART because of non-adherence. This study examined the use of adherence strategies and barriers to adherence among persons at substantial risk for developing resistant virus (less than 75% adherent). People living with HIV (n = 556) who were less than 95% adherent to ART completed computerized interviews, were screened for active drug use, provided medical records for HIV viral load, and completed unannounced pill counts to monitor ART adherence and an assessment of adherence barriers. Based on pill counts, participants were defined as severely non-adherent (<75% medications taken) and moderately non-adherent (>75% and <95% adherent). Results showed a broad array of memory devices were used to no avail across non-adherence groups. Individuals who were severely non-adherent were significantly more likely to attribute missing medications due to substance use and structural barriers, including running out of medications, inability to get to pharmacy, and inability to afford medications. Results suggest that interventions focused on memory lapses will be insufficient and should rather concentrate on substance use treatment and providing case management to resolve structural barriers to adherence.


Physical exercise (PE) has not been well studied in persons living with HIV (PLHIV). We conducted an overview of systematic reviews to assess the effectiveness of PE and to determine the most appropriate PE regimen for PLHIV. We used the CDC’s Prevention Research Synthesis Project’s database and manual searches to identify systematic reviews published between 1996 and 2013. We qualitatively synthesized the findings from five reviews to assess the effectiveness of PE and conducted meta-analyses on CD4 counts to identify the best PE regimen. PE is associated with reduced adiposity and depression, but was not associated with a decrease in HIV viral load. CD4 counts were improved by interventions with interval aerobic or 41-50 minutes of exercise three times per week compared with other modes and duration of exercise. PE appears to benefit PLHIV, but more research is needed to help develop appropriate PE strategies specifically for PLHIV.


End-of-life (EoL) care(1) is increasingly used as a generic term in preference to palliative care or terminal care, particularly with reference to individuals with chronic disease, who are resident in community and long-term care (LTC) settings. This review evaluates studies based on patient reported outcome measures (PROMs) of quality of EoL care across all health-care settings. From 1041 citations, 12 studies were extracted by searches conducted in EBSCO, Scopus, Web of Science, PubMed, Cochrane, Open Grey and Google Scholar databases. At present, the evidence base for EoL care is founded on cancer care. This review highlights the

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BACKGROUND: As antiretroviral therapy efficacy improves, HIV is gradually being recognized more as a chronic disease within the aging HIV-infected population. While these individuals are surviving into old age, they may, however, be experiencing "accelerated aging" with greater declines in physical function than that observed among comparably matched individuals free of HIV. This decline is not well understood and it remains unclear if physical decline correlates with the degree of immunosuppression based on CD4 lymphocyte nadir. METHODS: In a cross-sectional study of accelerated aging in the older HIV-infected population on antiretroviral therapy (ART), physical performance evaluations were completed on a cohort of 107 HIV-infected subjects, age 50 years or older (with no HIV-1 RNA >200 copies/mL in the prior 12 months), and compared to reference ranges for age- and gender-matched HIV-uninfected persons. Physical performance testing consisted of four validated assessments: the 2.4-meter walk, 30-second chair stand, grip strength and 6-minute walk test. RESULTS: When compared to age- and gender-matched HIV-uninfected reference controls, older HIV-infected persons had diminished physical function. No correlation was found between physical function and degree of immunosuppression as determined by pre-ART CD4 nadir. CONCLUSIONS: Despite improved survival, HIV-infected adults on suppressive ART have diminished physical function compared to HIV-uninfected persons. The degree of HIV-associated immunosuppression does not correlate with the observed degree of physical function decline in older HIV-infected persons, suggesting the decline is mediated by other mechanisms.


Engaging highly marginalized HIV positive people in sustained medical care is vital for optimized health and prevention efforts. Prior studies have found that strengths-based case management helps link people who use drugs to HIV care. We conducted a pilot to assess whether a strengths-based case management intervention may help people who use injection drugs (PWID) or smoke crack cocaine (PWSC) achieve undetectable HIV viral load. PWID and PWSC were recruited in Oakland, California using targeted sampling methods and referral from jails and were tested for HIV. HIV positive participants not receiving HIV care (n = 19) were enrolled in a pilot strengths-based case management intervention and HIV positive participants already in HIV care (n = 29) were followed as comparison participants. The intervention was conducted by a social worker and an HIV physician. Special attention was given to coordinating care as participants cycled through jail and community settings. Surveys and HIV viral load tests were conducted quarterly for up to 11 visits. HIV viral load became undetectable for significantly more participants in the intervention than in the comparison group by their last follow-up (intervention participants: 32% at baseline and 74% at last follow-up; comparison participants: 45% at baseline and 34% at last follow-up; p = 0.008). In repeated measures analysis, PBO intervention participants had higher odds of achieving undetectable viral load over time than comparison participants (p = 0.033). Strengths-based case management may help this highly vulnerable group achieve undetectable HIV viral load over time.


Background: Hospitalizations are an important indicator of healthcare quality and access for people with human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS). This study assesses hospitalization rates among people with HIV/AIDS in New York City. Methods: We performed a deterministic match between people in the New York City HIV surveillance registry alive as of 1 January 2013 and diagnosed with HIV as of 31 December 2013 and patient-level inpatient hospitalization records during 2013. Event-level data were analyzed to determine characteristics of and reasons for hospitalizations. Primary diagnoses were classified using the International Classification of Diseases, Ninth Revision, Clinical Modification. We estimated hospitalization rates as the number of hospitalizations per 100 person-years for all causes, AIDS-defining illnesses, and
non-AIDS-defining infections. Results: Nearly one-fifth of hospitalizations were attributed to non-AIDS-defining infections, whereas AIDS-defining illness diagnoses were infrequent (3.6% of hospitalizations). Other common causes were cardiovascular (10.9%) and substance use (9.8%). The estimated all-cause hospitalization rate was 36.7 per 100 person-years. Higher all-cause hospitalization rates were observed among females (46.8 per 100 person-years), Black and Latino/Hispanic people (41.8 and 39.5 per 100 person-years, respectively), people living in high-poverty neighborhoods (47.4 per 100 person-years), and people with a history of injection drug use (74.9 per 100 person-years). The estimated AIDS-defining illness and non-AIDS-defining infection hospitalization rates were 1.3 and 7.2 per 100 person-years, respectively. Conclusions: People with HIV in New York City were frequently hospitalized. While AIDS-defining illnesses were relatively rare, non-AIDS-defining infection hospitalizations were more common. Disparities in hospitalization rates indicate a need for targeted improved primary care and comorbid disease management.


Persons surviving to older ages with HIV/AIDS often face an accelerated aging accompanied by increased comorbidity and decline in health and function. In this chapter, we review the process of disablement among persons aging with HIV/AIDS, from chronic conditions to impairments and functional limitations, leading to disability. Chronic immune activation related to chronic HIV infection may contribute to early development of chronic conditions that are common in older adults resulting in premature disablement. Anatomical and physiological changes related to the aging process make people vulnerable to physical and cognitive impairments. In old age, quality of life depends mainly on avoidance and management of age-associated diseases rather than chronological parameters. Interventions to manage chronic conditions associated with aging may have a significant impact on quality of life in older persons with HIV infection. Because of the complexity of physical and cognitive impairments among persons aging with HIV infection, a range of supports and interventions will be needed to effectively address the problem of disablement in this population.


BACKGROUND: Clinical guidelines recommend immediate initiation of combined antiretroviral therapy for all HIV-positive individuals. However, those guidelines are based on trials of relatively young participants. METHODS: We included HIV-positive antiretroviral therapy-naive, AIDS-free individuals aged 50-70 years after 2004 in the HIV-CAUSAL Collaboration. We used the parametric $g$-formula to estimate the 5-year risk of all-cause and non-AIDS mortality under (1) immediate initiation at baseline and initiation at CD4 count, (2) <500 cells/mm, and (3) <350 cells/mm. Results were presented separately for the general HIV population and for a US Veterans cohort with high mortality. RESULTS: The study included 9596 individuals (28% US Veterans) with median (interquartile range) age of 55 (52-60) years and CD4 count of 336 (182-513) at baseline. The 5-year risk of all-cause mortality was 0.40% (95% confidence interval (CI): 0.10 to 0.71) lower for the general HIV population and 1.61% (95% CI: 0.79 to 2.67) lower for US Veterans when comparing immediate initiation vs initiation at CD4 <350 cells/mm. The 5-year risk of non-AIDS mortality was 0.17% (95% CI: -0.07 to 0.43) lower for the general HIV population and 1% (95% CI: 0.31 to 2.00) lower for US Veterans when comparing immediate initiation vs initiation at CD4 <350 cells/mm. CONCLUSIONS: Immediate initiation seems to reduce all-cause and non-AIDS mortality in patients aged 50-70 years.


The source and significance of residual low-level viremia (LLV) during combinational antiretroviral therapy (cART) remain a matter of controversy. It is unclear whether residual viremia depends on ongoing release of HIV from the latent reservoir or if viral replication contributes to LLV. We examined the relationship between adherence and LLV. Adherence was estimated by pharmacy refill and dichotomized as >/=95% or <95%. Plasma HIV-RNA was determined, with an ultrasensitive test having a limit of detection of 3 copies/mL at least 2 times over the follow-up period. Patients were grouped according to HIV-RNA over time as K<3: constantly <3 copies/mL; V<3: sometimes below or above the cutoff limit but always <50 copies/mL; K>3: constantly between 3 and 50 copies/mL; and V>50: a measure of >50 copies/mL minimum. Overall, 2789 patients were included. At each time point approximately 92% of the patients presented an HIV-RNA <50 copies/mL and two-thirds of those <3 copies/mL, 34.6% of patients
had <3 copies/mL constantly, 32.7% sometimes below or above the cutoff limit but always <50 copies/mL, 9.5% constantly between 3 and 50 copies/mL, and 23.2% a measure of >50 copies/mL minimum. The mean adherence rate was 92.1% (95% confidence interval [CI] from 91.1% to 93.1%) in K<3 patients, similar in V<3 patients (91.9%), but lowered to 88.8% in K>3 patients and to 88.4% in V>50 patients (P<0.0001). Approximately 55% of patients in groups K<3 and V<3 showed an adherence rate >/=95%; this proportion lowered to ~51% in K>3 and to 48% in V>50. Moreover, 34% of patients with a steady adherence <95% were categorized as K>3, whereas 21.7% of those with a drug holiday (21.7%) were observed in the V>50 group (P=0.002). A steady viral suppression can occur despite moderate cART non-adherence, but reduced adherence is associated with low-level residual viremia, which could reflect new rounds of HIV replication. However, a detectable HIV-RNA could also be detected in patients with optimal cART adherence, indicating additional mechanisms favoring HIV persistence.


OBJECTIVE: We examined the relationship between alcohol use trajectories and HIV disease severity among men and women participating in the Veterans Aging Cohort Study (VACS). DESIGN: Prospective cohort of HIV-infected persons in care at eight US Veterans Health Administration sites. METHODS: Between 2002 and 2010, we assessed alcohol consumption annually using the alcohol use disorders identification test-consumption (AUDIT-C). HIV disease severity was ascertained using the VACS index, a validated measure of morbidity and all-cause mortality. We examined the relationship between alcohol use and HIV disease severity patterns using joint trajectory modeling. Alcohol use trajectories were validated using phosphatidylethanol - a biomarker of alcohol consumption - measured between 2005 and 2006 among a subset of participants. We examined associations between membership in alcohol use and VACS index trajectories using multinomial regression. RESULTS: Among eligible participants, we identified four alcohol consumption trajectories: abstainers (24% of the sample), lower risk (44%), moderate risk (24%), and higher risk drinkers (8%). Alcohol use trajectories were highly correlated with phosphatidylethanol (Cramer's V = 0.465, P < 0.001): mean concentrations were 4.4, 17.8, 57.7, and 167.6 ng/ml in the abstainer, lower risk, moderate risk, and higher risk groups, respectively. Four VACS index trajectories were identified: low (2%), moderate (46%), high (36%), and extreme (16%). Higher risk drinkers were most common in the extreme VACS index group, and were absent in the low index group. In multivariable analysis, the association between alcohol use and VACS index trajectory membership remained significant (P = 0.002). CONCLUSION: Alcohol use trajectories characterized by persistent unhealthy drinking are associated with more advanced HIV disease severity among HIV-infected veterans in the United States.


Human beings are subjected to aging and age-associated diseases. Life expectancy has improved impressively in the last century due to social and economic development, but despite increasing improvement is still more limited than average in those ones with chronic diseases such as treated HIV infection. There has been a substantial research on the underlying factors responsible for aging both in the general and the HIV-infected populations. Several specific targets for potential intervention have been identified but studies so far have been limited to small experiments in cultured cells or living beings other than humans such as mice or flies. Time has come for designing and developing human studies with those candidate therapies showing most promising benefits and least potential toxicities to treat age-related diseases.


Background: delivering appropriate care for patients with multimorbidity and polypharmacy is increasingly challenging. Challenges for individual healthcare professions are known, but only little is known about overall healthcare team implementation of best practice for these patients. Objective: to explore current approaches to multimorbidity management, and perceived barriers and enablers to deliver appropriate medications management for community-dwelling patients with multimorbidity and
polypharmacy, from a broad range of healthcare professional (HCP) perspectives in Australia. Methods: this qualitative study used semi-structured interviews to gain in-depth understanding of HCPs’ perspectives on the management of multimorbidity and polypharmacy. The interview guide was based on established principles for the management of multimorbidity in older patients. HCPs in rural and metropolitan Victoria and South Australia were purposefully selected to obtain a maximum variation sample. Twenty-six HCPs, from relevant medical, dentistry, nursing, pharmacy and allied health backgrounds, were interviewed between October 2013 and February 2014. Fourteen were prescribers and 12 practiced in primary care. Interviews were digitally audio-taped, transcribed verbatim and analysed using a constant comparison approach. Results: most participants did not routinely use structured approaches to incorporate patients' preferences in clinical decision-making, address conflicting prescriber advice, assess patients' adherence to treatment plans or seek to optimise care plans. Most HCPs were either unaware of medical decision aids and measurements tools to support these processes or disregarded them as not being user-friendly. Challenges with coordination and continuity of care, pressures of workload and poorly defined individual responsibilities for care, all contributed to participants' avoiding ownership of multimorbidity management. Potential facilitators of improved care related to improved culture, implementation of electronic health records, greater engagement of pharmacists, nurses and patients, families in care provision, and the use of care coordinators. Conclusion: extensive shortcomings exist in team-based care for the management of multimorbidity. Delegating coordination and review responsibilities to specified HCPs may support improved overall care.


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.


This ongoing column is dedicated to providing information to our readers on managing legal risks associated with medical practice. We invite questions from our readers. The answers are provided by PRMS, Inc. (www.prms.com), a manager of medical professional liability insurance programs with services that include risk management consultation, education and onsite risk management audits, and other resources to healthcare providers to help improve patient outcomes and reduce professional liability risk. The answers published in this column represent those of only one risk management consulting company. Other risk management consulting companies or insurance carriers may provide different advice, and readers should take this into consideration. The information in this column does not constitute legal advice. For legal advice, contact your personal attorney.

Note: The information and recommendations in this article are applicable to physicians and other healthcare professionals so "clinician" is used to indicate all treatment team members.

OBJECTIVE: The goal of this pharmacist-led study was to utilize two validated instruments, Beers Criteria and Screening Tool of Older Persons’ Potentially Inappropriate Prescriptions (STOPP), to assess potentially inappropriate prescribing (PIP) in older patients infected with the human immunodeficiency virus (HIV) and evaluate pharmacist interventions. DESIGN: Prospective randomized interventional trial. SETTING: Large urban clinic providing interdisciplinary primary and HIV care for ~2700 HIV-positive publicly insured patients. DATA SOURCE: A computerized electronic record search was conducted for all patients who met the two search criteria: 50 years and older, and a primary care appointment within the last 12 months. PATIENTS: After identification of 857 patients meeting the search criteria, 324 patients were randomly selected and contacted, resulting in 248 patients assessed. MEASUREMENTS AND MAIN RESULTS: Patients had a mean age of 58 years, 71% male, 44% white, and a mean CD4 count of 536 cells/mm(3). Common comorbidities included hypertension (56%), depression (52%), asthma/chronic obstructive pulmonary disease (48%), dyslipidemia (39%), coronary artery disease (27%), and diabetes (22%). Patients sampled were prescribed a mean of 11.6 +/- 5.7 concomitant medications (excluding antiretrovirals) with 35% receiving at least 16 medications. PIP was identified in 54% and 63% of patients using the STOPP and Beers Criteria, respectively. Twenty-five contraindicated drug interactions were identified in 20 patients. After the pharmacist visit, at least 69% of patients had at least one medication discontinued with almost 10% having six or more medications discontinued. More than 40% of patients had at least one Beers or STOPP criteria that required immediate correction by the pharmacist. CONCLUSIONS: Results suggest that targeting individuals with 11 or more chronic medications would have the highest yield and greatest impact. Pharmacist-led review of medication prescribing using Beers and STOPP criteria revealed a large number of PIP, many amenable to immediate clinical pharmacist intervention.


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 outcomes. Seven of the studies found at least one R/S measure to have no significant association with outcomes. Though all of the studies included in this review focused on R/S experiences of PLWH, there was very little consistency in regard to measurement of R/S. Studies in this review included a wide range of R/S measures, including beliefs, religious/spiritual practices, R/S coping, organizational religion, and many more. Of the 33 studies reviewed, only 9 focused on unique populations such as women, people with histories of substance abuse, immigrants, etc. Findings from this review highlight opportunities for more studies in various populations using standardized R/S measures.


OBJECTIVE: Requiring only 10-15 minutes to complete, the UCSD Performance-Based Skills Assessment (UPSA-B) has high clinical utility as a brief measure of functional capacity. This study aimed to validate the UPSA-B in adults living with HIV/AIDS (HIV+),
and identify whether the UPSA-B can be used as an indicator of functional dependence in this population. METHOD: One hundred and three HIV+ adults and 91 HIV- adults completed a comprehensive neuropsychological and neuromedical battery, including a self-report measure of functional status (IADL Dependence vs. IADL Independence), an objective measure of functional capacity (UPSA-B), and a self-report measure of mood states including a subscale related to cognitive difficulties (Profile of Mood States [POMS]-Confusion/Bewilderment subscale). RESULTS: HIV+ participants had significantly lower UPSA-B scores than their HIV- counterparts (p = 0.02), although this fell to a trend (p = 0.08) when including covariates. Among the HIV+ group, higher UPSA-B scores were related to better neuropsychological ability, but unrelated to self-reported functional independence. Conversely, UPSA-B scores were unrelated to participant-reported cognitive difficulties on the POMS Confusion/Bewilderment subscale. An ROC curve was generated to determine the optimal UPSA-B value for discriminating between normal neuropsychological functioning versus neuropsychological impairment, with results indicating an optimal cutoff of 79. The UPSA-B identified HIV+ persons with cognitive impairment with 70.9% accuracy. CONCLUSIONS: The UPSA-B was able to differentiate neuropsychological impairment from no impairment among HIV+ participants and holds promise as a clinical screening tool in this population. However, indicators of functional disability among adults living with HIV is still not well understood and is likely multifactorial in nature. These data highlight the complex interplay between objective functional capacity, neurocognitive ability, subjective cognitive symptoms, and functional dependence.


The objective of this article is to document factors associated with the recency of health-care service utilization by people aged 50 years and over living with and without HIV in Uganda. A survey was conducted with 510 Ugandans aged 50 and older, living with and without HIV. The survey included information on sociodemographic characteristics, health state, self-reported chronic conditions, and timing of most recent visit to a health-care facility (time since last visit [TSLV]). We use ordinal logistic regression to identify independent factors associated TSLV. Independent factors associated with TSLV (>6 months) include age, OR = 2.40 [95% CI 1.08-5.37] for those aged 80 years and above, urban respondents, OR = 0.6 [95%CI 0.38-0.94], HIV-positive respondents, OR = 0.33 [95%CI 0.18-0.59], and better health. To understand the meaning of these finding, further investigation should examine (a) how best to define and measure older persons’ health-care service needs and (b) older persons’ decision-making processes around the timing of their access to health-care facilities.


Transgender (trans) women have been particularly impacted by HIV. To seek insights into the dynamics of health service utilization, interviews were conducted with trans women living with HIV (n = 14) as part of the Trans PULSE community-based research project in Ontario, Canada. Service providers (n = 10) were also interviewed to provide additional details about communication between trans women, social service providers, and clinicians. Results highlight how both problematic interactions with individuals and health systems navigation challenges affect access to services and impede the development of trans-specific HIV supports. Participants described discrimination, identified strategies for navigating a dysfunctional system, and outlined specific ways in which health and social services may be failing trans women living with HIV. Findings support the importance of coordinating HIV services and transition-related care, and providing training for service providers.


INTRODUCTION: The success of antiretroviral therapy has led to dramatic changes in causes of morbidity and mortality among U.S. Veterans with human immunodeficiency virus (HIV). Among the 25,000 Veterans treated for HIV, 70% are over age 50 and the rate of obesity has doubled in this population. Veterans with HIV have a 50% increased risk of myocardial infarction yet have limited presence in prevention-related programs designed to lower cardiovascular disease risk. METHODS: This mixed methods study (focus groups, Schwarzer and Renner physical activity, and nutrition self-efficacy questionnaires) was used to explore factors related to health behavior and identify barriers that overweight Veterans with HIV face in enrolling in the MOVE weight
management program. Institutional review board approval was granted before the start of the study. All participants were recruited from the Infectious Disease clinic if they met national inclusion criteria for the MOVE weight management program and had not previously participated in the program. Transcribed audio recordings were independently analyzed and coded by four of the researchers using an exploratory process to obtain consensus regarding themes. An interrater reliability analysis for the Kappa statistic was performed to determine consistency among raters. The relationship between physical activity self-efficacy scores and nutrition self-efficacy scores was tested using Spearman's correlation coefficient. RESULTS: The median age of the sample was 56 with high rates of diabetes (36%), hypertension (73%), hyperlipidemia (36%), and tobacco use history (82%). External barriers to participation were discussed in addition to 8 other themes, which influence treatment engagement for Veterans with obesity and HIV including adaptation, stigma, self-management, and support. Veterans held strong beliefs about responsibility and commitment to their health and wanted to assume an active and informed role in their health care. Veterans with high levels of perceived self-efficacy indicated intention to overcome barriers to improve their nutrition and increase their physical activity. Refer to the full manuscript online to see the results in tables. CONCLUSIONS: Despite the chronic life-threatenning nature of their condition, Veterans with HIV display a remarkable ability to adapt and commit to their treatment regimen. However, the dual stigma of obesity and HIV was a significant barrier to participation in weight management. This group placed high value on exercise over eating healthier and the importance of social support particularly from their Veteran peers. Focus groups allowed for fluid interaction between group members and researchers, rich conversation, and allowed additional clarification and exploration of topics. One unanticipated effect of the focus groups was that participants may feel less isolated after being a part of the discussion and may develop supportive relationships with their peers. It is possible that participants demonstrated more positive behavioral adaptation or other possible sources of bias. The study findings provide insight into health beliefs and barriers to weight management for all populations struggling with chronic disease and stigma. Data collected will inform future recruitment and retention strategies to engage Veterans with HIV in prevention-related programs designed to enhance long-term health and wellness.


Objectives HIV infection became a chronic illness. People can live with it for many years, with multiple comorbid conditions, frailty syndrome, and polypharmacy. Infected persons may require admission to a nursing home (NH) younger than geriatric patients because of their underlying medical and social status.

Method We decided to conduct a survey in 53 randomly selected NHs in three French departments. The main issue was to understand the challenges and obstacles regarding admission to a NH.

Results Overall, 49 physician questionnaires and 201 staff questionnaires were collected from 53 NHs. Only four physicians (8.2%) had already admitted HIV residents to their NH. More than three-quarters of staff agreed to admit HIV patients without restriction (67.2%) or with restrictions (13.4%). The lack of formal teaching/training and the staff/resident concerns about contamination were the two main reasons to refuse infected patients entry. Almost one out of three physicians (28.6%) and two-thirds (64.2%) of staff members indicated that HIV education was necessary.

Conclusion Our study shows that nearly one-third of the NHs staff has reservations about the admission of HIV-positive patients. Nowadays healthcare workers in geriatric care are unaware of the latest developments regarding HIV, not only the medical but also the social aspects, and the consequences for the HIV-infected patient. We therefore must turn our efforts to staff training, particularly on the mode of transmission of the virus and the positive impact of treatment in decreasing the risk of HIV transmission to improve NH access to HIV-positive patients.


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.


INTRODUCTION: HIV-exposed, uninfected (HEU) infants are potentially at risk for cardiovascular disease due to in utero exposures. Feeding practices of the infant could compound this risk. Few studies have, however, evaluated dietary intake of HEU infants. We determined dietary factors associated with rapid weight gain (RWG) among HEU infants from birth to 6 months followed at the University of Miami HIV Screening Program. METHODS: In this cross-sectional analysis, logistic regression was used to determine dietary factors associated with RWG defined as a >0.67 SD change in weight-for-age z score from birth to assessment (0.3-6 months). Other covariates included demographics, birth, maternal and gestational characteristics, and antiretroviral exposures. RESULTS: A total of 86 full-term HEU infants with a mean age of 3.4 months (SD 1.8 months) were included in this analysis. Fifty-five percent of mothers were obese. Overall, 39.5% of infants exhibited RWG. A significant association between consumption of infant cereal and RWG (odds ratio, 3.52; 95% confidence interval, 1.02-12.10) was found after adjusting for birth weight, current age, and energy intake. Those infants who consumed the highest tertile of protein were less likely to gain weight rapidly after adjusting for the same covariates (odds ratio, 0.15; 95% confidence interval, 0.02-0.94). CONCLUSIONS: Overall differences in weight gain during early infancy are at least partly explained by means of infant feeding in young HEU infants in the United States. Dietary counseling for families of HEU should reinforce current feeding practice recommendations of the American Academy of Pediatrics.


People living with HIV (PLWH) on antiretroviral therapy (ART) who use substances were examined to (a) describe those with virologic control and (b) determine which substance use-factors are associated with lack of virologic control. Participants were adult PLWH taking ART with either past 12-month DSM-IV substance dependence or past 30-day alcohol or illicit drug use. Substance use factors included number of DSM-IV alcohol or drug dependence criteria and past 30-day specific substance use. Associations with HIV viral load (HVL) (<200 vs. >/=200 copies/mL) were tested using logistic regression models. Multivariable analyses adjusted for age, sex, homelessness and anxiety or depression. Participants (n = 202) were median age 50 years, 66% male, 51% African American and 75% self-reported >/=90% past 30-day ART adherence. Though HVL suppression (HVL <200 copies/mL) was achieved in 78% (158/202), past 30-day substance use was common among this group: 77% cigarette use; 51% heavy alcohol use; 50% marijuana; 27% cocaine; 16% heroin; and 15% illicit prescription opioid use. After adjusting for covariates, specific substance use was not associated with a detectable HVL, however number of past 12-month DSM-IV drug dependence criteria was (adjusted odds ratio = 1.23 for each additional criterion, 95% CI: 1.04-1.46). Three-quarters of a substance-using cohort of PLWH receiving ART had virologic control and >/=90% ART adherence. Substance dependence criteria (particularly drug dependence), not specifically substance use, were associated with lack of virologic control. Optimal HIV outcomes can be achieved by individuals who use alcohol or drugs and addressing symptoms of substance dependence may improve HIV-related outcomes.


Antiretroviral therapy has revolutionized the care of people with human immunodeficiency virus (HIV) by reducing morbidity and mortality from acquired immunodeficiency syndrome-related conditions. Despite longer life expectancy, however, HIV-infected individuals continue to have a higher risk of death compared with the general population. This has been attributed to the increasing incidence of noncommunicable diseases, in particular, atherosclerotic cardiovascular diseases. This is driven, in part,
by the emergence of metabolic disorders, particularly dyslipidemia, insulin resistance, and lipodystrophy, in those on antiretroviral therapy. The pathogenesis of these metabolic derangements is complex and multifactorial, and could be a consequence of an interplay between traditional age-related risk factors, HIV infection, antiretroviral therapy effects, and the inflammatory state and immune activation in this population. Understanding the contributions of each of these factors could not just impact the current management of these individuals and help mitigate the risk for premature cardiovascular disease, but also shape the future direction of research in HIV.


Depression is highly prevalent among people living with HIV (PLWH). It can negatively impact quality of life, medication adherence, and clinical progression of the disease. This study tested the effect of a single bout of bodyweight resistance exercise on affective valence and perceived activation (i.e., perceived fatigue) in PLWH with depressive symptoms. Using a within-subject design, 10 participants ages 33–61 with a Center for Epidemiologic Depression Scale (CES-D) score of ≥10 completed two 20-min randomized cross-over sessions separated by one week: (1) a 20-min bout of bodyweight resistance exercise; and (2) a 20-min informational video control. Affective valence and perceived activation were measured with the Feeling Scale and the Felt Arousal Scale, respectively. Both were administered at baseline, during exercise, immediately post, and after a 10-min delay. Changes were analyzed using repeated measures Analysis of Variance (ANOVA) with significance level set at 0.05. Significant differences over time were found in both affect (F = 2.63, p = 0.05) and perceived activation (F = 7.40, p < 0.001) between the two conditions, with greater improvements in resistance exercise compared to the control. The effect sizes were moderate for affect (η2 = 0.06) and large for perceived activation (η2 = 0.10). This is the first study to show that a single bout of bodyweight resistance exercise has positive effects on affect and perceived activation in PLWH who report having depressive symptoms. Future research exploring the practical utility of bodyweight resistance exercise for the management of negative mood states and depression-associated fatigue in this population is warranted.

- Effects of bodyweight resistance exercise were examined in a depressed HIV sample.
- Affect improved immediately following exercise and after a delay.
- Perceived arousal improved throughout exercise and after a delay.
- Bodyweight resistance exercise may help reduce acute depressive states for those with HIV.


BACKGROUND: HIV is increasingly considered a chronic illness. More individuals are living longer and aging with the health-related consequences associated with HIV and multi-morbidity. Exercise is a self-management approach that can promote health for people aging with HIV. We examined the safety and effectiveness of progressive resistive exercise (PRE) interventions on immunological, virological, cardiorespiratory, strength, weight, body composition, and psychological outcomes in adults living with HIV. METHODS: We conducted a systematic review using the Cochrane Collaboration protocol. Searching databases up to April 2013, we included randomized controlled trials that compared PRE with no exercise or another intervention performed at least three times per week for at least four weeks with adults living with HIV. Two reviewers independently determined study eligibility. We extracted data from included studies and assessed risk of bias using the Cochrane Collaboration risk of bias tool. Meta-analyses were conducted using random effects models with Review Manager (RevMan) computer software. RESULTS: Twenty studies met inclusion criteria (n = 764 participants at study completion); the majority of participants were men (77%) taking antiretroviral therapy (14/20 included studies). Exercise interventions included PRE alone (8 studies) or a combination of resistive and aerobic exercise (12 studies) ranging from 6 to 52 weeks in duration. Thirty-four meta-analyses were performed. Results demonstrated statistically significant improvements in cardiorespiratory status (maximum oxygen consumption, exercise time), strength (chest press, knee flexion), weight, and body composition (arm and thigh girth, leg muscle area) among exercisers versus non-exercisers. We found no significant differences in change in CD4 count and viral load. We were unable to perform meta-analyses for psychological outcomes however results from individual studies demonstrated improvements in health-related quality of life with exercisers compared with non-exercisers. CONCLUSIONS: Performing progressive resistive exercise (PRE) or a combination of resistive and aerobic exercise at least three times per week for at least six weeks is safe and can lead to improvements in cardiorespiratory fitness, strength, weight,
and body composition for adults with HIV. Exercise may be considered a safe and beneficial for enhancing the health of medically stable adults aging with HIV.


In the modern antiretroviral (ARV) era, there is limited knowledge about the prevalence and risk factors for HIV patient-reported gastrointestinal (GI) symptoms (diarrhoea/soft stool, nausea/vomiting, bloating/painful abdomen, loss of appetite, and weight loss/wasting) and distress. We prospectively analysed data (2007-2014) on distressing GI symptoms from the Ontario HIV Treatment Network Cohort Study, which follows people attending HIV clinics. Using generalized estimating equations with a logit link, we estimated the associations of psychosocial, demographic, behavioural, and clinical factors with each GI symptom compared to asymptomatic and non-bothersome symptoms. Among 1532 included participants, 80.4% were male, mean age was 45 years, and 64.6% reported being men who have sex with men. Most were Caucasian (56.3%), a median time since HIV diagnosis of 9.8 years (interquartile range (IQR): 4.1-16.9), and 83.1% were on ARV. More than two-thirds (68.7% (95% confidence intervals (CI): 63.1% to 69.2%)) reported one or more symptoms with a median of 1.2 (IQR: 0-1.7). The proportion remained stable over time since HIV diagnosis and ARV initiation. Risk factors varied for multivariable models. A strong association with Centre for Epidemiologic Studies Depression scale scores of >/=23 was found for all symptoms. Adjusted odds ratios (95% CI) were 1.72 (1.39-2.12), 2.95 (2.33-3.72), 2.20 (1.81-2.68), 4.97 (3.99-6.19), and 2.98 (2.52-3.82) for diarrhoea, nausea/vomiting, bloating, loss of appetite, and weight loss, respectively. With the exception of bloating, odds were significantly lower for those on ARV containing integrase inhibitors and greater for patients reporting current cannabis use. GI symptoms in the modern ARV era are highly prevalent and may arise as a common pathway of distress in response to psychosocial vulnerabilities, regardless of the stage of diagnosis. These findings support the need for integrated approaches to address psychological and physical distress in HIV disease.


Valerie U Oji,1–3 Leslie C Hung,3 Reza Abbasgholizadeh,1,4 Flora Terrell Hamilton,5 E James Essien,6 Evaristus Nwulia7 1Lifefountain Center Ministries Inc, Houston, TX, USA; 2Feik School of Pharmacy, University of the Incarnate Word, San Antonio, TX, USA; 3University of Texas, College of Pharmacy, Austin, TX, USA; 4University of Houston, Houston, TX, USA; 5Administration, Family & Medical Counseling Service, Inc. (FMCS), Washington, DC, USA; 6University of Houston Institute for Community Health, Houston, TX, USA; 7Psychiatry, Howard University Translational Neuroscience Laboratory, Washington, DC, USA: Objective: To explore a potential role for spirituality in medication-related needs assessment for integrated care in chronically ill populations. Method: A systematic literature review was conducted to explore the impact of faith beliefs on health and/or medication adherence in individuals with depression and/or HIV/AIDS. Retrospective electronic medical record review of adult HIV+ patients of an urban primary care clinic with integrated mental health services was conducted, with Substance Abuse and Mental Illness Symptoms Screener (SAMISS), major depressive disorder (MDD) incidence over the preceding year, and history of contact with a spiritual advisor. A convenience sample was interviewed to qualitatively assess potential medication therapy management needs and medication-related problems. Another sample was examined utilizing the Daily Spiritual Experience Scale. Results: The literature reports positive influence on health behaviors, coping and outcomes; and poor medication adherence and treatment decisions due to patient passivity or resistance. Spiritual advisor contact (not limited to a specific religion) was significantly associated with MDD absence (1.7% vs. 15.3%, P<0.005) and inversely related to SAMISS, depression, and poor health behaviors. Patient interviews reflected significance of faith in terms of insight and acceptance of illness, the role or need for medications, coping, and medication adherence. An illustrative model was designed based on the literature and data collection. Conclusion: Spiritual assessment may help identify positive or negative influence on health. Spiritual interventions could be beneficial in promoting adherence and positive health outcomes. Further research is recommended. Keywords: HIV+/AIDS, mental Illness, depression, spirituality and health, African Americans

health insurance coverage. However, millions of adults remain uninsured or underinsured. Compared with adults without barriers to health care, adults who lack health insurance coverage, have coverage gaps, or skip or delay care because of limited personal finances might face increased risk for poor physical and mental health and premature mortality. Period Covered: 2014. Description of System: The Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing, state-based, landline- and cellular-telephone survey of noninstitutionalized adults aged =18 years residing in the United States. Data are collected from states, the District of Columbia, and participating U.S. territories on health risk behaviors, chronic health conditions, health care access, and use of clinical preventive services (CPS). An optional Health Care Access module was included in the 2014 BRFSS. This report summarizes 2014 BRFSS data from all 50 states and the District of Columbia on health care access and use of selected CPS recommended by the U.S. Preventive Services Task Force or the Advisory Committee on Immunization Practices among working-aged adults (aged 18-64 years), by state, state Medicaid expansion status, expanded geographic region, and federal poverty level (FPL). This report also provides analysis of primary type of health insurance coverage at the time of interview, continuity of health insurance coverage during the preceding 12 months, and other health care access measures (i.e., unmet health care need because of cost, unmet prescription need because of cost, medical debt [medical bills being paid off over time], number of health care visits during the preceding year, and satisfaction with received health care) from 43 states that included questions from the optional BRFSS Health Care Access module. Results: In 2014, health insurance coverage and other health care access measures varied substantially by state, state Medicaid expansion status, expanded geographic region (i.e., states categorized geographically into nine regions), and FPL category. The following proportions refer to the range of estimated prevalence for health insurance and other health care access measures by examined geographical unit (unless otherwise specified), as reported by respondents. Among adults with health insurance coverage, the range was 70.8%-94.5% for states, 78.8%-94.5% for Medicaid expansion states, 70.8%-89.1% for nonexpansion states, 73.3%-91.0% for expanded geographic regions, and 64.2%-95.8% for FPL categories. Among adults who had a usual source of health care, the range was 57.2%-86.6% for states, 57.2%-86.6% for Medicaid expansion states, 61.8%-83.9% for nonexpansion states, 64.4%-83.6% for expanded geographic regions, and 61.0%-81.6% for FPL categories. Among adults who received a routine checkup, the range was 52.1%-75.5% for states, 56.0%-75.5% for Medicaid expansion states, 52.1%-71.1% for nonexpansion states, 56.8%-70.2% for expanded geographic regions, and 59.9%-69.2% for FPL categories. Among adults who had unmet health care need because of cost, the range was 8.0%-23.1% for states, 8.0%-21.9% for Medicaid expansion states, 11.9%-23.1% for nonexpansion states, 11.6%-20.3% for expanded geographic regions, and 5.3%-32.9% for FPL categories. Estimated prevalence of cancer screenings, influenza vaccination, and having ever been tested for human immunodeficiency virus also varied by state, state Medicaid expansion status, expanded geographic region, and FPL category. The prevalence of insurance coverage varied by approximately 25 percentage points among racial/ethnic groups (range: 63.9% among Hispanics to 88.4% among non-Hispanic Asians) and by approximately 32 percentage points by FPL category (range: 64.2% among adults with household income <100% of FPL to 95.8% among adults with household income >400% of FPL). The prevalence of unmet health care need because of cost varied by nearly 14 percentage points among racial/ethnic groups (range: 11.3% among non-Hispanic Asians to 25.0% among Hispanics), by approximately 17 percentage points among adults with and without disabilities (30.8% versus 13.7%), and by approximately 28 percentage points by FPL category (range: 5.3% among adults with household income >400% of FPL to 32.9% among adults with household income <100% of FPL). Among the 43 states that included questions from the optional module, a majority of adults reported private health insurance coverage (63.4%), followed by public health plan coverage (19.4%) and no primary source of insurance (17.1%). Financial barriers to health care (unmet health care need because of cost, unmet prescription medication need because of cost, and medical bills being paid off over time [medical debt]) were typically lower among adults in Medicaid expansion states than those in nonexpansion states regardless of source of insurance. Approximately 75.6% of adults reported being continuously insured during the preceding 12 months, 12.9% reported a gap in coverage, and 11.5% reported being uninsured during the preceding 12 months. The largest proportion of adults reported 2 visits to a health care professional during the preceding 12 months (47.3%), followed by 1-2 visits (37.1%), and no health care visits (15.6%). Adults in expansion and nonexpansion states reported similar levels of satisfaction with received health care by primary source of health insurance coverage and by continuity of health insurance coverage during the preceding 12 months. Interpretation: This report presents for the first time estimates of population-based health care access and use of CPS among adults aged 18-64 years. The findings in this report indicate substantial variations in health insurance coverage; other health care access measures; and use of CPS by state, state Medicaid expansion status, expanded geographic region, and FPL category. In 2014, health insurance coverage, having a usual source of care, having a routine checkup, and not experiencing unmet health care need because of cost were higher among adults living below the poverty level (i.e., household income <100% of FPL) in states that expanded Medicaid than in states that did not. Similarly, estimates of breast and cervical cancer screening and influenza vaccination were higher among adults living below the poverty level in states that expanded Medicaid than in states that did not. These disparities might be due to larger differences to begin with, decreased disparities in Medicaid expansion states versus
nonexpansion states, or increased disparities in nonexpansion states. Public Health Action: BRFSS data from 2014 can be used as a baseline by which to assess and monitor changes that might occur after 2014 resulting from programs and policies designed to increase access to health care, reduce health disparities, and improve the health of the adult population. Post-2014 changes in health care access, such as source of health insurance coverage, attainment and continuity of coverage, financial barriers, preventive care services, and health outcomes, can be monitored using these baseline estimates. [ABSTRACT FROM AUTHOR]


BACKGROUND: Human Immunodeficiency Virus positive subjects present impairment in muscle function, neural activation, balance, and gait. In other populations, all of these factors have been associated with muscle strength asymmetry. OBJECTIVE: To investigate the existence of muscle strength asymmetry between dominant and non-dominant lower limbs and to determine the hamstrings-to-quadriceps strength ratio in Human Immunodeficiency Virus positive subjects. METHODS: In this cross-sectional study, 48 subjects were included (22 men and 26 women; mean age 44.6 years), all of them under highly active antiretroviral therapy. They performed isokinetic strength efforts at speeds of 60 degrees /s and 180 degrees /s f or knee extension and flexion in concentric-concentric mode. RESULTS: Peak torque was higher (p<0.01) at 60 degrees /s for quadriceps (193, SD=57 vs. 173, SD=55% body mass) and hamstrings (97, SD=36 vs. 90, SD=37% body mass) in dominant compared to non-dominant. Similarly, peak torque was higher at 180 degrees /s (quadriceps 128, SD=44 vs. 112, SD=42; hamstrings 64, SD=24 vs. 57, SD=26% body mass) in dominant. Average power was also higher for all muscle groups and speeds, comparing dominant with non-dominant. The hamstrin gs-to-quadriceps ratio at 60 degrees /s was 0.50 for dominant and 0.52 for non-dominant, and at 180 degrees /s, it was 0.51 for both limbs, with no significant difference between them. The percentage of subjects with strength asymmetry ranged from 46 to 58%, depending upon muscle group and speed analyzed. CONCLUSION: Human Immunodeficiency Virus positive subjects present muscle strength asymmetry between lower limbs, assessed through isokinetic dynamometry.


CONTEXT: Improving retention in care is a key element of the National HIV/AIDS Strategy (NHAS). However, definitions for measuring retention in care are not standardized. OBJECTIVE: To compare measures of retention based on both clinic visit data and HIV laboratory surveillance data. DESIGN: Retrospective cohort study. SETTING: New York City (NYC), New York. PARTICIPANTS: We matched adult patients with HIV infection seen at the Spencer Cox Center for Health (SCC) in 2010 or 2011 with the NYC HIV Surveillance Registry. MAIN OUTCOME MEASURES: Retention in care was measured on the basis of SCC electronic medical record (EMR) data (>1 medical visits in 2012) and Surveillance Registry data (>2 CD4/viral load [VL] tests >/=90 days apart in 2012). RESULTS: There were 5746 adult HIV-infected patients seen at SCC between 2010 and 2011 who matched with the Surveillance Registry. Seventy-eight percent (n = 4469) had 1 or more medical visits at SCC in 2012 and were considered retained on the basis of the EMR definition, among which 3831 (86%) met the surveillance definition for retention in care. Patients who did not have a medical visit at SCC in 2012 (n = 1277) were lost to care in NYC (n = 485; 36%), engaged in care at an alternate provider (n = 622; 49%), or died after their last SCC visit (n = 197; 15%). IMPLICATIONS: This study is an important comparison of laboratory surveillance versus clinic visit-based measures of retention in care in an urban setting with the largest HIV epidemic in the country. Collaborative projects between local health departments and clinical care providers can help validate the care status of patients and inform the allocation of resources to reengage patients who are lost to care. CONCLUSION: The combined use of laboratory and clinic visit-based data to measure retention in care provides a more accurate representation of the care status of HIV-infected patients than use of a single data source alone. Routine sharing of data by public health institutions and clinical care providers would help target resources toward reengaging patients who are lost to care in jurisdictions with universal HIV-related laboratory reporting.

BACKGROUND: Raltegravir (RAL) is considered one of the better-tolerated antiretroviral medications, due to limited side effects and minimal drug-drug interactions. Materials and Methods: We retrospectively evaluated 96 HIV+, over 60 years old, experienced patients who had switched from any antiretroviral drug to raltegravir-based nucleoside-sparing or standard nucleoside-backbone regimens. A control group with patients aged under 60 years old was included. RESULTS: The median age of the patients was 66 years (IQR 10.5) (77 M, 19 F); the median time horizon of follow-up was 4 years (IQR 5). HIV-RNA at baseline was undetectable for more than 6 months in most of the patients. Median CD4+ count was 453 cells/mmc (IQR 379). 49 patients had AIDS history. All the patients were assuming concomitant medications. No adverse effect attributed to the use of raltegravir was reported in the medical records. Only 2 patients presented virological failure, whereas viremic blips were observed in 10 patients. After switching to RAL-containing regimens triglycerides values showed a statistically significant reduction from a median value of 172 (IQR 105.5) mg/dl to 129 mg/dl (IQR 73) (p=0.0001). Switching to a standard regimen was associated with a marked reduction of triglycerides. Cholesterol levels were reduced at the time of follow-up (T2) but no significant modifications were observed when patients which had introduced drugs to treat dyslipidemia were removed from the analysis; in contrast, triglycerides reduction was also confirmed in this sub-group. Patients presented higher levels of CD4+ at T2 and reduced platelet count [from 230 300/mmc (SD 123 527) to 197 125/mmc (SD 66 377), p=0.04]. Similar trends were observed in younger patients. CONCLUSION: RAL-containing regimens are safe and highly effective in the older population. RALtreatment is associated with the reduction of triglycerides and platelets count in the older population.


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.


Fatigue is a subjective, unpleasant, potentially disabling symptom rooted in physiological, psychological, and behavioral causes. People living with HIV are a population highly affected by fatigue due to risk factors associated with HIV-infection, treatment, and psychosocial disease burden. People with HIV are living longer, and are facing the challenge of a longer disease trajectory. Palliative nurses with expertise in symptom management can play a crucial role in helping people with HIV to engage in health behaviors that prevent or mitigate fatigue. In this paper we present a definition and overview of fatigue, describe the problem of fatigue in people living with HIV, and present a case study that illustrates the role of the palliative nurse in helping a person with HIV to cope with fatigue.


Objective:: Identify the rate and predictive factors of the hospitalization of people living with HIV/AIDS (PLHA), aged 50 years or older. Method:: A quantitative, cross-sectional study was conducted at two inpatient units specialized in infectious diseases in a teaching hospital. Data were gathered through individual interviews between August 2011 and February 2015. All ethical precepts were followed. Results:: Of the 532 admitted patients, 95 were PLHA 50 years old or older; 30.5% were admitted 3 to 4 times after being diagnosed with HIV/AIDS. Conclusion:: Rate of hospitalization was 17.8%, and being 50 to 60 years old was a protective factor against hospitalization. Objetivo:: Identificar a taxa e os fatores preditores para a hospitalização de pessoas vivendo com HIV/Aids (PVHA), com idade igual ou superior a 50 anos. Metodo:: Estudo quantitativo, transversal, realizado em duas unidades
de internações especializadas em cuidados de doenças infecciosas, de um hospital universitário. A coleta de dados foi realizada por meio de entrevista individual, no período de agosto de 2011 a fevereiro de 2015. Todos os preceitos éticos foram contemplados.

Resultados: Das 532 internações, 95 eram de PVHA com idade igual ou superior a 50 anos; 56,8% receberam o diagnóstico de HIV/AIDS antes de terem completado 50 anos de idade; 30,5% foram hospitalizadas de 3 a 4 vezes após o diagnóstico da infeccão pelo HIV/AIDS. Conclusão: A taxa de hospitalização foi de 17,8%, e a faixa etária de 50 a 60 anos foi fator de proteção para a hospitalização.


OBJECTIVES: To study the effects of person-centred care provided to patients with acute coronary syndrome, using four different health-related outcome measures. Also, to examine the performance of these outcomes when measuring person-centred care. DATA AND METHOD: The data used in this study consists of primary data from a multicentre randomized parallel group, controlled intervention study for patients with acute coronary syndrome at Sahlgrenska University Hospital in Gothenburg, Sweden. The intervention and control group consisted of 94 and 105 patients, respectively. The effect of the intervention on health-related outcomes was estimated, controlling for socio-economic and disease-related variables. RESULTS: Patients in the intervention group reported significantly higher general self-efficacy than those in the control group six months after intervention start-up. Moreover, the intervention group returned to work in a greater extent than controls; their physical activity level had increased more and they had a higher EQ-5D score, meaning higher health-related quality of life. These latter effects are not significant but are all pointing towards the beneficial effects of person-centred care. All the effects were estimated while controlling for important socio-economic and disease-related variables. CONCLUSION: The effectiveness of person-centred care varies between different outcomes considered. A statistically significant beneficial effect was found for one of the four outcome measures (self-efficacy). The other measures all captured beneficial, but not significant, effects.


High HIV viral load (VL >100,000 cp/ml) is associated with increased HIV transmission risk, faster progression to AIDS, and reduced response to some antiretroviral regimens. To better understand factors associated with high VL, we examined characteristics of patients presenting for treatment in Hanoi, Vietnam. We examined baseline data from the Viral Load Monitoring in Vietnam Study, a randomized controlled trial of routine VL monitoring in a population starting antiretroviral therapy (ART) at a clinic in Hanoi. Patients with prior treatment failure or ART resistance were excluded. Characteristics examined included demographics, clinical and laboratory data, and substance use. Logistic regression was used to calculate crude and adjusted odds ratios (aOR) and 95% confidence intervals (95% CI). Out of 636 patients, 62.7% were male, 72.9% were >/=30 years old, and 28.3% had a history of drug injection. Median CD4 was 132 cells/mm3, and 34.9% were clinical stage IV. Active cigarette smoking was reported by 36.3% with 14.0% smoking >10 cigarettes per day. Alcohol consumption was reported by 20.1% with 6.1% having >/=5 drinks per event. Overall 53.0% had a VL >100,000 cp/ml. Male gender, low body weight, low CD4 count, prior TB, and cigarette smoking were associated with high VL. Those who smoked 1-10 cigarettes per day were more likely to have high VL (aOR = 1.99, 95% CI = 1.15-3.45), while the smaller number of patients who smoked >10 cigarettes per day had a non-significant trend toward higher VL (aOR = 1.41, 95% CI = 0.75-2.66). Alcohol consumption was not significantly associated with high VL. Tobacco use is increasingly recognized as a contributor to premature morbidity and mortality among HIV-infected patients. In our study, cigarette smoking in the last 30 days was associated with a 1.5 to 2-fold higher odds of having an HIV VL >100,000 cp/ml among patients presenting for ART. These findings provide further evidence of the negative effects of tobacco use among HIV-infected patients.


One in three people with HIV in the UK is over 50, representing part of the fastest growing group of people living with HIV.
Among younger men who have sex with men (MSM), the incidence of HIV is rising nationally. Of the 281 persons who entered into care at a large HIV clinic in the southeastern United States in 2010 to 2012, 78 (27.8%) were <25 years old at the time of diagnosis. Those in the younger group were more likely than those aged ≥25 to be black (59.0% versus 37.4%), MSM (78.2% versus 55.2%), and to have a longer median time from diagnosis to entry into care (71 versus 53 days; P < .05 each). In adjusted survival analysis, persons of black race were less likely to enter care after diagnosis than those of nonblack race (hazard ratio = 0.75, P = .02). Young MSM represent an important target population for prevention and HIV testing interventions, and there is a need to shorten the time from diagnosis to linkage to care, particularly in persons aged <25 and of black race.

In the first part of this review, the nature of the associations between alcohol use and HIV/AIDS is discussed. Alcohol use has been found to be strongly associated with incidence and progression of HIV/AIDS, but the extent to which this association is causal has traditionally remained in question. Experiments where alcohol use has been manipulated as the independent variable have since helped establish a causal effect of alcohol use on the intention to engage in condomless sex. As the intention to engage in condomless sex is a surrogate measure of actual condom use behavior, which itself is linked to HIV incidence and re-infection, the causal chain has been corroborated. Moreover, there are biological pathways between alcohol use and the course of HIV/AIDS, only in part being mediated by adherence to antiretroviral medication. In the second part of the contribution, we provide suggestions on the quantification of the link between alcohol use and HIV incidence, using risk relations derived from experimental data. The biological links between alcohol use and course of HIV/AIDS are difficult to quantify given the current state of knowledge, except for an operationalization for the link via adherence to medication based on meta-analyses. The suggested quantifications are exemplified for South Africa.


**IMPORTANCE:** The Human Immunodeficiency Virus (HIV) epidemic has evolved, with an increasing non-communicable disease (NCD) burden emerging and need for long-term management, yet there are limited data to help delineate the optimal care model for NCDs for this patient population. **OBJECTIVE:** The primary aim was to compare rates of NCD preventive screening in persons living with HIV/AIDS (PLWHA) by type of HIV care model, focusing on metabolic/cardiovascular disease (CVD) and cancer screening. We hypothesized that primary care models that included generalists would have higher preventive screening rates. **DESIGN:** Prospective observational cohort study. **SETTING:** Partners HealthCare System (PHS) encompassing Brigham & Women’s Hospital, Massachusetts General Hospital, and affiliated community health centers. **PARTICIPANTS:** PLWHA age >18 engaged in active primary care at PHS. **EXPOSURE:** HIV care model categorized as infectious disease (ID) providers only, generalist providers only, or ID plus generalist providers. **MAIN OUTCOME(S) AND MEASURES(S):** Odds of screening for metabolic/CVD outcomes including hypertension (HTN), obesity, hyperlipidemia (HL), and diabetes (DM) and cancer including colorectal cancer (CRC), cervical cancer, and breast cancer. **RESULTS:** In a cohort of 1565 PLWHA, distribution by HIV care model was 875 ID (56%), 90 generalist (6%), and 600 ID plus generalists (38%). Patients in the generalist group had lower odds of viral suppression but similar CD4 counts and ART exposure as compared with ID and ID plus generalist groups. In analyses adjusting for sociodemographic and clinical covariates and clustering within provider, there were no significant differences in metabolic/CVD or cancer screening rates among the three HIV care models. **CONCLUSIONS:** There were no notable differences in metabolic/CVD or cancer screening rates by HIV care model after adjusting for sociodemographic and clinical factors. These findings suggest that HIV patients receive similar preventive health care for NCDs independent of HIV care model.


People living with HIV (PLWH) who are treated with effective highly active antiretroviral therapy (HAART) have a similar life expectancy to the general population. Moreover, an increasing proportion of new HIV diagnoses are made in people older than 50 y. The number of older HIV-infected patients is thus constantly growing and it is expected that by 2030 around 70% of PLWH will be more than 50 y old. On the other hand, HIV infection itself is responsible for accelerated immunosenescence, a progressive decline of immune system function in both the adaptive and the innate arm, which impairs the ability of an individual to respond to infections and to give rise to long-term immunity; furthermore, older patients tend to have a worse immunological response to HAART. In this review we focus on the pathogenesis of HIV-induced immunosenescence and on the clinical management of older HIV-infected patients.


In the United States (US), there are high levels of disengagement along the HIV care continuum. We sought to characterize the heterogeneity in research studies and interventions to improve care engagement among people living with diagnosed HIV infection. We performed a systematic literature search for interventions to improve HIV linkage to care, retention in care, reengagement in care and adherence to antiretroviral therapy (ART) in the US published from 2007-mid 2015. Study designs and
outcomes were allowed to vary in included studies. We grouped interventions into categories, target populations, and whether results were significantly improved. We identified 152 studies, 7 (5%) linkage studies, 33 (22%) retention studies, 4 (3%) reengagement studies, and 117 (77%) adherence studies. 'Linkage' studies utilized 11 different outcome definitions, while 'retention' studies utilized 39, with very little consistency in effect measurements. The majority (59%) of studies reported significantly improved outcomes, but this proportion and corresponding effect sizes varied substantially across study categories. This review highlights a paucity of assessments of linkage and reengagement interventions; limited generalizability of results; and substantial heterogeneity in intervention types, outcome definitions, and effect measures. In order to make strides against the HIV epidemic in the US, care continuum research must be improved and benchmarked against an integrated, comprehensive framework.


Human immunodeficiency virus (HIV) infection has become a chronic condition. HIV is not a valid reason to deny, delay, or withhold dental treatment. There are no absolute contraindications and few complications associated with comprehensive oral health care treatment delivered in an outpatient setting for asymptomatic HIV-infected patients and clinically stable patients with AIDS. Consultation with the patient's medical provider and modifications in the delivery of dental treatment may be necessary when treating patients with advanced HIV disease or other comorbid conditions. Oral health care is an integral and important part of comprehensive health care for all patients with HIV/AIDS.


For people living with HIV and AIDS (PLWHA), life stress often undermines quality of life and interferes with medical care. Mindfulness training (MT) may help PLWHA to manage stress. Because standard MT protocols can be burdensome, we explored telephone delivery as a potentially more feasible approach. We used an innovative 360 degrees qualitative inquiry to seek input regarding telephone-delivery of MT for PLWHA in advance of a planned intervention trial. We also sought input on a time- and attention-matched control. Twenty five HIV patients, providers and advocates, were recruited to five focus groups. Participants understood the construct of mindfulness and recognized its potential benefits for stress management and improving medication adherence. Patients preferred the term "mindfulness" to meditation. Telephone-delivery appealed to all patients but several challenges were raised. Topics for the control intervention included nutrition, sleep, and aging. The 360 degrees approach allowed three groups (patients, providers, advocates) to influence intervention development.


Objective: Glucocorticoids are released in response to stress and alter cognition and brain function through both rapid nongenomic and slow genomic mechanisms. Administration of glucocorticoids in the form of hydrocortisone enhances aspects of learning and memory in individuals with PTSD but impairs these abilities in healthy individuals. We examine the time-dependent effects of glucocorticoids on cognition in HIV-infected men. Methods: In a double-blind placebo-controlled crossover study, we examined the time-dependent effects of a single low dose of hydrocortisone [10 mg; low-dose hydrocortisone (LDH)] on cognition in 45 HIV-infected men. Participants were randomized to receive either LDH or placebo and one month later, were given the opposite treatment. At each intervention session, cognition was assessed 30 minutes (assessing nongenomic effects) and 4 hours (assessing genomic effects) after pill administration. Self-reported stress/anxiety and cortisol/cytokines in saliva were measured throughout each session. Results: Compared with placebo, LDH doubled salivary cortisol levels. Cortisol returned to baseline 4 hours postadministration. At the 30-minute assessment, LDH enhanced verbal learning compared with placebo. Greater increases in cortisol were associated with greater enhancements in verbal learning. LDH did not affect subjective stress/anxiety or any other cognitive outcomes at the 30-minute or 4-hour time point. Conclusions: The rapid effects of LDH on verbal learning suggest a nongenomic mechanism by which glucocorticoids can enhance cognition in HIV-infected men. The nonenduring nature of this enhancement may limit its clinical utility but provides insight into mechanisms underlying the effects of acute glucocorticoids on learning.
OBJECTIVES: The burden of HIV/AIDS is borne disproportionately by a growing number of racial and ethnic minorities and socioeconomically disadvantaged individuals. Developing mHealth interventions for the everyday self-management needs of persons living with HIV (PLWH) can be challenging given the current constraints of the U.S. healthcare system, especially for those from underserved communities. In order to develop effective, evidence-based mHealth self-management interventions, we need a better understanding of the factors associated with mHealth research. The purpose of this study was to assess factors associated with PLWH's for participation in research using smartphones. METHODS: We conducted a prospective cohort study (parent study) to examine the relationships among HIV self-management, age, gender and mental wellness. Relevant to this study, we analyzed the relationship between self-reported use of smartphones, willingness to use a smartphone for research, and other predictor variables including: HIV stigma, social isolation, social integration functions, and depression. We selected these variables because previous work indicated they may influence smartphone or mHealth use and because they also tend to be elevated in PLWH. RESULTS: We found increased age, HIV stigma and social isolation were negatively associated with smartphone use, which supports the use of smartphones for conducting research with PLWH but also suggests that age, stigma, social integration functions and social isolation need to be considered in research involving PLWH. CONCLUSIONS: Findings here support smartphone use in research involving PLWH. However, future mHealth interventions targeting PLWH should take into account the inverse relationship between smartphone use and age, HIV stigma, and social isolation, and other predictor variables.


OBJECTIVES: Older people may suffer from stigmas linked to cancer and aging. Although some studies suggested that a negative view of cancer may increase the level of depression, such an association has never been studied in the elderly population. Similarly, even though it is established that a negative self-perception of aging has deleterious consequences on mental and physical health in normal aging, the influence in pathological contexts, such as oncology, has not been studied. The main aim of this study is thus to analyze the effect of these two stigmas on the health of elderly oncology patients. MATERIALS AND METHODS: 101 patients suffering from a cancer (breast, gynecological, lung or hematological) were seen as soon as possible after their diagnosis. Their self-
perception of age, cancer view and health (physical and mental) was assessed. RESULTS: Multiple regressions showed that patients with a more negative self-perception of aging and/or more negative cancer view reported poorer global health. We also observed that negative self-perception of aging was associated with worse physical and mental health, whereas negative cancer views were only linked to worse mental health. No interaction was observed between these two stigmas, suggesting that their action is independent. CONCLUSION: Older patients with cancer face double stigmatization, due to negative self-perception of aging and cancer, and these stigmas have impacts on global and mental health. Self-perception of aging is also linked to physical health. Longitudinal studies will be necessary to analyze the direction of the association between this double stigmatization and health.


The Centers for Disease Control and Prevention estimate that in 2015, one half of all people living with HIV in the United States will be older than age 50. Older adults remain sexually active, and 16% of all new HIV diagnoses occur in adults age 50 and older. However, older adults rarely see themselves at risk for HIV/AIDS, and physicians are frequently reluctant to discuss sex. To address the issue of aging and HIV, ACRIA created its National Older Adults with HIV (NOAH) technical assistance and capacity-building program. NOAH targets aging and HIV providers that serve older adults at risk for or living with HIV. Program goals include increasing knowledge, reducing stigma, and creating partnerships between senior service providers (SSPs) and HIV service providers. In its first 4 years, NOAH training was provided to 150 organizations in eight cities across the United States, reaching 332 agency staff. Outcome evaluation found significant increases in knowledge about HIV and aging, and programmatic impact with regard to integration of older adults and HIV information in participating agencies’ activities. Ongoing issues included recruiting SSPs and difficulties in reaching agencies that participated for short- and long-term follow-up. Implications for workforce development are discussed.


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 virologic 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 virologic 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: 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/microl. (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.


The connection between palliative care and HIV infection has deep and wide roots in the United States that go back to the time when many gay men in the early 1980s were dying from a disease we knew little about, and there was no way to help but to alleviate symptoms in hospice and end of life centers across the United States. More individuals (adults and children), families, and communities attribute the success of antiretroviral therapies and other therapeutic approaches to advancing quality of life and life itself today. The identity of HIV, like many "life-threatening illness with no cure' has evolved as a 'chronic' condition with a longer time period to address physical, social, and emotional experiences that may concern those living with HIV infection. Chronic conditions create an opportunity for healthcare providers from all types of disciplines to rethink and retool their knowledge and skills, to have conversations with those affected by HIV infection as to what they would ideally want in addressing their care needs; care needs that are now complicated by comorbid conditions of aging and healthcare reimbursement that uniquely intersect with HIV infection. This chapter addresses the current relevance of palliative care in HIV history, both nationally and internationally, and offers ideas for health professionals to use a multidisciplinary integration of knowledge to not just cure but align 'cure and care' toward healing action while being present to others from their perspective and values.


People aging with HIV have medical and psychosocial needs that require more than the HIV services network can provide. HIV providers may lack experience managing multimorbidity or the functional consequences of aging. Social support services may be unable to provide necessary services for people living with HIV (PLWH) who are becoming increasingly frail or facing cognitive impairment. HIV providers will be caring for aging PLWH whose HIV management may seem simple compared with the significant burdens of stigma, mental health needs, social isolation, multimorbidity, and aging-related syndromes. Although practices can incorporate geriatric expertise and develop facility with the aging services network, a more comprehensive integration would adapt existing geriatric long-term care models for those aging with HIV. The diversity of aging PLWH and the tenuousness of the health safety net will necessitate innovative and flexible collaboration between content experts and social service agencies.


BACKGROUND: Lymphoma is a leading cause of cancer-related death among human immunodeficiency virus (HIV)-infected individuals in the current era of potent anti-retroviral therapy (ART). Globally, mortality after HIV-associated lymphoma has profound regional variation. Little is known about HIV-associated lymphoma mortality in Nigeria and other resource-limited setting in sub-Saharan Africa. Therefore, we evaluated the all-cause mortality after lymphoma and associated risk factors including HIV at the Jos University Teaching Hospital (JUTH) Nigeria. METHODS: We conducted a ten-year retrospective cohort study of lymphoma patients managed in JUTH. The main outcome measured was all-cause mortality and HIV infection was the main exposure variable. Overall death rate was estimated using the total number of death events and cumulative follow up time from lymphoma diagnosis to death. Cox proportional hazard regression was used to assess factors associated with mortality after lymphoma diagnosis. RESULTS: Out of 40 lymphoma patients evaluated, 8(20.0%) were HIV positive and 32(80.0%) were HIV negative. After 127.63 person-years of follow-up, there were 16 deaths leading to a crude mortality rate of 40.0 per 100 person-years. The 2-year probability of survival was 30% for HIV-infected patients and 74% for HIV-uninfected. Median survival probability for HIV-infected
patients was 2.1 years and 7.6 years for those without HIV. Unadjusted hazard of death was associated with late stage, HR 11.33 (95% CI 2.55, 50.26, p = 0.001); low cumulative cycles of chemotherapy, HR 6.43 (95% CI 1.80, 22.89, p = 0.004); greater age, HR 5.12 (95% CI 1.45, 18.08, p = 0.01); presence of comorbidity, HR 3.43 (95% CI 1.10, 10.78, p = 0.03); and HIV-infection, HR 3.32 (95% CI 1.05, 10.51, p = 0.04). In an adjusted model only stage was significantly associated with death, AHR 5.45 (1.14-26.06, p = 0.03).

CONCLUSION: Our findings suggest that HIV-infection accounted for three times probability of death in lymphoma patients compared to their HIV-uninfected counterparts due to late stage of lymphoma presentation in this population. Also initiation of chemotherapy was associated with lower probability of death among lymphoma patients managed at JUTH, Nigeria. Earlier stage at lymphoma diagnosis and prompt therapeutic intervention is likely to improve survival in these patients. Future research should undertake collaborative studies to obtain comprehensive regional data and identify unique risk factors of poor outcomes among HIV-infected patients with lymphoma in Nigeria.


As people living with HIV (PLHIV) age, knowledge of HIV and the associated care of those aging with HIV will become an increasingly important component of education for long-term care (LTC) providers. This descriptive study piloted two different approaches to distribute narrative-based HIV educational videos. Four LTC facilities were assigned to receive the videos to implement 'as usual' or to receive the videos in addition to blended learning sessions where the videos were shown with facilitated discussion with a nurse educator and a PLHIV. In LTC facilities where external educators were provided, a larger proportion of staff watched the videos. However, increases in staff comfort level providing care to PLHIV were comparable between both groups. Narratives of PLHIV, administrator engagement and coordination of online education were identified as facilitators to improving HIV knowledge and compassion in LTC, while fear of HIV transmission and limited time for education, especially when not mandated or identified as immediately applicable, were identified as barriers. From our findings, HIV-related stigma still exists in LTC and these videos may be a strategy for disseminating basic knowledge about HIV transmission and sensitizing staff to the experience of living with HIV.


PURPOSE OF REVIEW: Cancer is a growing problem in the HIV population, in large part because of aging of HIV-infected people treated with antiretroviral therapy. Overall and cancer-specific survival is worse in HIV-infected cancer patients compared with uninfected patients. One potential reason for the observed survival deficit is differences in cancer treatment. RECENT FINDINGS: Recent population-based data suggest that HIV-infected cancer patients are less likely to receive cancer treatment compared with uninfected patients. This review describes these treatment disparities and their impact on patient outcomes, explores reasons for the disparity and highlights areas for future research. SUMMARY: Cancer is the leading cause of non-AIDS death in HIV-infected individuals. Understanding the underlying cancer treatment disparity between HIV-infected patients and their uninfected counterparts, and developing solutions to address the problem, is of great importance to improve cancer outcomes in this growing patient population.


Approximately two-thirds of the world’s older adults live in developing nations. By 2050, as many as 80% of such older people will live in low- and middle-income countries. In sub-Saharan Africa alone, the number of individuals aged 60 and older is projected to reach 163 million. Despite this demographic wave, the majority of Africa has limited access to qualified geriatric health care. Although foreign aid and capacity-building efforts can help to close this gap over time, it is likely that failure to understand the unique context of Africa’s older adults, many of whom are marginalized, will lead to inadequacies in service delivery and poor health outcomes. As the need for culturally competent care of older adults gains recognition in the developed world, research in
geriatric care in developing countries should progress in tandem. By examining the multidimensional challenges that an older woman with the human immunodeficiency virus (HIV) in rural Uganda faces, this article makes contextualized policy recommendations for older adults in Africa and provides lessons for the developing world.


BACKGROUND: Research has shown that sexual minorities (SMs) (e.g. lesbian, gay, and bisexual individuals), compared to their heterosexual counterparts, may engage in riskier health behaviors, are at higher risk of some adverse health outcomes, and are more likely to experience reduced health care access and utilization. However, few studies have examined how the interplay between race and sexual orientation impacts a range of health measures in a nationally representative sample of the U.S.

POPULATION: METHODS: To address these gaps in the literature, we sought to investigate associations between sexual orientation identity and health/healthcare outcomes among U.S. women and men within and across racial/ethnic groups. Using 2013-2015 National Health Interview Survey data (N = 91,913) we employed Poisson regression with robust variance to directly estimate prevalence ratios (PR) comparing health and healthcare outcomes among SMs of color to heterosexuals of color and white heterosexuals, stratified by gender and adjusting for potential confounders. RESULTS: The sample consisted of 52% women, with approximately 2% of each sex identifying as SMs. Compared to their heterosexual counterparts, white (PR = 1.25 [95% confidence interval (CI): 1.08-1.45]) and black (1.54 [1.07, 2.20]) SM women were more likely to report heavy drinking. Hispanic/Latino SM women and men were more likely to experience short sleep duration compared to white heterosexual women (1.33 [1.06, 1.66]) and men (1.51 [1.21, 1.90]). Black SM women had a much higher prevalence of stroke compared to black heterosexual women (3.25 [1.63, 6.49]) and white heterosexual women (4.51 [2.16, 9.39]). White SM women were more likely than white heterosexual women to be obese (1.31 [1.15, 1.48]), report cancer (1.40 [1.07, 1.82]) and report stroke (1.91 [1.16, 3.15]). White (2.41 [2.24, 2.59]), black (1.40[1.20, 1.63]), and Hispanic/Latino SM (2.17 [1.98, 2.37]) men were more likely to have been tested for HIV than their heterosexual counterparts. CONCLUSIONS: Sexual minorities had a higher prevalence of some poor health behaviors, health outcomes, and healthcare access issues, and these disparities differed across racial groups. Further research is needed to investigate potential pathways, such as discrimination, in the social environment that may help explain the relationship between sexual orientation and health.


We examined whether beliefs about antiretroviral (ART) efficacy and reinfection prospectively predicted subsequent condomless anal intercourse (CAI). Men who have sex with men in San Francisco (N = 773) were recruited for a longitudinal study using time-location sampling. HIV-negative men were more likely to have sero-discordant receptive CAI and HIV-positive men were more likely to have sero-discordant insertive CAI if they previously reported these behaviors at baseline and reported less concern about HIV transmission due to ART. HIV-positive men were more likely to report sero-concordant CAI at follow-up if they reported this behavior at baseline. Previous sexual behavior was consistently the strongest predictor of future sexual behavior. Previous sexual behavior and optimistic beliefs about ART for treatment and prevention predicted subsequent sexual behavior with sero-discordant partners. Since individual-level and population-level benefits of ART depend on persons maintaining adequate drug concentrations, prevention messages should continue emphasizing treatment adherence and practicing a combination of risk-reduction strategies.
Although HIV services are expanding, few have reached the scale necessary to support universal viral suppression of individuals living with HIV. The purpose of this systematic review was to summarize the qualitative evidence evaluating public health HIV interventions to enhance linkage to care, antiretroviral drug (ARV) adherence, and retention in care. We searched 19 databases without language restrictions. The review collated data from three separate qualitative evidence reviews addressing each of the three outcomes along the care continuum. 21,738 citations were identified and 24 studies were included in the evidence review. Among low and middle-income countries in Africa, men living with HIV had decreased engagement in interventions compared to women and this lack of engagement among men also influenced the willingness of their partners to engage in services. Four structural issues (poverty, unstable housing, food insecurity, lack of transportation) mediated the feasibility and acceptability of public health HIV interventions. Individuals living with HIV identified unmet mental health needs that interfered with their ability to access HIV services. Persistent social and cultural factors contribute to disparities in HIV outcomes across the continuum of care, shaping the context of service delivery among important subpopulations.


BACKGROUND &AIMS: Hepatitis C virus (HCV) incidence among HIV-positive men who have sex with men (MSM) has increased since 2000, although there are regional differences. We aimed to 1) estimate trends in HCV incidence among HIV-positive MSM, 2) assess the association between incidence and geographical region, age and HIV-related measurements and, 3) assess temporal changes from HIV seroconversion to HCV infection. METHODS: Data was used from MSM with well-estimated dates of HIV seroconversion from the CASCADE Collaboration (1990-2014). Smoothly varying trends in HCV incidence over time were allowed, using restricted cubic splines. The association of calendar year, age, CD4 count (lagged), HIV RNA (lagged), geographical region and HIV infection stage (recent vs. chronic) with HCV incidence were assessed using Poisson regression. RESULTS: Of 5,941 MSM, 337 acquired HCV during follow-up. HCV incidence significantly increased from 0.7/1,000 person-years in 1990 to 18/1,000 person-years in 2014. Recent calendar years, younger age, recent HIV infection and higher HIV RNA levels were significantly associated with HCV incidence, while CD4 count was not. Trends differed by geographical region; while incidence appeared to have stabilized in Western Europe and remained stable in Southern Europe, it continued to increase in Northern Europe in recent years. Time from HIV to HCV infection significantly decreased over time (p<0.001). CONCLUSIONS: HCV has continued to spread among HIV-positive MSM in recent years, but trends differ by geographical region. Interventions to decrease the risk of HCV acquisition and increase early diagnosis are warranted. LAY SUMMARY: Hepatitis C virus infection continues to spread among HIV-positive men who have sex with men, especially among younger individuals. However, trends seem to differ by European region in recent years. Furthermore, men who have sex with men with a higher HIV RNA load were more likely to get infected with the hepatitis C virus. During recent HIV infection, MSM appear to be at higher risk of acquiring hepatitis C.


Clinical practice guidelines recommend that clinicians implement the 5As (Ask, Advise, Assess, Assist, and Arrange) for smoking cessation at every clinical encounter. We sought to examine the prevalence of patient- and clinician-reported 5As in two primary care and one HIV care clinics in San Francisco, California between August 2013 and March 2014 (n = 462 patients and n = 61 clinicians). We used multivariable logistic regression analysis to identify factors associated with receipt of the 5As, adjusting for patient demographics, patient insurance, clinician site, patient tobacco use, and patient comorbidities. The patient-reported prevalence of 5As receipt was as follows: Ask, 49.9%; Advise, 47.2%; Assess, 40.6%; any Assist, 44.9%; and Arrange, 22.4%. In multivariable analysis, receipt of Advise, Assess, and Assist were associated with older patient age. Whereas patients with HIV had a lower odds of reporting being advised (AOR 0.5, 95% CI 0.3-0.8) or assessed for readiness to quit (AOR 0.6, 95% CI 0.4-0.9), patients with pulmonary diseases had higher odds of reporting being assisted (AOR 1.6, 95% 1.0-2.6) than patients without these diagnoses. Although the majority of clinicians reported asking (91.8%), advising (91.8%), and assessing (93.4%) tobacco use 'most of the time' or 'always' during a clinical encounter, fewer reported assisting (65.7%) or arranging (19.7%) follow-up. Only half of patients reported being screened for tobacco use and fewer reported receipt of the other 5As, with significant disparities in receipt of the 5As among
patients with HIV. Our findings confirm the need for interventions to increase clinician-delivered cessation treatment in primary and HIV care.


PURPOSE: Young black men who have sex with men (YBMSM) experience poorer antiretroviral therapy (ART) medication adherence relative to their white counterparts. However, few studies have longitudinally examined factors that may correlate with various classifications of ART adherence among this population, which was the primary aim of this study. METHODS: Project nGage was a randomized controlled trial conducted across five Chicago clinics from 2012 to 2015. Survey and medical records data were collected at baseline and 3- and 12-month periods to assess whether psychological distress, HIV stigma, substance use, family acceptance, social support, and self-efficacy predicted ART medication adherence among 92 YBMSM ages 16-29 years. RESULTS: Major results controlling for the potential effects of age, education level, employment, and intervention condition indicated that participants with high versus low medication adherence were less likely to report daily/weekly alcohol or marijuana use, had higher family acceptance, and exhibited greater self-efficacy. CONCLUSIONS: These findings identity important factors that can be targeted in clinical and program interventions to help improve ART medication adherence for YBMSM.


OBJECTIVES: Clinician utilization of the 2013 cholesterol lowering guidelines remains variable and unknown. We sought to examine statin prescribing patterns and compare rates among specialists who treat high-risk cardiovascular patients admitted to the hospital. METHODS: We retrospectively (via chart review) examined four specialty groups: (i) Cardiology, (ii) Cardiovascular or Vascular (CV) Surgery, (iii) Neurology, and (iv) Internal Medicine. Adult patients were included based on a discharge diagnosis of acute coronary syndrome, coronary artery bypass graft surgery, carotid endarterectomy, acute ischemic stroke, transient ischemic attack, or high-risk chest pain. Prescribing patterns were evaluated 6 months and 18 months after the release of the 2013 guidelines. High-intensity statin was defined as atorvastatin 40-80 mg or rosuvastatin 20-40 mg per day. RESULTS: 632 patients were included in our study. The following percentages of patients were discharged on high-intensity statin (6 months; 18 months): (i) Cardiology (80%; 85%), (ii) CV Surgery (52%, 65%), (iii) Neurology (59%; 66%), and (iv) Internal Medicine (45%; 48%). Among the four groups, Cardiology was the most likely to discharge patients on high-intensity statin (p < 0.001) in 2014 and in 2015. Cardiology, CV Surgery, and Neurology significantly increased the percentage of patients on high-intensity statin from pre-admission to time of discharge in both years. CONCLUSION: High-intensity statin therapy is underutilized among high-risk cardiovascular patients admitted to the hospital. Variations exist in prescribing patterns of different specialties who manage high-risk populations. This data can be used to test quality improvement interventions to improve rates of high-intensity statin utilization among high-risk patients prior to hospital discharge.


Objective Methamphetamine (MA) usage has been recognized as a prominent substance-abuse issue. While exercise training reportedly improves fitness and mental status in the MA-dependent, how exercise training affects addiction and cognitive deficiency has yet to be established. The current study aimed to determine the effects of aerobic exercise training on both MA-associated cravings and inhibitory control among those with MA dependencies.

Design A 12-week randomized controlled trial.

Method Sixty-two people with MA dependencies recruited through the Drug Rehabilitation Bureau were assigned to either an aerobic exercise or attentional control group, with 50 participants completing the trial. The aerobic exercise program involved three 30-min sessions of moderate-intensity exercise per week. Along with a pre-test assessment, craving levels were evaluated every three weeks, and data on neutral and MA-related inhibitory control as well as its elicited neuroelectric activation were collected at the end of the intervention.
Results Compared with the control group, the exercise group experienced attenuated MA craving levels after 6 weeks of the exercise program, and the decreased trend was maintained until the termination of treatment. In the post-test, the exercise group also demonstrated more accuracy in behavioral inhibitory control as well as greater N2 amplitude in the Nogo condition of both the standard and MA-related tasks than those in the control group or pre-test.

Conclusions The current study provides the first evidence that aerobic exercise training may be efficacious for MA-associated cravings and inhibitory control from behavioral and neuroelectric perspectives among MA-dependent individuals.

- Whether exercise training affects methamphetamine (MA)-associated addiction and inhibitory control has yet to be determined.
- A moderate-intensity aerobic exercise program with three 30-min sessions per week for 12 weeks attenuated MA craving.
- Aerobic exercise may lead to better inhibitory control and greater N2 amplitude in tasks with higher inhibition demand.


Cytomegalovirus (CMV) is a beta-herpesvirus. Latent infections are common in all populations. However age-associated increases in levels of CMV-reactive antibody are testament to repeated reactivations and periods of viral replication. CMV has been associated with several diseases of aging, including vasculopathy and neurocognitive impairment. These conditions occur at a younger age in persons with particularly high burdens of CMV - transplant recipients and people living with HIV. Here we define the "clinical footprints" as immunopathologies triggered by CMV that develop over many years. A high burden of CMV also drives accumulation of multifunctional terminally-differentiated alphabeta T-cells, a novel population of Vdelta2(-) gammadelta T-cells, and a population of CD56(lo) NK cells lacking a key regulatory molecule. An understanding of these "immunological footprints" of CMV may reveal how they collectively promote the "clinical footprints" of the virus. This is explored here in transplant recipients, HIV patients and healthy aging.


Background: Recent guidelines recommend a systolic blood pressure (SBP) goal of less than 150 mm Hg for adults aged 60 years or older, but the balance of benefits and harms is unclear in light of newer evidence. Purpose: To systematically review the effects of more versus less intensive BP control in older adults. Data Sources: Multiple databases through January 2015 and MEDLINE to September 2016. Study Selection: 21 randomized, controlled trials comparing BP targets or treatment intensity, and 3 observational studies that assessed harms. Data Extraction: Two investigators extracted data, assessed study quality, and graded the evidence using published criteria. Data Synthesis: Nine trials provided high-strength evidence that BP control to less than 150/90 mm Hg reduces mortality (relative risk [RR], 0.90 [95% CI, 0.83 to 0.98]), cardiac events (RR, 0.77 [CI, 0.68 to 0.89]), and stroke (RR, 0.74 [CI, 0.65 to 0.84]). Six trials yielded low- to moderate-strength evidence that lower targets (<140/85 mm Hg) are associated with marginally significant decreases in cardiac events (RR, 0.82 [CI, 0.64 to 1.00]) and stroke (RR, 0.79 [CI, 0.59 to 0.99]) and nonsignificantly fewer deaths (RR, 0.86 [CI, 0.69 to 1.06]). Low- to moderate-strength evidence showed that lower BP targets do not increase falls or cognitive impairment. Limitation: Data relevant to frail elderly adults and the effect of multimorbidity are limited. Conclusion: Treatment to at least current guideline standards for BP (<150/90 mm Hg) substantially improves health outcomes in older adults. There is less consistent evidence, largely from 1 trial targeting SBP less than 120 mm Hg, that lower BP targets are beneficial for high-risk patients. Lower BP targets did not increase falls or cognitive decline but are associated with hypotension, syncope, and greater medication burden. Primary Funding Source: U.S. Department of Veterans Affairs, Veterans Health Administration, Office of Research and Development, Quality Enhancement Research Initiative. (PROSPERO 2015: CRD42015017677).


BACKGROUND: In Latin America, the first wave of HIV-infected patients initiated highly active antiretroviral therapy (HAART) 10 or more years ago. Characterizing their treatment experience and corresponding outcomes across a decade of HAART
may yield insights relevant to the ongoing care of such patients and those initiating HAART more recently in similar clinical settings.

METHODS: This retrospective study included adults initiating HAART before 2004 at 8 sites in Argentina, Brazil, Chile, Haiti, Honduras, and Mexico. Patient status (in care, dead, or lost to follow-up [LTFU]) was assessed at 6-month intervals for 10 years, along with CD4 count and HIV-1 viral load (VL) for patients in care. RESULTS: 4,975 patients (66% male) started HAART prior to 2004; 45% were not antiretroviral-naive. At 1, 5, and 10 years, rates of mortality were 4.2%, 9.0%, and 13.6% respectively. LTFU rates for the same periods were 2.4%, 10.9%, and 24.2%. Among patients remaining in care at 10 years, 84.4% were estimated to have VL</=400 copies/mL (Haiti excluded) and median baseline CD4 increased from 158 to 525 cells/mm3. Only 11.4% of all patients remained on their first regimen, 12.6% were on their second, 11.5% were on their third, and 23.0% were on their fourth or subsequent regimen. Outcomes were generally better for patients who were not antiretroviral-naive, except for viral suppression. Heterogeneity among sites was substantial. CONCLUSIONS: Despite advanced disease and predominant use of older antiretrovirals, a large percentage of early HAART initiators in this Latin American cohort were alive and in care with sustained virologic suppression and progressive immune recovery after 10 years.


BACKGROUND: The widespread use of antiretroviral treatment made HIV prevalence no longer a good measure of population-level transmission risk. The objective of this analysis was to use the prevalence of unsuppressed HIV to describe population-level HIV transmission risk. METHODS: Using New York City (NYC) HIV surveillance data, we reported HIV prevalence and the prevalence of unsuppressed HIV, defined as the number of persons living with HIV with an unsuppressed viral load divided by population size. RESULTS: The estimated number of persons living with HIV in NYC increased from 79,100 [95% confidence interval (CI): 78,200 to 80,000] in 2010 to 81,700 (95% CI: 80,500 to 82,900) in 2014. HIV prevalence (>/=18 years old) remained unchanged at 1.22% (95% CI: 1.21% to 1.24%) in 2010 and 1.22% (95% CI: 1.20% to 1.24%) in 2014. The prevalence of unsuppressed HIV (>/=18 years old) steadily decreased from 0.49% (95% CI: 0.48% to 0.51%) in 2010 to 0.34% (95% CI: 0.32% to 0.36%) in 2014. Men had both higher HIV prevalence (1.86% vs. 0.65% in 2014) and higher prevalence of unsuppressed HIV (0.51% vs. 0.18% in 2014) than women. In 2014, the black-white ratio of prevalence of unsuppressed HIV was 5.8 among men and 26.3 among women, and the Hispanic-white ratio was 2.7 among men and 10.0 among women. CONCLUSIONS: The prevalence of unsuppressed HIV has been steadily decreasing in NYC. As antiretroviral treatment continues to expand, programs should consider using the prevalence of unsuppressed HIV to measure population-level transmission risk.


Drug-drug interactions with corticosteroids, causing Cushing's syndrome with secondary adrenal suppression, are well known in HIV patients. Corticosteroids are widely prescribed in the HIV-positive population. However, digoxin is rarely used in HIV patients; hence, digoxin toxicity due to drug-drug interaction is not widely recognised. Nevertheless, this practice might change in the future as HIV cohorts of patients are ageing, due to the successful treatment of HIV infection with combination antiretroviral therapy. We report a case of digoxin toxicity in an HIV-positive 51-year-old man, due to a combination of drug-drug interaction and renal impairment. The first case report of digoxin toxicity due to drug-drug interaction with ritonavir in an HIV-positive woman was published in 2003. To the best of our knowledge, no similar case report has since been published in the literature. This case alerts the profession to the importance of drug-drug interaction and highlights the clinical features of digoxin toxicity.


Human immunodeficiency virus (HIV) spread to humans from chimpanzees (HIV-1 groups M and N), gorillas (HIV-1 groups P and O), and sooty mangabeys (HIV-2). HIV is spread mainly through blood or body fluids. Subjects can become infected with HIV by
sexual contact, needle sharing, blood transfusions, or maternal transmissions as a blood-borne virus or via breast-milk. The incubation period of HIV-1 from infection to the development of AIDS ranges from 8 to 11 years. In the past 3 decades, HIV has caused a great burden to global wealth and health. According to the WHO global health survey, 36.7 million people were infected with HIV, causing 1.1 million deaths in 2015. Since the discovery of HIV-1, many anti-retroviral drugs have been developed. Following the discovery and widespread use of anti-retroviral therapy (ART) the life expectancy of HIV infected individuals has substantially increased. By 2015, all major guidelines recommended treating all HIV-infected adults regardless of their CD4 count. Despite effective ART with virological suppression, HIV-associated neurocognitive disorders (HAND), cardiovascular diseases (CVD), metabolic syndrome (MS), bone abnormalities and non-HIV-associated malignancies remain a major complication associated with HIV infection. In this review article, I would like to describe recent ART status and problems in the ART-era.

COGNITION


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 total 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 neurocognitive 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.


Persons living with HIV/AIDS (PLHIV) are able to live full lifespans after infection, however, rates of anxiety disorders among this population are elevated compared to national samples. Importantly, these anxiety symptoms and disorders have a negative effect on medication adherence, quality of life and other psychological disorders, such as depression. In order to reduce the impact of anxiety among PLHIV, a six-session transdiagnostic CBT-based treatment manual for anxiety among PLHIV named the HIV/Anxiety Management-Reduction Treatment (HAMRT) was developed and implemented. The current manuscript discusses the content of this manual as well as results from three cases examining the impact of HAMRT. Results indicated that HAMRT was effective in reducing symptoms of anxiety, anxiety sensitivity, depression, and negative affect among our sample. Additionally, results indicated that HAMRT was effective in increasing HIV medication adherence as well as quality of life. Results are discussed in terms of the potential utility of an anxiety-reduction therapy program aimed at increasing medication adherence among PLHIV.

• A six-session CBT-based transdiagnostic anxiety treatment was administered to three persons living with HIV. • Persons receiving treatment showed decreases in anxiety symptoms, anxiety sensitivity, depression symptoms, and negative affect. • Persons receiving treatment showed increases in HIV medication adherence and quality of life.

w w w . H I V - A G . o r g
HIV+ population is getting older because of progress in treatments. Yet, there are concerns that Older HIV+ individuals (OHIV+) may be more vulnerable for developing a "cortical" dementia such as Alzheimer Disease (AD). Our aim was to explore the hypothesis that the cognitive deficit extends to "cortical" functions in OHIV+ by comparing serial position effects (SPE) in different groups of participants affected by "cortical" or "subcortical" damage. We enrolled a total of 122 subjects: 22 OHIV+ (>\=/60 years of age), 31 Younger HIV+ (YHIV+) (<60 years of age), 18 participants with AD, 23 subjects with Parkinson Disease (PD), and 28 healthy subjects. All subjects performed verbal learning tasks (VLT) to explore SPE. Factorial analysis of covariance showed a significant effect of "group" (p < 0.001) and "task" (Primacy vs Recency) (p < 0.001), but no significant group*task (p = 0.257) interaction. Compared with healthy subjects (p = 0.003), AD had the most severe reduction of Primacy, confirming a primary "encoding deficit," while PD confirmed a "frontal pattern." OHIV+ showed a memory profile similar to that of PD with a worsening of the cognitive performance in comparison with YHIV+. In conclusion, we did not confirm the "cortical" hypothesis in OHIV+, at least in terms of learning and memory functions.


BACKGROUND: Current HIV treatments are successful at suppressing plasma HIV RNA to undetectable levels for most adherent patients. Yet, emerging evidence suggests that viral suppression will inadequately control inflammation and mitigate risk for progressive brain injury. We sought to quantify differences in longitudinal brain atrophy rates among older virally suppressed HIV-infected participants compared with that of healthy aging participants. METHODS: We examined longitudinal structural brain magnetic resonance imaging atrophy rates using region of interest assessments and voxel-wise tensor-based morphometry in HIV-infected participants older than 60 years (n = 38) compared with age-matched HIV-uninfected healthy and cognitively normal controls (n = 24). RESULTS: The mean age of participants was 63 years, the mean estimated duration of infection was 21 years, and the median duration of documented viral suppression was 3.2 years. Average proximal and nadir CD4 counts were 550 and 166, respectively; 15/38 (39%) met criteria for HIV-associated neurocognitive disorder. In models adjusting for age and sex, HIV serostatus was associated with more rapid average annualized rates of atrophy in the cerebellum (0.42% vs. 0.02%, P = 0.016), caudate (0.74% vs. 0.03%, P = 0.012), frontal lobe (0.48% vs. 0.01%, P = 0.034), total cortical gray matter (0.65% vs. 0.16%, P = 0.027), brainstem (0.31% vs. 0.01%, P = 0.026), and pallidum (0.73% vs. 0.39%, P = 0.046). Among those with HIV, atrophy rates did not differ statistically by cognitive status. CONCLUSIONS: Despite persistent control of plasma viremia, these older HIV-infected participants demonstrate more rapid progressive brain atrophy when compared with healthy aging. Either HIV or other factors that differ between older HIV-infected participants and healthy controls could be responsible for these differences.


BACKGROUND: Despite treatment with virologically suppressive antiretroviral therapy (ART), neurocognitive impairment may persist or develop de novo in aging HIV-infected individuals. We evaluated advancing age as a predictor of neurocognitive impairment in a large cohort of previously ART-naive individuals on long-term ART. DESIGN: The AIDS Clinical Trials Group Longitudinal Linked Randomized Trials was a prospective cohort study of HIV-infected individuals originally enrolled in randomized ART trials. This analysis examined neurocognitive outcomes at least 2 years after ART initiation. METHODS: All participants underwent annual neurocognitive testing consisting of Trail making A and B, the wechsler adult intelligence scale-revised Digit Symbol and Hopkins Verbal Learning Tests. Uni and multivariable repeated measures regression models evaluated factors associated with neurocognitive performance. Predictors at parent study entry (ART naive) included entry demographics, smoking, injection drug use, hepatitis B surface antigen, hepatitis C virus serostatus, history of stroke, ART regimen type, pre-ART nadir CD4 cell count, and plasma viral load and as well as time-updated plasma viral load and CD4 cell count. RESULTS: The cohort comprised 3313 individuals with median pre-ART age of 38 years, 20% women; 36% Black, non-Hispanic; 22% Hispanic. Virologic suppression was maintained at 91% of follow-up visits. Neurocognitive performance improved with years of ART. After adjusting for the expected effects of age.
using norms from HIV-negative individuals, the odds of neurocognitive impairment at follow-up visits among the HIV infected increased by nearly 20% for each decade of advancing age. CONCLUSION: Despite continued virologic suppression and neurocognitive improvement in the cohort as a whole, older individuals were more likely to have neurocognitive impairment than younger individuals.


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.


Human immunodeficiency virus (HIV) continues to have adverse effects on cognition and the brain in many infected people, despite a reduced incidence of HIV-associated dementia with combined antiretroviral therapy (cART). Working memory is often affected, along with attention, executive control, and cognitive processing speed. Verbal working memory (VWM) requires the interaction of each of the cognitive component processes along with a phonological loop for verbal repetition and rehearsal. HIV-related functional brain response abnormalities during VWM are evident in functional MRI (fMRI), though the neural substrate underlying these neurocognitive deficits is not well understood. The current study addressed this by comparing 24 HIV+ to 27 demographically matched HIV-seronegative (HIV-) adults with respect to fMRI activation on a VWM paradigm (n-back) relative to performance on two standardized tests of executive control, attention and processing speed (Stroop and Trail Making A-B). As expected, the HIV+ group had deficits on these neurocognitive tests compared to HIV- controls, and also differed in neural response on fMRI relative to neuropsychological performance. Reduced activation in VWM task-related brain regions on the 2-back was associated with Stroop interference deficits in HIV+ but not with either Trail Making A or B performance. Activation of the posterior cingulate cortex (PCC) of the default mode network during rest was associated with Hopkins Verbal Learning Test-2 (HVLT-2) learning in HIV+. These effects were not observed in the HIV- controls. Reduced dynamic range of neural response was also evident in HIV+ adults when activation on the 2-back condition was compared to the extent of activation of the default mode network during periods of rest. Neural dynamic range was associated with both Stroop and HVLT-2 performance. These findings provide evidence that HIV-associated alterations in neural activation induced by VWM demands and during rest differentially predict executive-attention and verbal learning deficits. That the Stroop, but not Trail Making was associated with VWM activation suggests that attentional regulation difficulties in suppressing interference and/or conflict regulation are a component of working memory deficits in HIV+ adults. Alterations in neural dynamic range may be a useful index of the impact of HIV on functional brain response and as a fMRI metric in predicting cognitive outcomes.


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

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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.


HIV infection and aging are each associated with neurocognitive impairment (NCI). This study examined the combined effects of HIV infection and aging on NCI. We performed a cross-sectional survey among 345 HIV-infected and 345 HIV-uninfected participants aged at least 40 years. The International HIV Dementia Scale (IHDS) and Chinese version of Mini-mental State Examination (MMSE) were administered to screen for NCI. HIV-infected individuals had higher prevalence of NCI than uninfected individuals (46.7% vs 15.1% for IHDS using cut-off of $$< 10$$; 17.1% vs 2.6% for MMSE). Significant main effects of HIV and age were observed on IHDS and MMSE composite scores and all domains except for HIV on attention and calculation. Significant interaction effects between HIV and age were observed on motor speed, orientation, registration and recall, and mainly attributed to the inferior performance of HIV-infected patients aged over 60 years. Among HIV-infected individuals, in multivariable logistic models, older age, depressive symptoms and history of nevirapine treatment were associated with NCI using both IHDS and MMSE, whereas lower education current smoker and current CD4 $$>/= 800$$ cells/muL were associated only with NCI using IHDS, and hypertension was associated only with NCI using MMSE. Findings suggest that HIV and older age may confer interactive effects on cognitive function in several domains with older HIV-infected adults experiencing greater NCI, which requires further longitudinal investigation. Furthermore, HIV early diagnosis and treatment may prevent or reverse NCI, but extra attention should be given to adverse effects including metabolic changes associated with long-term treatment.


Cognitive impairment is a significant health concern for people aging with HIV/AIDS. Using a community-based participatory research (CBPR) framework, we surveyed (n = 108) and interviewed (n = 20) people living with HIV who were over age 50 about their cognitive concerns and recommendations for social work intervention development. Quantitative findings indicate that our sample was greatly engaged in their HIV care, yet participants had many cognitive concerns. Qualitative findings highlighted fear, shame, and uncertainty concerning HIV and aging alongside a need for increased social work support. This paper provides practical engagement strategies for social workers to support clients concerning HIV, aging, and cognition.


As the HIV+ population ages, the risk for and need to screen for HIV-associated neurocognitive disorders (HAND) increases. The aim of this study is to determine the utility and ecological validity of the Montreal Cognitive Assessment (MoCA) among older HIV+ adults. A total of 100 HIV+ older adults aged 50 years or over completed a comprehensive neuromedical and neuropsychological battery, including the MoCA and several everyday functioning measures. The receiver operating characteristic curve indicates $$<=26$$ as the optimal cut-off balancing sensitivity (84.2%) and specificity (55.8%) compared to "gold standard" impairment as measured on a comprehensive neuropsychological battery. Higher MoCA total scores are significantly ($$p < .01$$) associated with better
performance in all individual cognitive domains except motor abilities, with the strongest association with executive functions ($r = -0.49$, $p < .01$). Higher MoCA total scores are also significantly ($p < .01$) associated with fewer instrumental activities of daily living declines ($r = -0.28$), fewer everyday cognitive symptoms ($r = -0.25$), and better clinician-rated functional status (i.e., Karnofsky scores; $r = 0.28$); these associations remain when controlling for depressive symptoms. HIV+ individuals who are neurocognitively normal demonstrate medium-to-large effect size differences in their MoCA performance compared to those with asymptomatic neurocognitive impairment ($d = 0.85$) or syndromic HAND (mild neurocognitive disorder or HIV-associated dementia; $d = 0.78$), while the latter two categories do not differ. Although limited by less than optimal specificity, the MoCA demonstrates good sensitivity and ecological validity, which lends support to its psychometric integrity as a brief cognitive screening tool among older HIV+ adults.


Objective: The prevalence of older adults living with HIV is rising, as is their risk for everyday functioning problems associated with neurocognitive dysfunction. Multitasking, the ability to maintain and carry out subgoals in support of a larger goal, is a multidimensional skill ubiquitous during most real-life tasks and associated with prefrontal networks that are vulnerable in HIV. Understanding factors associated with multitasking will improve characterization of HIV-associated neurocognitive disorders. Metacognition is also associated with frontal systems, is impaired among individuals with HIV, and may contribute to multitasking. Method: Ninety-nine older (>=50 years) adults with HIV completed: the Everyday Multitasking Test (MT), a performance-based measure during which participants concurrently attempt four everyday tasks (e.g., medication management) within a time limit; a comprehensive neuropsychological battery; measures of metacognition regarding their MT performance (e.g., metacognitive knowledge and online awareness). Results: Better global neuropsychological performance (i.e., average T-score across all domains) was associated with better Everyday MT total scores ($r = 0.34$; $p < .001$), as was global metacognition ($r = 0.37$, $p < .01$). Bootstrapping mediation analysis revealed global metacognition was a significant partial mediator between neurocognition and Everyday MT ($b = 0.09$, 95% confidence interval [CI] = 0.01, 0.25). Specifically, metacognitive knowledge (but not online awareness) drove this mediation ($b = 0.13$, 95% CI = 0.03, 0.27). Conclusions: Consistent with findings among younger persons with HIV, neuropsychological performance is strongly associated with a complex, laboratory-based test of everyday multitasking, and metacognition of task performance was a pathway through which successful multitasking occurred. Interventions aimed at modifying metacognition to improve daily functioning may be warranted among older adults with HIV.


The objective of this study was to examine combination speed of processing (SOP) cognitive remediation therapy (CRT) and transcranial direct stimulation (tDCS) as neurorehabilitation in older HIV+ adults. Thirty-three HIV+ adults aged 50+ completed neurocognitive testing and were randomized to either active ($n = 17$) or sham ($n = 16$) tDCS. Both conditions received 10 1-hour sessions of SOP CRT, with either active or sham tDCS for the first 20 minutes. Participants then completed a posttest assessment. Repeated measures analysis of variance examining Time X Condition showed small-to-medium effects in the expected direction for an executive ($d = 0.36$), and SOP measure ($d = 0.49$), while medium-to-large effects were observed for an executive/attention ($d = 0.60$) and oral reading measure ($d = 0.75$). The only statistically significant interaction was the oral reading measure. Small-to-medium and medium-to-large effects ($d$s = 0.32, 0.58) were found for two SOP measures in the opposite direction (sham group showing greater improvements). Further trials of CRT and tDCS in this population are needed, including larger samples and a nonactive control and tDCS only condition, as is determination of which parameters of each technique (e.g., tDCS montage, timing of tDCS, domain targeted in CRT, number of sessions) are most effective in improving cognitive outcomes, durability of training gains, and translation to everyday functioning.


Physical frailty is often associated with cognitive impairment, possibly because of common underlying pathophysiologic mechanisms. To stimulate research in this field, the concept cognitive frailty was proposed, emphasizing the important role of brain
Neurocognitive impairment (NCI) is an increasingly important comorbidity in an ageing HIV+ population. Despite the lack of available treatment modalities, screening for NCI is recommended. In the UMC Utrecht, yearly NCI screening is done using the Montreal Cognitive Assessment (MoCA) tool and the HIV Dementia Scale (HDS). The aim of this study was to evaluate this screening protocol in relation to clinical outcomes and management. A retrospective cohort study was performed in suppressed adult HIV+ patients. Apart from the MoCA and the HDS, the Utrecht Scale for Evaluation of Rehabilitation (USER-P) and the Hospital Anxiety and Depression Scale (HADS) were performed. Patients scoring below average on cognitive screening tests or with subjective cognitive complaints were further evaluated using a standardized protocol, including optimizing cART and checking for somatic disorders. In patients with cognitive complaints and participation restrictions, cognitive rehabilitation was proposed. Two
People living with HIV/AIDS (PLWHA) in the United States (US) have disproportionately high rates of food insecurity (FI). In the general population, FI has been associated with cognitive impairment among older adults and may exacerbate HIV-associated neurocognitive disorders. The current study assessed the effects of FI and HIV infection on the neuropsychological performance of 61 HIV-positive and 36 HIV-negative adults in the US. While the main effects were minimal, the interactive effects revealed that FI was related to deficits in speed of information processing, learning, memory, motor function, and overall cognitive impairment for


BACKGROUND/AIMS: In the quest for prevention or treatment, there is a need to find early markers for preclinical dementia. This study observed memory clinic patients with subjective cognitive impairment (SCI) and normal cognitive function at baseline. The primary aim was to address SCI as a potential risk factor for cognitive decline. The secondary aim was to address a potential relation between (1) baseline cerebrospinal fluid biomarkers and (2) a decline in memory performance over the first 2 years of follow-up, with a possible cognitive decline after 6 years. METHODS: Eighty-one patients (mean age 61 years) were recruited from university memory clinics and followed up for 6 years. RESULTS: Eighty-six percent of the cohort remained cognitively stable or improved, 9% developed mild cognitive impairment, and only 5% (n = 4) developed dementia. Regression analysis revealed that low levels of Abeta42 at baseline and memory decline during the first 2 years predicted dementia. When combined, these variables were associated with a 50% risk of developing dementia. CONCLUSIONS: Cognitive stability for 86% of the cohort suggests that SCI is predominantly a benign condition with regard to neuropathology. The low number of individuals who developed dementia limits the generalizability of the results and discussion of progression factors.


People living with HIV/AIDS (PLWHA) in the United States (US) have disproportionately high rates of food insecurity (FI). In the general population, FI has been associated with cognitive impairment among older adults and may exacerbate HIV-associated neurocognitive disorders. The current study assessed the effects of FI and HIV infection on the neuropsychological performance of 61 HIV-positive and 36 HIV-negative adults in the US. While the main effects were minimal, the interactive effects revealed that FI was related to deficits in speed of information processing, learning, memory, motor function, and overall cognitive impairment for


BACKGROUND: The human immunodeficiency virus (HIV) is associated with cognitive impairment, and loneliness is associated with cognitive decline in old age. Older Black adults with HIV may be at particular risk of loneliness due to stigma and lack of social resources. OBJECTIVE: We tested the hypotheses that (1) older Black adults with HIV would show greater loneliness than older White adults with HIV, and (2) greater loneliness among older Black adults with HIV would be associated with poorer cognitive function. METHODS: A total of 370 participants (177 with HIV, 193 without HIV; mean age 58.8 years, standard deviation 6.2 years; mean education 13.4 years, standard deviation 2.9 years; 73.9% male, 68.9% Black) in a community-based cross-sectional study of the Rush Center of Excellence on Disparities in HIV and Aging (CEDHA) completed a 5-item self-report scale used to measure emotional loneliness and a battery of cognitive measures. RESULTS: Contrary to our expectations, older Black adults indicated less overall loneliness than White adults (beta = -0.3893, SE = 0.1466, p = 0.0087) in models controlling for the effects of age, education, sex, global cognition, and income. However, in models with cognitive function as the outcome, an interaction between race and loneliness was observed, such that older Black adults who indicated greater loneliness showed poorer cognitive function relative to White adults (beta = -0.2736, SE = 0.1138, p = 0.0174). CONCLUSION: Older Black adults with HIV reported less loneliness than older White adults; however, the inverse association between loneliness and cognitive function was stronger in Black than White older adults. Additional work is needed to elucidate the mechanisms underlying this interaction.

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the HIV-positive group, but not the HIV-negative group. The interactive effects remained after controlling for relevant sociodemographic characteristics. Although bidirectional associations cannot be ruled out in a cross-sectional study, the results suggest that FI may contribute to cognitive impairment among HIV-positive adults in the US. Given the high rates of socioeconomic disadvantage among PLWHA in the US, addressing FI as part of routine clinical care may be warranted.


With successful antiretroviral therapy in the US, HIV-positive adults now routinely survive into old age. However, increased life expectancy with HIV introduces the added complication of age-related cognitive decline. Aging with HIV has been associated with poorer cognitive outcomes compared to HIV-negative adults. While up to 50% of older HIV-positive adults will develop some degree of cognitive impairment over their lifetime, cognitive symptoms are often not consistently monitored, until those symptoms are significant enough to impair daily life. In this study we found that subjective memory complaint (SMC) ratings correlated with measurable memory performance impairments in HIV-positive adults, but not HIV-negative adults. As the HIV-positive population ages, structured subjective cognitive assessment may be beneficial to identify the early signs of cognitive impairment, and subsequently allow for earlier interventions to maintain cognitive performance as these adults continue to survive into old age.


PURPOSE OF REVIEW: As of the year 2016, an estimated 50% of the United States' HIV-Positive population is aged 50 years or older. Due to a combination of increased rates of infection in older adults, and successful anti-retroviral (ART) regimens allowing HIV-positive adults to survive for decades with the disease, we are now faced with a steadily graying HIV-positive population, with only limited knowledge of how the cognitive and physiological effects of aging intersect with those of chronic HIV-infection. RECENT FINDINGS: Age-related changes to mood, cognition, and neurological health may be experienced differently in those living with HIV, and research concerning quality of life, mental health, and cognitive aging needs to account for and explore these factors more carefully in the coming years. SUMMARY: This review will explore the topic of cognitive aging with HIV: 1. Central nervous system (CNS) infection of HIV and how the virus affects brain integrity and function; 2. Cognitive and behavioral symptoms of HIV-Associated Neurocognitive Disorders (HAND); 3. Neurobiological theories of Cognitive Aging and how these processes may be exacerbated by HIV-infection; 4: Clinical implications and complications of aging with HIV and factors that may result in poorer cognitive outcomes.


There is no detailed information on the association between age, time of disease, and HIV-associated neurocognitive disorders (HAND). In this prospective study involving 17 medical facilities across Japan, we recruited HIV-infected patients to complete a 14-test neuropsychological battery that assess eight neurocognitive domains. HAND were diagnosed by the Frascati criteria. Of 1399 recruited patients, 728 were enrolled. The prevalence of HAND was 25.3% [13.5% asymptomatic neurocognitive impairment, 10.6% mild neurocognitive disorder (MND), and 1.2% HIV-associated dementia (HAD)]. Tests that assess executive and visuospatial functions showed better diagnostic accuracy than other tests for HAND. Multivariate analysis identified age (>/>= 50 years) and incomplete virological suppression as risk factors for MND and HAD and current ART as a protective factor. The prevalence of MND and HAD was low in the early stage of infection (6.3% in >/= 2 to < 6 years), then increased in the later stage [17.3% in >/= 11 years, p = 0.001 (vs. >/>= 2 to < 6 years)], independent of age or treatment. Older patients were more likely to show MND or HAD in the early stage of HIV infection (26.7 vs. 8.7% for < 2 years and 17.4 vs. 3.1% for >/>= 2 to < 6 years, p = 0.040 and 0.004, respectively) compared to younger ones. In conclusion, MND and HAD were more commonly found in later years since diagnosis of HIV infection and older patients are at risk of neurocognitive impairment at the early stage of HIV infection. Tests for executive and visuospatial functions seem more sensitive than other tests for diagnosing HAND.
OBJECTIVE: Older persons with HIV are at risk for impaired cognition, yet there is limited information on modifiable factors associated with neurocognitive function in this group. DESIGN: This is a cross-sectional observational study of cognitive activities and neurocognitive function. METHODS: We examined the relation between frequency of cognitive activity and current neurocognitive performance in 176 older persons with HIV [70% African American, 76% men; mean age = 58.7 (SD = 5.5); mean education = 13.2 (SD = 2.8)]. RESULTS: In linear regression models adjusted for demographic variables, we found that higher frequency of cognitive activity was associated with better cognition in global cognition, semantic memory, and perceptual speed. Subsequent models that examined the role of race demonstrated that the association was significant only among Blacks for global cognition, episodic memory, working memory, and perceptual speed (interaction of cognitive activity by race: Estimate range = 0.38-0.55; all P < 0.05). CONCLUSION: Greater frequency of cognitive activity is associated with better neurocognitive function in older persons with HIV, particularly older Blacks. Longitudinal studies are needed to assess the relation of cognitive activity to change in neurocognitive function in older persons with HIV.


BACKGROUND: People with acquired immune deficiency syndrome (AIDS) develop ischemic stroke through distinct mechanisms. These include infections such as syphilis, tuberculosis, varicella, and other conditions such as cocaine abuse, endocarditis, and hypercoagulability. The effect of improved awareness, detection, and treatment with highly active antiretroviral therapy (HAART) on the incidence and outcome of AIDs patients with stroke is unknown. METHODS: Data from the Nationwide Inpatient Sample from 1995 to 2010 were analyzed. Patients with ischemic stroke and AIDS were identified using ICD-9 (International Classification of Diseases) codes. Time trends for demographics, survival, and frequency of AIDS-associated conditions were analyzed. RESULTS: Proportion of AIDS among stroke patients increased significantly during the study. Median age of all strokes decreased from 75 years in 1995 to 72 years in 2010. Conversely, median age for men with stroke and AIDS increased from 43 years to 53 years; and for women with stroke and AIDS, from 41 years to 51 years. Death rates from stroke in the AIDS patients declined. In recent years, the death rates from stroke are similar to patients without HIV/AIDS. Stroke patients with AIDS had increased odds of syphilis (odds ratio [OR]: 33.50), varicella (OR: 48.34), tuberculosis (OR: 137.48), endocarditis (OR: 5.19), cocaine abuse (OR: 26.05), and hypercoagulability (OR: 4.82). CONCLUSIONS: In the HAART era, the median age of incident stroke in AIDS has increased and the mortality from stroke has improved. Research should focus on optimal management of dyslipidemia while on HAART. Whether HAART can reduce the incidence and improve survival of stroke needs to be explored.


PURPOSE: Substance use has been linked to the sexual transmission of HIV among gay, bisexual, and other men who have sex with men (MSM) across the lifespan. Among older, HIV-positive, MSM populations, cognitive dysfunction associated with age and HIV disease progression also may play a role in sexual risk-taking. People aged 50 years and older represent a growing proportion of the overall HIV-positive population. This study aimed to explore relationships between substance use and cognitive function, and their impact on condomless anal sex (CAS) among HIV-positive gay, bisexual, and other MSM aged 50 years and older. METHODS: Data from a cross-sectional study of HIV-positive MSM, aged 50 and older (N = 169) were gathered using a computer-assisted survey, researcher-administered behavioral and neurocognitive measures. RESULTS: More than 50% of the men used substances and had one or more cognitive impairments. However, only 25% were at higher risk for dementia (i.e., two or more cognitive impairments). Multivariable modeling indicated that use of alcohol to intoxication and date of HIV diagnosis were the strongest predictors of CAS in both a model that included dementia risk and a model that included impaired executive function risk. Current illicit substance use was a significant predictor of CAS only in the model that included dementia risk. Those with better cognitive and executive function had higher odds of CAS. However, only executive function was a significant cognitive predictor of CAS. CONCLUSION: Further research is needed to clarify the impact of cognitive function and substance use on sexual risk behaviors as these HIV-positive men achieve normal life expectancies, while continuing to use substances and engage in CAS. Furthermore, addiction treatment remains a critical need for this group even as they transition into later adulthood.

Despite improved survival due to combination antiretroviral therapy (cART), youth with perinatally-acquired HIV (PHIV) show cognitive deficits and developmental delay at increased rates. HIV affects the brain during critical periods of development, and the brain may be a persistent reservoir for HIV due to suboptimal blood brain barrier penetration of cART. We conducted structural magnetic resonance imaging (sMRI) and cognitive testing in 40 PHIV youth (mean age=16.7years) recruited from the NIH Pediatric HIV/AIDS Cohort Study (PHACS) who are part of the first generation of PHIV youth surviving into adulthood. Historical and current HIV disease severity and substance use measures were also collected. Total and regional cortical grey matter brain volumes were compared to a group of 334 typically-developing, HIV-unexposed and uninfected youth (frequency-matched for age and sex) from the Pediatric Imaging, Neurocognition, and Genetics (PING) study (mean age=16.1years). PHIV youth had smaller (2.8-5.1%) total and regional grey matter volumes than HIV-unexposed and uninfected youth, with smallest volumes seen among PHIV youth with higher past peak viral load (VL) and recent unsuppressed VL. In PHIV youth, worse cognitive performance correlated with smaller volumes. This pattern of smaller grey matter volumes suggests that PHIV infection may influence brain development and underlie cognitive dysfunction seen in this population. Among PHIV youth, smaller volumes were also linked to substance use (alcohol use: 9.0-13.4%; marijuana use: 10.1-16.0%). In this study, collection of substance use information was limited to the PHIV cohort; future studies should also collect substance use information in controls to further address interactions between HIV and substance use on brain volume.


Psychiatric comorbidities are common in people living with HIV (PLWH) and adversely affect life satisfaction, treatment adherence and disease progression. There are few data to inform the burden of psychiatric symptoms in older PLWH, a rapidly growing demographic in the U.S. We performed a cross-sectional analysis to understand the degree to which symptom burden was associated with cognitive disorders in PLWH over age 60. Participants completed a standardized neuropsychological battery and were assigned cognitive diagnoses using Frascati criteria. We captured psychiatric symptom burden using the Geriatric Depression Scale (GDS) and proxy-informed Neuropsychiatric Inventory-Questionnaire (NPI-Q). Those diagnosed with HIV-associated neurocognitive disorders (HAND, n = 39) were similar to those without HAND (n = 35) by age (median = 67 years for each group, p = 0.696), education (mean = 16 years vs. 17 years, p = 0.096), CD4+ T-lymphocyte counts (mean = 520 vs. 579, p = 0.240), duration of HIV (median = 21 years for each group, p = 0.911) and sex (92% male in HAND vs. 97% in non-HAND, p = 0.617). Our findings showed similarities in HAND and non-HAND groups on both NPI-Q (items and clusters) and GDS scores. However, there was a greater overall symptom burden in HIV compared to healthy elder controls (n = 236, p < 0.05), with more frequent agitation, depression, anxiety, apathy, irritability and nighttime behavior disturbances (p < 0.05). Our findings demonstrate no differences in psychiatric comorbidity by HAND status in older HIV participants; but confirm a substantial neurobehavioral burden in this older HIV-infected population.


HIV infection and alcohol use disorder are associated with deficits in neurocognitive function. Emerging evidence points to pro-inflammatory perturbations of the gut-brain axis as potentially contributing to neurocognitive impairment in the context of HIV and chronic heavy alcohol use. This study examined whether plasma markers of microbial translocation (LPS) from the gastrointestinal tract and related immune activation (sCD14, EndoCAb) were associated with neurocognition in 21 men living with HIV who were virally suppressed on antiretroviral therapy. All participants met federal criteria for heavy drinking and were enrolled in a randomized controlled trial (RCT) of a brief alcohol intervention. This secondary analysis utilized blood samples and cognitive scores (learning, memory, executive function, verbal fluency, and processing speed) obtained at baseline and three-month follow-up of the RCT. In generalized estimating equation models, LPS, sCD14, and EndoCAb individually were significant predictors of processing speed. In a model with all biomarkers, higher LPS and sCD14 both remained significant predictors of lower processing

OBJECTIVES: HIV-associated neurocognitive disorders are highly prevalent, and physical activity (PA) is a modifiable behaviour that may affect neurocognitive function. Our objective was to determine the association between PA and neurocognitive function and the effect of HIV on this association. METHODS: PA was assessed in the Multicenter AIDS Cohort Study with the International Physical Activity Questionnaire. A neuropsychological test battery assessed global impairment and domain-specific impairment (executive function, speed of processing, working memory, learning, memory, and motor function) every 2 years. Semiannually, the Symbol Digit Modalities Test and Trail Making Test Parts A and B were performed. Adjusted logistic regression models were used to assess the PA-neurocognitive function association. Using longitudinal data, we also assessed the PA category-decline of neurocognitive function association with multivariate simple regression. RESULTS: Of 601 men, 44% were HIV-infected. Low, moderate, and high PA was reported in 27%, 25%, and 48% of the HIV-infected men vs. 19%, 32% and 49% of the HIV-uninfected men, respectively. High PA was associated with lower odds of impairment of learning, memory, and motor function [odds ratio (OR) ranging from 0.52 to 0.57; P < 0.05 for all]. The high PA-global impairment association OR was 0.63 [95% confidence interval (CI) 0.39, 1.02]. Among HIV-infected men only, across multiple domains, the high PA-impairment association was even more pronounced (OR from 0.27 to 0.49). Baseline high/moderate PA was not associated with decline of any domain score over time. HIV infection was marginally associated with a higher speed of decline in motor function. CONCLUSIONS: A protective effect of high PA on impairment in neurocognitive domains was observed cross-sectionally. Longitudinal PA measurements are needed to elucidate the PA-neurocognitive function relationship over time.


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 using a well-standardized neurobehavioral and neuromedical assessment 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 in 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.


Objectives: The aim of this study was to compare plasma biomarkers of coagulation between HIV-infected individuals and HIV-uninfected controls and to assess the impact of disturbances in coagulation on neurocognitive functioning in HIV. Design: A cross-sectional study of 66 antiretroviral therapy treated, virally suppressed, HIV-infected and 34 HIV-uninfected older (>= 50 years of age) adults. Methods: Participants completed standardized neurobehavioral and neuromedical assessments. Neurocognitive
functioning was evaluated using a well validated comprehensive neuropsychological battery. Plasma biomarkers associated with procoagulation (fibrinogen, p-selectin, tissue factor and von Willebrand factor), anticoagulation (antithrombin, protein C and thrombomodulin), fibrinolysis (d-dimer, plasminogen activator inhibitor-1 and plasminogen) were collected. Multivariable linear regression was used to test the interaction of HIV and coagulation on neurocognitive functioning. Results: Most participants were male (78.0%) and non-Hispanic white (73.0%) with a mean age of 57.8 years. Among HIV-infected participants, mean estimated duration of HIV infection was 19.4 years and median current CD4(+) cell count was 654 cells/ml. Levels of soluble biomarkers of procoagulation, anticoagulation and fibrinolysis were comparable between the HIV serostatus groups. Coagulation and HIV had an interacting effect on neurocognitive functioning, such that greater coagulation imbalance was associated with poorer neurocognitive functioning among the HIV-infected participants. The moderating effect of coagulation on neurocognition was driven by procoagulant but not anticoagulant or fibrinolytic biomarkers. Conclusions: Elevated levels of procoagulants may exert a particularly detrimental effect on neurocognitive functioning among older HIV-infected persons. A better understanding of the specific role of coagulation in the cause of HIV-associated neurocognitive disorders may lead to treatments aimed at reducing coagulopathy, thereby improving neurocognitive outcomes.


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We aimed to characterize successful cognitive aging (SCA) among older HIV-infected (HIV+) and HIV-uninfected (HIV-) adults, and to determine associations with positive psychological factors and health-related quality of life (HRQoL). Ninety-nine HIV+ and 46 HIV- older adults (> = 50 years) completed measures of neurocognition, positive psychological factors, and HRQoL. Using study-defined SCA criteria (i.e., no cognitive or everyday impairment or major depressive disorder), we compared positive psychological factors and HRQoL across four groups: HIV+/SCA+, HIV+/SCA-, HIV-/SCA+, HIV-/SCA-. SCA was identified in 29% of the HIV+ sample compared to 61% of the HIV- sample (p < 0.01). HIV+/SCA+ participants had higher scores on 8 of 10 measures of positive psychological factors as well as better HRQoL (ps < 0.05) as compared to the HIV+/SCA- group. Furthermore, the HIV+/SCA+ participants had comparable scores on these factors as HIV- adults. Fewer HIV+ than HIV- participants met SCA criteria; however, the level of positive psychological factors among the HIV+/SCA+ group was comparable to the HIV- sample. Our findings present opportunities for interventions to optimize positive psychological factors and potentially improve SCA among older HIV+ adults.

To determine the relationships among body mass index (BMI), and HIV-associated neurocognitive impairment and the potential mediating effects of inflammatory cytokines. Among the HIV-infected individuals (N = 90) included in this study, obesity was associated with slower processing speed (beta = -.229, standard error (SE) = 2.15, p = .033), compared to participants with a normal BMI, after controlling for psychosocial and HIV clinical factors. Serum concentrations of the interleukin-16 (IL-16) cytokine were significantly associated with slowed processing speed (beta = -.235, SE = 1.62, p = .033) but did not mediate the relationship between obesity and processing speed. These findings suggest that obesity may contribute to cognitive processing speed deficits in HIV-infected adults. Elevated concentrations of IL-16 are also associated with slowing, though the results suggest that obesity and IL-16 may exert independent effects.


Routine screening for psychological and cognitive difficulties is recommended in BHIVA guidelines but screening questions are not specified and studies give varied recommendations. Our aim was to see if simple screening in the routine clinic could help better direct our referrals to psychology and highlight those patients requiring, and likely to benefit from, further assessment. We introduced brief questions to assess neurocognitive impairment (NCI) and mood into routine HIV visits, with an onward referral pathway for further investigation for those screening positive. Routine attendees to HIV outpatient care over 12 weeks completed brief screening for depression (PHQ-2) and anxiety (GAD-2) and answered three short questions to screen for possible neurocognitive impairment (NCI-3Q). Patients screening positive underwent further screening via our psychologists and/or referral for neuropsychometric testing. Patient demographics, HIV markers and treatment history were recorded. 97 HIV outpatients were screened; 44 (45%) initially screened positive for NCI and/or mood. 29/44 (66%) were referred for further screening and/or psychological assessment and 21/29 (72%) of those engaged. The Montreal Cognitive Assessment (MoCA) and International HIV Dementia Scale (IHDS) were conducted on seven patients; four of these received full neuropsychometric testing. A detectable viral load was associated with positive neurocognitive screening. Rates of NCI and mood disorder among those who were tested were consistent with previous studies. The PHQ-2 and GAD-2 did detect mood problems; however, our results suggest the NCI-3Q questions alone are not good at detecting those with possible NCI. Screening for NCI remains practically difficult in the routine outpatient setting and this pilot supports the need for clearer guidelines on detecting HIV related NCI.


Sub-Saharan Africa is home to 90% of HIV infected (HIV+) children. Since the advent of antiretroviral therapy (ART), HIV/AIDS has transitioned to a chronic condition where central nervous system (CNS) damage may be ongoing. Although, most guidelines recommend early ART to reduce CNS viral reservoirs, the brain may be more vulnerable to potential neurotoxic effects of ART during the rapid development phase in the first years of life. Here we investigate differences in subcortical volumes between 5-year-old HIV+ children who received early ART (before age 18 months) and uninfected children using manual tracing of Magnetic Resonance Images. Participants included 61 Xhosa children (43 HIV+/18 uninfected, mean age = 5.4 +/- 0.3 years, 25 male) from the children with HIV early antiretroviral (CHER) trial; 27 children initiated ART before 12 weeks of age (ART-Before12Wks) and 16 after 12 weeks (ART-After12Wks). Structural images were acquired on a 3T Allegra MRI in Cape Town and manually traced using MultiTracer. Volumetric group differences (HIV+ vs. uninfected; ART-Before12Wks vs. ART-After12Wks) were examined for the caudate, nucleus accumbens (NA), putamen (Pu), globus pallidus (GP), and corpus callosum (CC), as well as associations within infected children of structure volumes with age at ART initiation and CD4/CD8 as a proxy for immune health. HIV+ children had significantly larger NA and Pu volumes bilaterally and left GP volumes than controls, whilst CC was smaller. Bilateral Pu was larger in both treatment groups compared to controls, while left GP and bilateral NA were enlarged only in ART-After12Wks children. CC was smaller in both treatment groups compared to controls, and smaller in ART-After12Wks compared to ART-Before12Wks. Within infected children, delayed ART initiation was associated with larger Pu volumes, effects that remained significant when controlling for sex and duration of treatment interruption (left beta = 0.447, p = 0.005; right beta = 0.325, p = 0.051), and lower CD4/CD8 with larger caudate controlling for sex (left beta = -0.471, p = 0.002; right beta = -0.440, p = 0.003). Volumetric differences were greater...
in children who initiated ART after 12 weeks. Results suggest damage is ongoing despite early ART and viral load suppression; however, earlier treatment is neuroprotective.


Depression in people living with HIV/AIDS (PLWHA) is highly prevalent and related to worse adherence to antiretroviral therapy, but is amenable to change via CBT. Cognitive-behavioral therapy for adherence and depression (CBT-AD) specifically addresses negative automatic thoughts (ATs) as one component of the treatment. There is little research on the temporal nature of the relation between ATs and depression. HIV-positive adults with depression (N=240) were randomized to CBT-AD, information/supportive psychotherapy for adherence and depression (ISP-AD), or one session of adherence counseling alone (ETAU). ATs were self-reported (Automatic Thoughts Questionnaire; ATQ) and depression was assessed by blinded interview (Montgomery-Asberg Depression Rating Scale; MADRS) at baseline, and 4-, 8-, and 12-months. We performed autoregressive cross-lagged panel models. Broadly, decreases in ATs were followed by decreases in depression, but decreases in depression were not followed by decreases in ATs. In CBT-AD, decreases in ATs were followed by decreases in depression, and vice versa. However, in the ISP group, while depression and ATs both significantly influenced each other, not all relations were in the direction expected. This study adds to the evidence base for cognitive interventions to decrease depression in individuals with a chronic medical condition, HIV/AIDS.


Despite the availability of effective antiretroviral therapies, cognitive impairment (CI) remains prevalent in HIV-infected (HIV+) individuals. Evidence from primarily cross-sectional studies, in predominantly male samples, implicates monocyte- and macrophage-driven inflammatory processes linked to HIV-associated CI. Thus, peripheral systemic inflammatory markers may be clinically useful biomarkers in tracking HIV-associated CI. Given sex differences in immune function, we focused here on whether mean and intra-individual variability in inflammatory marker-predicted CI in HIV+ and HIV- women. Seventy-two HIV+ (36 with CI) and 58 HIV- (29 with CI) propensity-matched women participating in the Women’s Interagency HIV Study completed a neuropsychological battery once between 2009 and 2011, and performance was used to determine CI status. Analysis of 13 peripheral immune markers was conducted on stored biospecimens at three time points (7 and 3.5 years before neuropsychological data collection and concurrent with data collection). HIV+ women showed alterations in 8 immune markers compared to HIV- women. The strongest predictors of CI across HIV+ and HIV- women were lower mean soluble tumor necrosis factor receptor I (sTNFRI) levels, higher mean interleukin (IL)-6 levels, and greater variability in C-reactive protein (CRP) and matrix metalloproteinase (MMP)-9 (p values < 0.05). Stratified by HIV, the only significant predictor of CI was greater variability in CRP for both HIV+ and HIV- women (p values < 0.05). This variability predicted lower executive function, attention/working memory, and psychomotor speed in HIV+ but only learning in HIV- women (p values < 0.05). Intra-individual variability in CRP levels over time may be a good predictor of CI in predominately minority low-socioeconomic status midlife women.


OBJECTIVE: Psychological risk factors (PRFs) are associated with impaired learning and memory in HIV-infected (HIV+) women. We determined the dynamic nature of the effects of PRFs and HIV serostatus on learning and memory over time. DESIGN: Multi-center, prospective cohort study METHODS:: Every two years between 2009 and 2013 (3 times), 646 HIV+ and 300 demographically-similar HIV-uninfected (HIV-) women from the Women’s Interagency HIV Study completed neuropsychological (NP) testing and questionnaires measuring PRFs (perceived stress, post-traumatic stress disorder (PTSD) symptoms, depressive symptoms). Using mixed-effects regressions, we examined separate and interactive associations between HIV-serostatus and PRFs on performance over time. RESULTS: HIV+ and HIV- women had similar rates of PRFs. Fluency was the only domain where performance over time depended on the combined influence of HIV-serostatus and stress or PTSD (p’s < 0.05); not depression. In HIV, higher stress and PTSD were associated with a greater cognitive decline in performance (p’s < 0.05) versus lower stress and
PTSD. Irrespective of time, performance on learning and memory depended on the combined influence of HIV-serostatus and stress or PTSD (p's < = 0.05). In the context of HIV, stress and PTSD were negatively associated with performance. Effects were pronounced on learning among HIV+ women without effective treatment or viral suppression. Regardless of time or HIV-serostatus, all PRFs were associated with lower speed, global NP, and executive function. CONCLUSIONS: More than depression, perceived stress and PTSD symptoms are treatment targets to potentially improve fluency, learning, and memory in women living with HIV particularly when HIV treatment is not optimal.


OBJECTIVE: To determine whether persistent viral suppression alters cognitive trajectories among HIV-infected (HIV+) women on combination antiretroviral therapy (cART) by investigating performance longitudinally in uninfected (HIV-) and 3 groups of HIV+ women: those with consistent viral suppression after continuous cART use (VS), those without consistent virologic suppression despite continuous cART use (NVS), and those without consistent virologic suppression after intermittent cART use (Int NVS). METHODS: Two hundred thirty-nine VS, 220 NVS, 172 Int NVS, and 301 HIV- women from the Women's Interagency HIV Study (WIHS) completed neuropsychological testing every 2 years for 3 visits between 2009 and 2013. Mixed-effects regressions were used to examine group differences on continuous T scores and categorical measures of impairment (T score <40). RESULTS: On global function, VS women demonstrated lower scores and were more likely to score in the impaired range than HIV- women (p = 0.01). These differences persisted over time (group x time, p > 0.39). VS women demonstrated lower learning and memory scores than HIV- women (p < 0.05) and lower attention/working memory and fluency scores than HIV- and NVS women (p < 0.05). Group differences in scores persisted over time. Categorically, VS women were more likely to be impaired on attention/working memory and executive function than HIV- women (p < 0.05). On motor skills, VS and NVS women showed a greater decline and were more likely to be impaired than HIV- women (p < 0.05). CONCLUSIONS: Cognitive difficulties remain among HIV+ women despite persistent viral suppression. In some instances, VS women are worse than NVS women, reinforcing the need for novel adjunctive therapies to attenuate cognitive problems.


Objective: Glucocorticoids are released in response to stress and alter cognition and brain function through both rapid nongenomic and slow genomic mechanisms. Administration of glucocorticoids in the form of hydrocortisone enhances aspects of learning and memory in individuals with PTSD but impairs these abilities in healthy individuals. We examine the time-dependent effects of glucocorticoids on cognition in HIV-infected men. Methods: In a double-blind placebo-controlled crossover study, we examined the time-dependent effects of a single low dose of hydrocortisone [10 mg; low-dose hydrocortisone (LDH)] on cognition in 45 HIV-infected men. Participants were randomized to receive either LDH or placebo and one month later, were given the opposite treatment. At each intervention session, cognition was assessed 30 minutes (assessing nongenomic effects) and 4 hours (assessing genomic effects) after pill administration. Self-reported stress/anxiety and cortisol/cytokines in saliva were measured throughout each session. Results: Compared with placebo, LDH doubled salivary cortisol levels. Cortisol returned to baseline 4 hours postadministration. At the 30-minute assessment, LDH enhanced verbal learning compared with placebo. Greater increases in cortisol were associated with greater enhancements in verbal learning. LDH did not affect subjective stress/anxiety or any other cognitive outcomes at the 30-minute or 4-hour time point. Conclusions: The rapid effects of LDH on verbal learning suggests a nongenomic mechanism by which glucocorticoids can enhance cognition in HIV-infected men. The nonenduring nature of this enhancement may limit its clinical utility but provides insight into mechanisms underlying the effects of acute glucocorticoids on learning.


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 University of California, San Diego 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 \( \geq 0.75 \text{ mg}/\text{L} \) 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.


The present review on HIV-associated neurocognitive disorders (HAND) provides a worldwide overview of studies that have investigated the rate and neuropsychological (NP) profile of HAND research since the inception of the 2007 HAND diagnostic nomenclature. In the first part, the review highlights some of the current controversies around HAND prevalence rates. In the second part, the review critically assesses some solutions to move the field forward. In the third part, we present the cross-sectional NP profile in non-Western HIV+ cohorts and in relation to Western cohorts’ findings. The adopted global perspective highlights the successful expansion of NP studies in HIV infection to culturally diverse low- to medium-income countries with high HIV burden. These studies have produced interestingly similar rates of HAND whether patients were naive or treated and/or virally suppressed compared to the rich income countries where the NP research in NeuroHIV has originated. The perspective also demonstrates that globally, the group which is the most representative of the HIV epidemic, and thus at risk for HAND are persons with chronic HIV infection and survivors of past immunosuppression, while in relative terms, those who have been treated early with long-term viral suppression represent a minority. In the last part, we present a review of the naturalistic longitudinal NP global studies in HIV+cohorts, discuss the role of longitudinal design in solving issues around the question of asymptomatic neurocognitive impairment, and the question of biomarker discovery. Finally, we conclude by calling for greater methods and data harmonization at a global level. (JINS, 2017, 23, 860-869).


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.

Depression, global neurocognitive (GNC) function, and substance use disorders (SUDs) are each associated with medication adherence in persons living with HIV (PLWH). Because somatic symptoms can inflate depression scores in PLWH, the role of nonsomatic depressive symptomatology (NSDS) should be considered in adherence. However, the combined roles of NSDS, GNC function, and current SUDs in predicting combined antiretroviral therapy (cART) adherence remain poorly understood. Forty PLWH (70% Latina/o; 30% non-Hispanic White) completed psychiatric/SUD, neurocognitive, and self-report cART adherence evaluations. Higher NSDS was associated with suboptimal adherence (p < .01), but optimal and suboptimal adherers did not differ in GNC function or current SUDs. Only NSDS was associated with suboptimal adherence, after accounting for GNC function and SUDs (p = .01). NSDS uniquely predicted self-reported adherence, beyond GNC function and current SUDs among ethnically diverse PLWH. Methodological issues between present and prior studies should also be considered.


There is debate as to whether the neurocognitive changes associated with HIV infection represent an acceleration of the typical aging process or more simply reflect a greater accentuated risk for age-related declines. We aimed to determine whether accelerated neurocognitive aging is observable in a sample of older HIV-infected individuals compared to age-matched seronegatives and older old (i.e., aged >= 65) seronegative adults. Participants in a cross-sectional design included 48 HIV-seronegative (O-) and 40 HIV-positive (O+) participants between the ages of 50-65 (mean ages = 55 and 56, respectively) and 40 HIV-seronegative participants aged = 65 (OO; mean age = 74) who were comparable for other demographics. All participants were administered a brief neurocognitive battery of attention, episodic memory, speeded executive functions, and confrontation naming (i.e., Boston Naming Test). The O+ group performed more poorly than the O- group (i.e., accentuated aging), but not differently from the OO- on digit span and initial recall of a supraspan word list, consistent with an accelerating aging profile. However, the O+ group’s performance was comparable to the O- group on all other neurocognitive tests (ps > 0.05). These data partially support a model of accelerated neurocognitive aging in HIV infection, which was observed in the domain of auditory verbal attention, but not in the areas of memory, language, or speeded executive functions. Future studies should examine whether HIV-infected adults over 65 evidence accelerated aging in downstream neurocognitive domains and subsequent everyday functioning outcomes.


Little is known about the neurodevelopmental outcomes of children older than 3 years of age born to HIV infected mother but who are HIV-uninfected (HEU), and who have been exposed in utero and early in life to HIV and to antiretroviral medications (ARVs). We conducted a longitudinal study of cognitive, visuomotor and adaptive function of HEU children, who were assessed at two ages, 3.5 and 5.5 years. Sixty-four children (33 female) were assessed. In comparison with population norms for their age, at 3.5 years of age they had scores significantly below age expectations on aspects of adaptive behavior, but at age 5.5 years, their scores did not significantly diverge from the population norms on any of the measures. Verbal intelligence was lower at age 5.5 than at age 3.5 years, although there were also improvements in some features of adaptive behavior. Exposure to PI-based ARVs (compared to NNRTIs) was associated with higher Performance IQ, visuomotor and communication scores at age 5.5 years. Birth, early growth, and sociodemographic variables were predictive of outcomes. This study is important in tracking the trajectory of neurocognitive development across the pre-school and early school age years. The findings suggest that the full impact of early ARV exposure may not be evident until a considerable period of development has occurred. The results raise the possibility of negative effects of early ARV exposure on neurodevelopment that emerge over time, and reiterate the importance of sociodemographic and early health variables for optimal development.

OBJECTIVE: To assess if HIV-infected patients on long-term successful combination antiretroviral therapy show cerebral blood flow (CBF) alterations in comparison with HIV-uninfected, otherwise similar controls. To explore whether such alterations are associated with HIV-associated cognitive impairment and to explore potential determinants of CBF alterations in HIV. DESIGN: Cross-sectional comparison of CBF in an observational cohort study. METHODS: Clinical, cognitive and MRI data of 100 middle-aged aviremic HIV-infected men on combination antiretroviral therapy and 69 HIV-uninfected controls were collected and compared. From pseudocontinuous arterial spin labeling MRI data, CBF-maps were calculated. The associations of mean gray matter CBF with clinical and cognitive parameters were explored in regression models, followed by a spatial delineation in a voxel-based analysis. RESULTS: CBF was decreased in HIV-infected patients compared with HIV-uninfected controls (P = 0.02), adjusted for age, ecstasy use and waist circumference. Spatially distinct and independent effects of total gray matter volume and HIV-serostatus on CBF were found. Within the HIV-infected group, decreased CBF was associated with increased triglyceride levels (P = 0.005) and prior clinical AIDS (P = 0.03). No association between CBF and cognitive impairment was found. CONCLUSION: Decreased CBF was observed among HIV-infected patients, which was associated with both vascular risk factors as well as with measures of past immune deficiency. These results provide support for increased vascular disease in HIV-infected patients as represented by hemodynamic alteration, but without overt cognitive consequences within the current cohort of patients on long-term successful treatment.


A large body of research identifies depressive symptoms as a barrier to optimal antiretroviral therapy (ART) adherence, whereas treatment motivation has been characterized as a facilitator. There is evidence, however, that these patterns may not hold for some ART patients despite the widespread use of motivational techniques aimed at promoting adherence. Little is known about how the interplay between different levels of depressive symptoms and variations in the types and levels of motivation may influence ART adherence. The purpose of this study was to examine the relationship between depressive symptoms, two types of motivation, and adherence, with self-efficacy as a mediator. The sample consisted of 121 ART patients who reported various levels of depressive symptoms (mean age = 41 years; 84% African-American; and 68% female). Path analysis revealed that self-efficacy fully mediated the relationship between the three predictor variables (depressive symptoms, intrinsic motivation, and extrinsic motivation) and adherence, chi(2)(3, N = 121) = .78, RMSEA = .00, SRMR = .02, CFI = 1.00, NNFI = 1.06. Findings suggest that interventions using motivational techniques to build adherence among patients with varying levels of depressive symptoms should address the role of treatment self-efficacy to improve their effectiveness.


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.
BACKGROUND: HIV-associated neurocognitive disorders occur in nearly 50% of adults with HIV. Such disorders can interfere with everyday functioning such as driving and medication adherence. Therefore, cognitive interventions are needed to address such neurocognitive disorders as well as improve everyday functioning, especially as people age with HIV. OBJECTIVE: This article reports and discusses the overall rationale and development of speed of processing training, a computerized Internet cognitive training program, to improve this specific neurocognitive ability as well as everyday functioning and quality of life in adults aging with HIV. Although this protocol has been shown to improve speed of processing, everyday functioning, and quality of life in healthy, community-dwelling older adults in the advanced cognitive training in vital elderly (ACTIVE) study, its efficacy in adults aging with HIV has not been established. Nevertheless, such a cognitive intervention is particularly germane as 52%-59% of adults with HIV experience HIV-associated neurocognitive disorders (HAND), and both the frequency and severity of such disorders may increase with advancing age. METHODS: The description of this longitudinal randomized controlled trial covers the following: (1) rationale for speed of processing training in this clinical population, (2) overview of overall study design, (3) eligibility criteria and HAND, (4) intervention dosage, (5) assessment battery, and (6) examination of biomarkers. RESULTS: The project was funded in April 2016 and enrolment is on-going. The first results are expected to be submitted for publication in 2020. CONCLUSIONS: Similar novel cognitive intervention approaches are suggested as they may be of value to those with HAND and may utilize similar features of this current randomized controlled trial (RCT) protocol to examine their therapeutic efficacy. TRIAL REGISTRATION: ClinicalTrials.gov NCT02758093; https://clinicaltrials.gov/ct2/show/NCT02758093 (Archived by Webcite at http://www.webcitation.org/6p8C5fBCX).


Over 50% of adults with HIV exhibit some form of HIV-associated neurocognitive disorder, ranging from mild asymptomatic neurocognitive impairment to HIV-associated dementia. As adults age with HIV and become susceptible to cardiovascular and metabolic comorbidities, the prevalence and severity of such neurocognitive disorders are likely to increase. With compromised renal and hepatic functioning often accompanying HIV, pharmaceutical interventions to address such neurocognitive disorders may not be the best strategy and are not without risks. Fortunately, as noted in the geriatric literature, cognitive training strategies have been shown to improve targeted neurocognitive domains and everyday functioning. A review of some of these cognitive training strategies, especially as they relate to aging with HIV, are highlighted and explained in the context of neuroAIDS, aging, and neurocognitive reserve. Implications for practice and research are provided.


Nearly 50% of adult persons living with HIV (PLWH) experience HIV-associated neurocognitive disorder (HAND), which is associated with deteriorating brain health and cognitive functioning. Multimodal interventions that simultaneously improve physical activity, nutrition, and sleep hygiene may be of value for adult PLWH, especially as they age and become vulnerable to HAND. We used four focus groups of PLWH (N = 30; ages >/= 50 years) to solicit feedback about Cognitive Prescriptions, a multimodal cognitive intervention. Lifestyle and health behaviors pertaining to Cognitive Prescriptions were assessed, including: (a) physical activity, (b) mental activity, (c) nutrition, (d) social engagement, (e) emotional health, (f) sleep hygiene, and (g) substance use. When presented a
template of the intervention, participants expressed favorable opinions and remarked they would want to work with a clinician, paraprofessional, or peer to implement such a program into their own daily routines. From this, implications for practice and research are provided.


As people age with HIV, cognitive problems may become more prevalent and severe, but lifestyle behaviors (i.e., physical activity) have been shown to protect brain health and cognition. We examined the perceptions that older adults living with HIV have about protecting and improving brain health and cognition through lifestyle behaviors. Qualitative data were analyzed from four focus groups (N = 30) of African Americans and Caucasians living with HIV and at least 50 years of age. An open-coding scheme using conventional content analysis was employed. Two results were found. First, many older adults with HIV in our study expressed a variety of cognitive complaints that interfered with daily function. Second, these participants reported few specific ideas about how such health behaviors were important to their own brain health and cognition. Education interventions may help older adults with HIV learn to improve and protect brain health and cognition as they age.


Aging with HIV poses unique and complex challenges, including avoidance of neurocognitive disorder. Our objective here is to identify the prevalence and predictors of successful cognitive aging (SCA) in a sample of older adults with HIV. One hundred three HIV-infected individuals aged 50 and older were recruited from the Modena HIV Metabolic Clinic in Italy. Participants were treated with combination antiretroviral therapy for at least 1 year and had suppressed plasma HIV viral load. SCA was defined as the absence of neurocognitive impairment (as defined by deficits in tasks of episodic learning, information processing speed, executive function, and motor skills) depression, and functional impairment (instrumental activities of daily living). In cross-sectional analyses, odds of SCA were assessed in relation to HIV-related clinical data, HIV-Associated Non-AIDS (HANA) conditions, multimorbidity (>=2HANA conditions), and frailty. A frailty index was calculated as the number of deficits present out of 37 health variables. SCA was identified in 38.8% of participants. Despite no differences in average chronologic age between groups, SCA participants had significantly fewer HANA conditions, a lower frailty index, and were less likely to have hypertension. In addition, hypertension (odds ratio [OR] = 0.40, p = .04), multimorbidity (OR = 0.35, p = .05), and frailty (OR = 0.64, p = .04) were significantly associated with odds of SCA. Frailty is associated with the likelihood of SCA in people living with HIV. This defines an opportunity to apply knowledge from geriatric population research to people aging with HIV to better appreciate the complexity of their health status.


Disruption of mitochondria axonal transport, essential for the maintenance of synaptic and neuronal integrity and function, has been identified in neurodegenerative diseases. Whether HIV-1 viral proteins affect mitochondria axonal transport is unknown, albeit HIV-associated neurocognitive disorders occur in around half of the patients living with HIV. Therefore, we sought to examine the effect of HIV-1 viral protein R (Vpr) on mitochondrial axonal transport. Using mice primary neuronal cultures, we demonstrated that 4-day Vpr treatment reduced the ratio of moving mitochondria associated with (i) less energy (ATP) supply, (ii) reduction in Miro-1 and (iii) increase of alpha-synuclein which led to loss of microtubule stability as demonstrated by inconsecutive distribution of acetylated alpha-tubulin along the axons. Interestingly, the effect of Vpr on mitochondria axonal transport was partially restored in the presence of bongkrekic acid, a compound that negatively affected the Vpr-adenine nucleotide translocator (ANT) interaction and totally restored the ATP level in neurons. This indicated Vpr impaired mitochondria axonal transport partially related to its interaction with ANT. The above effect of Vpr was similar to the data obtained from hippocampal tissues isolated from 18-month-old...
aging mice compared to 5-month-old mice. In accord with previous clinical findings that HIV infection prematurely ages the brain and increases the susceptibility to HAND, we found that Vpr induced aging markers in neurons. Thus, we concluded that instead of causing cell death, low concentration of HIV-1 Vpr altered neuronal function related with inhibition of mitochondria axonal transport which might contribute to the accelerated neuronal aging.


Our aim was to examine the clinical relevance of white matter hyperintensities (WMH) in HIV. We used an automated approach to quantify WMH volume in HIV seropositive (HIV+; n = 65) and HIV seronegative (HIV-; n = 29) adults over age 60. We compared WMH volumes between HIV+ and HIV- groups in cross-sectional and multiple time-point analyses. We also assessed correlations between WMH volumes and cardiovascular, HIV severity, cognitive scores, and diffusion tensor imaging variables. Serostatus groups did not differ in WMH volume, but HIV+ participants had less cerebral white matter (mean: 470.95 [43.24] vs. 497.63 [49.42] mL, p = 0.010). The distribution of WMH volume was skewed in HIV+ with a high proportion (23%) falling above the 95th percentile of WMH volume defined by the HIV- group. Serostatus groups had similar amount of WMH volume growth over time. Total WMH volume directly correlated with measures of hypertension and inversely correlated with measures of global cognition, particularly in executive functioning, and psychomotor speed. Greater WMH volume was associated with poorer brain integrity measured from diffusion tensor imaging (DTI) in the corpus callosum and sagittal stratum. In this group of HIV+ individuals over 60, WMH burden was associated with cardiovascular risk and both worse diffusion MRI and cognition. The median total burden did not differ by serostatus; however, a subset of HIV+ individuals had high WMH burden.


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.


Impairments in working memory are among the most prevalent features of HIV-associated neurocognitive disorders (HAND), yet their origins are unknown, with some studies arguing that encoding operations are disturbed and others supporting deficits in memory maintenance. The current investigation directly addresses this issue by using a dynamic mapping approach to identify when and where processing in working memory circuits degrades. HIV-infected older adults and a demographically-matched group of uninfected controls performed a verbal working memory task during magnetoencephalography (MEG). Significant oscillatory neural responses were imaged using a beamforming approach to illuminate the spatiotemporal dynamics of neuronal activity. HIV-infected patients were significantly less accurate on the working memory task and their neuronal dynamics indicated that encoding operations were preserved, while memory maintenance processes were abnormal. Specifically, no group differences were detected during the encoding period, yet dysfunction in occipital, fronto-temporal, hippocampal, and cerebellar cortices emerged during memory maintenance. In addition, task performance in the controls covaried with occipital alpha synchronization and activity in right prefrontal cortices. In conclusion, working memory impairments are common and significantly impact the daily functioning and independence of HIV-infected patients. These impairments likely reflect deficits in the maintenance of memory representations, not failures to adequately encode stimuli.
OBJECTIVES: The Internet is a fundamental tool for completing many different instrumental activities of daily living (IADL), including shopping and banking. Persons with HIV-associated Neurocognitive Disorders (HAND) are at heightened risk for IADL problems, but the extent to which HAND interferes with the performance of Internet-based household IADLs is not known.

METHODS: Ninety-three individuals with HIV disease, 43 of whom were diagnosed with HAND, and 42 HIV comparison participants completed Internet-based tests of shopping and banking. Participants used mock credentials to log in to an experimenter-controlled Web site and independently performed a series of typical online shopping (e.g., purchasing household goods) and banking (e.g., transferring funds between accounts) tasks. RESULTS: Individuals with HAND were significantly more likely to fail the online shopping task than neurocognitively normal HIV+ and HIV participants. HAND was also associated with poorer overall performance versus HIV+ normals on the online banking task. In the HAND group, Internet-based task scores were correlated with episodic memory, executive functions, motor skills, and numeracy. In the HIV+ sample as a whole, lower Internet-based task scores were uniquely associated with poorer performance-based functional capacity and self-reported declines in shopping and financial management in daily life, but not with global manifest functional status. CONCLUSIONS: Findings indicate that HAND is associated with difficulties in using the Internet to complete important household everyday functioning tasks. The development and validation of effective Internet training and compensatory strategies may help to improve the household management of persons with HAND. (JINS, 2017, 23, 605-615).


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/mm(3) (chi^2[1] = 19.57, p < .001); hypocalcemia (chi^2[1] = 17.55, p < .001); and CKD 4-5 (chi^2[2] = 10.12, p = .006). Black and Hispanic participants were more likely to be anemic compared to other races and ethnicities (chi^2[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.


In 2014, 17% of newly diagnosed HIV infection cases in the United States were made in people over 50 years of age; actually, it is expected that in the near future this population group will be the most affected. This epidemiological change can be explained by the increased incidence of HIV infection in people over 50 years, but also by its higher prevalence due to treatment advances. As HIV infection has become a chronic one, new challenges have emerged. For instance, early-onset “geriatric syndromes,” such as frailty, have been recognized in these patients. Frailty refers to a physiological state of vulnerability that increases the risk of adverse health-related outcomes. Frail individuals have higher risk of cognitive impairment; however, it is not known if early-onset frailty in those infected by HIV could also increase the risk of cognitive impairment in this already vulnerable population. The purpose of this review article is to describe, from an epidemiological point of view, the relationship between the changes promoted by HIV and the syndrome of frailty on cognitive function.
Subclinical kidney disease is associated with developing hypertension in the general population, but data are lacking among HIV-infected people. We examined associations of kidney function and injury with incident hypertension in 823 HIV-infected and 267 HIV-uninfected women in the Women's Interagency HIV Study, a multicenter, prospective cohort of HIV-infected and uninfected women in the United States. Baseline kidney biomarkers included estimated glomerular filtration rate using cystatin C, urine albumin-to-creatinine ratio, and 7 urine biomarkers of tubular injury: alpha-1-microglobulin, interleukin-18, kidney injury molecule-1, neutrophil gelatinase-associated lipocalin, liver fatty acid-binding protein, N-acetyl-beta-d-glucosaminidase, and alpha1-acid-glycoprotein. We used multivariable Poisson regression to evaluate associations of kidney biomarkers with incident hypertension, defined as 2 consecutive visits of antihypertensive medication use. During a median follow-up of 9.6 years, 288 HIV-infected women (35%) developed hypertension. Among the HIV-infected women, higher urine albumin-to-creatinine ratio was independently associated with incident hypertension (relative risk =1.13 per urine albumin-to-creatinine ratio doubling, 95% confidence interval, 1.07-1.20), as was lower estimated glomerular filtration rate (relative risk =1.10 per 10 mL/min/1.73 m(2)) lower estimated glomerular filtration rate; 95% confidence interval, 1.04-1.17). No tubular injury and dysfunction biomarkers were independently associated with incident hypertension in HIV-infected women. In contrast, among the HIV-uninfected women, urine albumin-to-creatinine ratio was not associated with incident hypertension, whereas higher urine interleukin-18, alpha1-acid-glycoprotein, and N-acetyl-beta-d-glucosaminidase levels were significantly associated with incident hypertension. These findings suggest that early glomerular injury and kidney dysfunction may be involved in the pathogenesis of hypertension in HIV-infected people. The associations of tubular markers with hypertension in HIV-uninfected women should be validated in other studies.


Although the rate of HIV infection among US prison inmates is considerably higher than that of the general population, little is known about age-related changes in HIV-infected inmates over the last decade. This study of the nation's largest state prison system examined (1) whether the mean age of the HIV-infected inmate increased over the last decade, and (2) whether the prevalence of HIV and associated comorbidities varied according to age. The study population included all 230,103 inmates incarcerated in the Texas prison system for any duration during 2014. A separate analysis was conducted on all HIV-infected inmates incarcerated between 2004 and 2014. Information on medical conditions and demographic factors was obtained from an institution-wide electronic medical record system. From 2004 to 2014, the mean age of HIV-infected inmates in the prison system increased from 39.3 to 42.5 years, compared to an increase of 36.1-37.9 for all Texas prison inmates. Multivariable logistic regression was used to assess the independent contributions of multiple demographic and clinical covariates in predicting the binary outcome, HIV infection. The model showed that, in 2014, HIV infection was elevated in inmates who were aged 40-49 years (OR=3.1; 95% CI 2.7-3.3), aged 50-59 years (OR=2.4; 95% CI 2.1-2.7), African American (OR=3.0; 95% CI 2.8-3.3), and in those with several chronic diseases, including chronic obstructive pulmonary disease (OR=1.7; 95% CI 1.5-1.9), hepatitis C (OR=2.7; 95% CI 2.5-3.1), major depressive disorder (OR=1.7; 95% CI 1.5-2.1), bipolar disorder (OR=2.3; 95% CI 1.8-2.8), and schizophrenia (OR=1.5; 95% CI 1.3-1.8). Among HIV-infected inmates (n=2960), the percentage with comorbid disease increased in a linear fashion according to age (p<.01). Correctional health systems must adapt to address the evolving epidemiology of HIV among inmate populations.


With the progressive increase in life expectancy of HIV-positive patient, thanks to "highly active antiretroviral therapy" (HAART), new comorbidities, and especially cardiovascular diseases (CVDs) are emerging as an important concern. An increased risk
of coronary artery disease, often in a younger age, has been observed in this population. The underlying pathophysiology is complex and partially still unclear, with the interaction of viral infection and systemic inflammation-antiretroviral therapy and traditional risk factors. After an accurate risk stratification, primary prevention should balance the optimal HAART to suppress the virus-avoiding side-effects-the intervention on life-style and the treatment of traditional risk factors (hypertension, dyslipidemia, and diabetes). Also the management after a cardiovascular event is challenging; revascularization strategies-both percutaneous and surgical-are valuable options, keeping in mind the higher rates of recurrent events, and caution is essential to avoid drug-drug interactions. Large evidence-based data on HIV-infected patients are still lacking, and recommendations often follow those of general population. Therefore we performed a comprehensive evaluation of the literature to analyze the current knowledge on CVD's prevalence, prevention and treatment in HIV-infected patients.


Kidney disease represents an important health concern among HIV-infected individuals, with an estimated prevalence ranging between 2.4 and 17%. The widespread use of antiretroviral drugs has changed the epidemiology of kidney disease in the HIV positive population, drastically reducing the percentage of patients affected by HIV-associated nephropathy (HIVAN), a complication characterized by apoptosis and de-differentiation of renal epithelial cells and podocytes. However, impaired kidney function remains an important issue among HIV-infected patients because of their long-term exposure to antiretroviral drugs and the growing burden of traditional risk factors associated with chronic renal disease. Furthermore, since HIV infects renal epithelial cells, kidney is a potential reservoir site that needs to be considered in future eradication studies. This review summarizes the main risk factors associated with chronic kidney disease in HIV-infected patients and discusses the contribution of viral infection and antiretroviral therapy to the pathogenesis of renal damage, emphasizing the need to monitor kidney status during the follow-up of HIV-infected patients.


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.


: Populations living with HIV who access effective antiretroviral therapies are ageing and thus facing chronic disease-related comorbidities. Cardiovascular disease is now a leading cause of morbidity and mortality in the HIV population as in the general population. The increased incidence of cardiovascular complications experienced by the HIV population is due to physiological aging and consequently the increased risk of hypertension, diabetes, and renal failure. Whether HIV itself is an additive and independent risk factor for cardiovascular disease (CVD) remains a central question. If and how HIV impacts the ageing process is an important and related question. The purpose of the present review is to highlight the risk of CVD in the ageing HIV population, particularly concerning atherosclerotic CVD (ASCVD) and heart failure, and to address effective CVD prevention in an aging HIV population at risk of poly-pharmacy.

BACKGROUND: The Data Collection on Adverse Events of Anti-HIV Drugs (D:A:D) study has developed predictive risk scores for cardiovascular disease (CVD) and chronic kidney disease (CKD, defined as confirmed estimated glomerular filtration rate [eGFR] \(\leq 60 \text{ ml/min/1.73 m}^2\)) events in HIV-positive people. We hypothesized that participants in D:A:D at high (>5%) predicted risk for both CVD and CKD would be at even greater risk for CVD and CKD events. METHODS AND FINDINGS: We included all participants with complete risk factor (covariate) data, baseline eGFR > 60 ml/min/1.73 m², and a confirmed (>3 months apart) eGFR < 60 ml/min/1.73 m² thereafter to calculate CVD and CKD risk scores. We calculated CVD and CKD event rates by predicted 5-year CVD and CKD risk groups (\(<1\%, >1\%-5\%, >5\%) and fitted Poisson models to assess whether CVD and CKD risk group effects were multiplicative. A total of 27,215 participants contributed 202,034 person-years of follow-up: 74% male, median (IQR) age 42 (36, 49) years, median (IQR) baseline year of follow-up 2005 (2004, 2008). D:A:D risk equations predicted 3,560 (13.1%) participants at high CVD risk, 4,996 (18.4%) participants at high CKD risk, and 1,585 (5.8%) participants at both high CVD and high CKD risk. CVD and CKD event rates by predicted risk group were multiplicative. Participants at high CVD risk had a 5.63-fold (95% CI 4.47, 7.09, \(p < 0.001\)) increase in CKD events compared to those at low risk; participants at high CKD risk had a 1.31-fold (95% CI 1.09, 1.56, \(p = 0.005\)) increase in CVD events compared to those at low risk. Participants’ CVD and CKD risk groups had multiplicative predictive effects, with no evidence of an interaction (\(p = 0.329\) and \(p = 0.291\) for CKD and CVD, respectively). The main study limitation is the difference in the ascertainment of the clinically defined CVD endpoints and the laboratory-defined CKD endpoints. CONCLUSIONS: We found that people at high predicted risk for both CVD and CKD have substantially greater risks for both CVD and CKD events compared with those at low predicted risk for both outcomes, and compared to those at high predicted risk for only CVD or CKD events. This suggests that CVD and CKD risk in HIV-positive persons should be assessed together. The results further encourage clinicians to prioritise addressing modifiable risks for CVD and CKD in HIV-positive people.


BACKGROUND: The epidemiology and prognostic impact of increased pulmonary pressure among HIV-infected individuals in the antiretroviral therapy era is not well described. METHODS: This study evaluated 8,296 veterans referred for echocardiography with reported pulmonary artery systolic pressure (PASP) estimates from the Veterans Aging Cohort study, an observational cohort of HIV-infected and uninfected veterans matched by age, sex, race/ethnicity, and clinical site. The primary outcome was adjusted mortality by HIV status. RESULTS: PASP was reported in 2,831 HIV-infected and 5,465 HIV-uninfected veterans (follow up 3.8+/−2.6 years). As compared to uninfected veterans, HIV infected veterans with HIV viral load >500 copies/ml (odds ratio (OR)=1.27, 95% CI=1.05-1.54) and those with CD4 cell count<200 cells/mm³ (OR=1.28, 95% CI=1.02-1.60) had a higher prevalence of PASP=/>40 mmHg. As compared to uninfected veterans with a PASP<40mmHg, HIV-infected veterans with a PASP/>=40 mmHg had an increased risk of death (adjusted HR=1.78, 95% CI=1.57-2.01). This risk persisted even among participants without prevalent comorbidities (adjusted HR 3.61 95%CI 2.17-6.01). The adjusted risk of mortality in HIV-infected veterans was higher at all PASP values compared with uninfected veterans, including at values currently considered to be normal. CONCLUSIONS: HIV-infected people with high HIV viral loads or low CD4 cell counts have a higher prevalence of increased PASP compared to uninfected people. Mortality risk in HIV-infected veterans increases at lower values of PASP than previously recognized and is present even among those without prevalent comorbidities. These findings may inform clinical decision making regarding screening and surveillance of PH in HIV-infected individuals.


To address barriers to adequate engagement in medical care among people living with HIV, Wisconsin’s AIDS/HIV Program created a new position, the Linkage to Care (LTC) Specialist. Specialists provide intensive, short-term case management and patient navigation services for small caseloads of individuals at high risk of disengaging with medical care. Clients are eligible if they are newly diagnosed with HIV or new to medical care, recently released from incarceration, recently out of care, nonadherent to scheduled medical care visits, or have detectable viral load while in care. Interviews with 30 clients of Specialists were conducted to understand experiences with the program and medical care. Common themes included the ability of Specialists to navigate complex systems of care and support services, the unique role Specialists played in their clients' lives, and the challenges of transitioning out of the program. Although the primary goal of Specialists is to address barriers to medical care, they often adopted a holistic approach that also included housing, financial assistance, and other social determinants of health. Descriptions of the Specialist's...
role in implementation manuals focus on their functional roles and the services provided. However, clients often discussed the emotional support they received, especially for clients without strong social support networks. Many clients also desired an ongoing relationship with their Specialists even after discharge, but had been able to establish independence and self-efficacy. The LTC Specialists are resource-intensive considering their small caseloads, but fill an important gap in existing, often overtaxed case management systems.


BACKGROUND: Adults aging with HIV are at greater risk for several comorbidities. The CD4 cell count and CD4/CD8 ratio often fail to normalize in elderly patients despite prolonged antiretroviral therapy; this has been associated with concomitant diseases and poor prognosis. METHODS: A cross-sectional analysis in antiretroviral-treated HIV-positive patients aged 65 years and older. The aim of the study was to describe the predictors of normalized T-cell subsets ("nT", CD4/CD8 ratio >/=1 and CD4 >/=500 cells/µL) in a cohort of geriatric HIV-positive patients and its association with HIV-associated non-AIDS conditions (HANA).

RESULTS: One thousand ninety-two patients were included: nT was observed in 340 patients (31.1%). Multivariate binary logistic analysis showed that plasma HIV RNA <50 copies/mL (P = 0.004), female sex (P = 0.002), and nadir CD4 cell count (P < 0.001) were independent predictors of nT. Age and sex-adjusted prevalence of hypertension (P = 0.037), lipid abnormalities (P = 0.040), and multimorbidity (P = 0.034) were higher in subjects with nT, whereas chronic obstructive pulmonary disease (COPD) and cancer were lower (respectively, P = 0.028 and P = 0.005). Multivariate analysis showed that HIV duration was an independent predictor of several comorbidities, whereas nT was protective for cancer and COPD. HIV duration and nT were simultaneously predictors of multimorbidity. CONCLUSIONS: Normalized T-cell subsets were observed in approximately one-third of geriatric HIV-positive subjects, and they were predicted by female sex and immunovirological features. HIV-associated non-AIDS conditions were more prevalent in patients with longer HIV duration, whereas nT represented a protective factor for cancer and COPD.


INTRODUCTION: Chronic kidney disease (CKD) is a prevalent comorbidity in persons living with HIV infection (PLWH) associated with an increase in cardiovascular morbidity and all-cause mortality. Furthermore, early diagnosis of CKD is difficult in PLWH. Areas covered: We reviewed the main diagnostic tools for CKD in PLWH, and discussed their strengths and limits. We performed a literature search on PubMed to identify reviews and clinical trials dealing with attractive kidney biomarkers of CKD in PLWH, with the following key words: 'HIV AND kidney', 'HIV AND Kidney biomarkers', 'CKD AND Kidney biomarkers'. Expert commentary: Currently, CKD diagnosis is based on the estimation of Glomerular Filtration Rate (GFR), and measurement of proteinuria by urine protein/creatinine ratio (uPCR). These parameters are independent and complementary predictors of outcomes. GFR estimates are lacking in accuracy in PLWH. The best GFR estimate is CKD-EPI study equation. Moreover, low-grade proteinuria is associated with an increased risk of kidney disease progression in PLWH, and guidelines derived from the general population may lack sensitivity. Different biomarkers of kidney diseases like N-acetyl beta glucosaminidase (NAG), Kidney Injury Molecule-1 (KIM-1), and Alpha-1-microglobulin may predict kidney disease progression and mortality in PLWH. Others may help clinicians detect antiretroviral-induced tubulopathy, or predict cardiovascular events. More studies are needed to validate the routine use of these types of biomarkers.


OBJECTIVE: To evaluate HIV-related and other clinical risk factors associated with oropharynx cancer (OPSCC) in HIV-infected U.S. Veterans. METHODS: Retrospective cohort study utilizing Veterans Affairs HIV Clinical Case Registry (CCR) data from 1985 to 2010. Outcome was incident OPSCC as indicated by 1 inpatient or 2 outpatient ICD-9 codes. Cox proportional hazard models were used to determine hazard ratios (HR) and 95% confidence intervals (CI) for each risk factor on the time to OPSCC diagnosis. RESULTS: A total of 40,996 HIV-infected male veterans were included in the cohort with 97 cases of OPSCC. The age adjusted incidence rate was 23.2/100,000 [95% CI 17.8-29.2]. Age>50 (aHR=3.8, 95% CI 1.9-7.8), recent CD4<200 (aHR=3.8, 95% CI 2.0-7.3), and undetectable HIV viral loads 40-79% of the time (aHR=1.8, 95% CI 1.1-3.0) were associated with an increased risk of OPSCC. Era
of HIV diagnosis, utilization of cART, nadir CD4 count, race, smoking history, and previous risk of HPV disease, including condyloma or invasive squamous cell carcinoma of the anus (SCCA) were not associated with increased risk of OPSCC. CONCLUSION: Patients who were older at beginning of follow up, had lower CD4 counts around the time of OPSCC diagnosis, and moderate HIV viral control during follow-up had an increased risk of OPSCC. Other HPV-related diseases such as SCCA and condyloma did not increase the risk for OPSCC.


BACKGROUND: The objective of this study is to evaluate the incidence of non-AIDS defining malignancies (NADMs) among people living with HIV/AIDS (PLWHA) in British Columbia, focusing on clinical correlates, highly active antiretroviral therapy (HAART) use, and survival, in order to elucidate mechanisms for NADM development. METHODS: A retrospective population based analysis was carried out for individuals with HIV/AIDS that began their treatment between 1996 and 2008. RESULTS: There were 145 (2.95%) NADMs and 123 (2.50%) AIDS defining malignancies (ADMs) identified in 4918 PLWHA in the study population. NADMs were represented by a range of cancer types including, most commonly, lung cancer, followed by anal, breast, head/neck, prostate, liver, rectal, and renal cancers. PLWHA had a SIR of 2.05 (CI:1.73, 2.41) for the development of NADMs compared to individuals without an HIV/AIDS diagnosis in the general population. Independent factors significantly associated with a NADM were: male gender, older age, lower CD4 cell counts, previous NADM, absence of HAART (non-HAART versus HAART) and treatment during the early-HAART era (before 2000 versus after 2000). CONCLUSIONS: NADMs represent an important source of morbidity for PLWHA. Use of HAART with its associated improvement in immune-restoration, and tailored targeted cancer screening interventions, may be beneficial and improve outcomes in this unique patient population.


OBJECTIVE: High rates of depression and posttraumatic stress disorder (PTSD) contribute to sexual risk, particularly in men who have sex with men (MSM) who have experienced childhood sexual abuse. The comorbidity between depression and PTSD and mechanisms by which they contribute to sexual risk in MSM remain unclear. This study sought to demonstrate the feasibility and utility of a network approach to (a) characterize symptom interconnections between depression and PTSD in MSM, (b) identify specific symptoms related to sexual risk behavior, and (c) compare symptom networks across groups at different levels of risk. METHOD: Cross-sectional baseline data were collected from 296 HIV-negative urban MSM as part of a multisite randomized intervention trial. Symptoms of depression and PTSD were self-reported along with sexual risk behavior. Analyses were performed in R using regularized partial correlation network modeling. RESULTS: Network analyses revealed complex associations between depression and PTSD symptoms and in relation to sexual risk behavior. While symptoms clustered within their respective disorders, depression and PTSD were connected at key symptom nodes (e.g., sleep, concentration). Specific symptoms (e.g., avoiding thoughts and feelings) were linked to sexual risk behavior. Network comparisons across risk groups suggested avoidant processes could be more readily activated in higher-risk individuals, whereas hyperarousal symptoms may be more salient and protective for lower-risk individuals. CONCLUSIONS: This study is one of the earliest network analyses of depression and PTSD, and first to extend this inquiry to health behavior. Symptom-level investigations may clarify mechanisms underlying psychological comorbidity and behavioral risk in MSM and refine targets for intervention/prevention. (PsycINFO Database Record


OBJECTIVE: To characterize and compare cardiovascular disease (CVD) risk in HIV-infected and uninfected postmenopausal minority women using the Framingham Risk Score (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 and menopause features were retrieved by retrospective chart review. Bivariate statistics was 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, less obese, and with lower rates of diabetes versus controls. In a
subset of age-matched participants, 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). Fourteen percent of HIV-infected women meeting criteria for the low-risk FRS category (<10%) had a history of CVD, a similar rate as controls. HIV-infected women at intermediate/high CVD risk had higher rates of surgical menopause. According to 2013 clinical guidelines, more than half of HIV-infected women not prescribed statin therapy (52%) were eligible for treatment; however, statin therapy was similarly under-prescribed in uninfected women. CONCLUSIONS: In this study, CVD risk as assessed by the FRS was not significantly different by HIV status. Performance of the FRS may be compromised in postmenopausal HIV-infected minority women. HIV-infected and uninfected women may be undertreated with statin therapy. Large longitudinal cohorts and inclusion of subclinical measures of CVD are necessary to better characterize risk.


OBJECTIVES: The aim of the study was to describe the ageing HIV-infected population (> 50 years old) and their current antiretroviral therapy (ART), comorbidities and coprescriptions in France in 2013 and to compare them to the younger population.

METHODS: A retrospective analysis of a prospectively collected database was performed. The characteristics of patients receiving ART as well as their current ART and their numbers of comorbidities and comedications at the censoring date (1 July 2013) were compared between patients ageing with HIV infection, patients who seroconverted while ageing, and younger patients. RESULTS: We compared 10 318 ageing patients [median age 56 years; 25% interquartile range (IQR) 53–62 years] with 13 302 younger patients (median age 42 years; 25% IQR 36-47 years). The ageing patients were more frequently male than the younger patients (77 vs. 65%). Among the ageing patients, 7025 were diagnosed with HIV infection before 2000 and represented a distinct group, the 'experienced ageing' group, by comparison with the 'recently diagnosed ageing' group. Triple therapy containing a boosted protease inhibitor was used in 28.2% of the patients (vs. 39% and 36% of the younger and "recently diagnosed ageing" groups, respectively); a nonnucleoside reverse transcriptase inhibitor in 27% (vs. 33% and 38%, respectively), an integrase strand transfer inhibitor (INSTI) in 9% (vs. 7% and 9%, respectively), and another regimen (fewer or more than three drugs) in 35.8% (vs. 21% and 16.5%, respectively).

"Experienced ageing" patients typically had one or more comorbidities (62.1%) and were receiving at least one comedication (71%). Central nervous system (CNS) agents (prescribed in 44.6% of the "experienced ageing" patients) and antilipidaemics (in 44.2%) were the most frequently prescribed comedications. INSTIs were used in 23% of the population and were used significantly more often in patients with comorbidities and coprescriptions. For all comparisons, P < 0.0001. CONCLUSIONS: In ageing HIV-infected patients, especially those with a long history of HIV infection, comorbidities and coprescriptions are highly prevalent.


: Improvements in survival and changing patterns of transmission mean that the population of people living with HIV (PLWH) is ageing. Increasing age is a risk factor for many varieties of cancer, including most non-AIDS-defining malignancies. Moreover, the premature ageing described in PLWH and the development of cancer share many molecular features. As a consequence, there has been a dramatic increase in the number of PLWH who are diagnosed with cancer. The treatment of older HIV-positive patients with cancer requires careful attention to details. It is particularly important to take into account comorbidities, pharmacological drug interactions, and opportunistic infection prophylaxis when deciding on clinical management for these patients. Thus, cancer in the ageing population living with HIV poses many challenges for both HIV physicians and oncologists.


BACKGROUND: The aim of the study was to assess the applicability of an algorithm predicting 10-year cardiovascular disease (CVD) generated in the setting of the Framingham Heart Study to a real-life, contemporary Italian cohort of HIV-positive subjects. METHODS: The study was an observational longitudinal cohort study. The probability for 10-year CVD events according to the Framingham algorithm was assessed in 369 consecutive HIV-positive participants free from overt CVD enrolled in 2004, who were followed for a median of 10.0 years (interquartile range, 9.1-10.1). Cardiovascular events included myocardial infarction, hospitalized heart failure, revascularized angina, sudden cardiac death, stroke, peripheral arterial disease. RESULTS: Over 3097 person-years of observation, we observed a total of 34 CVD events, whereas Framingham algorithm predicted the occurrence of
34.3 CVD events. CVD event rate was 11.0/1000 person-years of follow-up. In a receiver operating characteristics curve analysis, Framingham risk equation showed an excellent predictive value for incident CVD events (c-statistics, 0.83; 95% confidence interval, 0.76-0.90). In a multivariable Cox analysis, age, smoking and diabetes were independent predictors of CVD events. All-cause death rate was 20.0/1000 person-years of follow-up (n = 62 deaths). Causes of death included liver diseases (18), malignancies (14), AIDS-related (11); cardiovascular (9) and others (10). In a Cox analysis, age, AIDS diagnosis and chronic hepatitis were independent predictors of death. CONCLUSIONS: Observed CVD events in HIV-infected patients were well predicted by Framingham algorithm. Established major CVD risk factors are the strongest determinants of CVD morbidity in an Italian contemporary cohort of HIV-positive subjects. Interventions to modify traditional risk factors are urgently needed in HIV people.


**BACKGROUND:** Cancer incidence typically increases with age, but it is not known whether ethnic characteristics influence the age dependence of squamous cell carcinoma of the skin (SCC). **OBJECTIVES:** (i) To determine the age dependence of SCC in the black African, coloured and white population groups of South Africa (SA); and (ii) to show whether any differences in the rate of change of age dependence could be influenced by diversity in behaviour and lifestyle, especially with regard to the prevalence of HIV infection, rather than by a fundamental variation in cancer biology between the populations. **METHODS:** Linear regression analysis was applied to the logarithm of the age-specific incidence rates for SCC vs. the logarithm of age between 35 and 74 years. The slopes of the regression (age exponent) were compared for each subset of gender, population group and year of diagnosis (between 2000 and 2010). **RESULTS:** The most notable feature was the low value of the age exponent in both male and female black African compared with the white and coloured populations. This finding could be explained in part by the difference in the prevalence of HIV infection in the black African population group compared with the white and coloured population groups. **CONCLUSIONS:** The prevalence of HIV infection in black Africans in SA tends to decrease the apparent age component in SCC compared with the white and coloured population groups. Other factors relating to lifestyle and behaviour that differ between the population groups are also likely to influence the age component in SCC.


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.


Matching infectious disease surveillance data has become a routine activity for many health departments. With the increasing focus on chronic disease, it is also useful to explore opportunities to match infectious and chronic disease surveillance data. To understand the burden of diabetes in New York City (NYC), adults with select infectious diseases (tuberculosis, HIV infection, hepatitis B, hepatitis C, chlamydial infection, gonorrhea, and syphilis) reported between 2006 and 2010 were matched with hemoglobin A1c results reported in the same period. Persons were considered to have diabetes with 2 or more hemoglobin A1c test results of 6.5% or higher. The analysis was restricted to persons who were 18 years or older at the time of first report, either A1c or infectious disease. Overall age-adjusted diabetes prevalence was 8.1%, and diabetes prevalence was associated with increasing age; among NYC residents, prevalence ranged from 0.6% among 18- to 29-year-olds to 22.4% among those 65 years and older. This association was also observed in each infectious disease. Diabetes prevalence was significantly higher among persons with tuberculosis born in Mexico, Jamaica, Honduras, Guyana, Bangladesh, Dominican Republic, the Philippines, and Haiti compared with those born in the United States after adjusting for age and sex. Hepatitis C virus-infected women had higher age-adjusted prevalence of diabetes compared with the NYC population as a whole. Recognizing associations between diabetes and infectious diseases can assist early diagnosis and management of these conditions. Matching chronic disease and infectious disease surveillance data has important implications for local health departments and large health system practices, including increasing opportunities for integrated work both internal to systems and with the local community. Large health systems may consider opportunities for increased collaboration across infectious and chronic disease programs facilitated through data linkages of routinely collected surveillance data.


BACKGROUND: With potent antiretroviral drugs, HIV infection is becoming a chronic disease. Emergence of comorbidities, particularly cardiovascular disease (CVD) has become a leading concern for patients living with the infection. We hypothesized that the chronic and persistent inflammation and immune activation associated with HIV disease leads to accelerated aging, characterized by CVD. This will translate into higher incidence rates of CVD in HIV infected participants, when compared to HIV negative participants, after adjustment for traditional CVD risk factors. When characterized further using cardiovascular imaging, biomarkers, immunological and genetic profiles, CVD associated with HIV will show different characteristics compared to CVD in HIV-negative individuals. METHODS/DESIGN: The Canadian HIV and Aging cohort is a prospective, controlled cohort study funded by the Canadian Institutes of Health Research. It will recruit patients living with HIV who are aged 40 years or older or have lived with HIV for 15 years or more. A control population, frequency matched for age, sex, and smoking status, will be recruited from the general population. Patients will attend study visits at baseline, year 1, 2, 5 and 8. At each study visit, data on complete medical and pharmaceutical history will be captured, along with anthropometric measures, a complete physical examination, routine blood tests and electrocardiogram. Consenting participants will also contribute blood samples to a research biobank. The primary outcome is incidence of a composite of: myocardial infarction, coronary revascularization, stroke, hospitalization for angina or congestive heart failure, revascularization or amputation for peripheral artery disease, or cardiovascular death. Preplanned secondary outcomes are all-cause mortality, incidence of the metabolic syndrome, incidence of type 2 diabetes, incidence of renal failure, incidence of abnormal bone mineral density and body fat distribution. Patients participating to the cohort will be eligible to be enrolled in four pre-planned sub-studies of cardiovascular imaging, glucose metabolism, immunological and genetic risk profile. DISCUSSION: The Canadian HIV and Aging Cohort will provide insights on pathophysiological pathways leading to premature CVD for patients living with HIV.

Objectives: To examine population and HIV care outcomes of people living with HIV/AIDS (PLWHA) at their first incarceration of 2014 in 2 county jails in King County, Washington.; Methods: Using HIV surveillance data linked with jail booking data, we examined demographic information, viral loads, CD4 counts, and incarceration details for the period prior to jail booking, during incarceration, and year following jail release.; Results: In 2014, 202 PLWHA were incarcerated, 51% of whom were virally nonsuppressed at booking. This population represented approximately 3% of all HIV-diagnosed persons and 7% of virally nonsuppressed persons in King County. Within a year of release, 62% were virally suppressed, compared with 79% of the general HIV-diagnosed population in King County.; Conclusions: Incarcerated PLWHA are disproportionately virally nonsuppressed compared with nonincarcerated PLWHA up to a year after release from jail. Public Health Implications. Coordination of health information exchange between the health department and jails could enhance public health efforts to improve the HIV care continuum.;


Patients with HIV infection have a wide spectrum of renal diseases. Some are known to be the direct effect of the viral infection while others are renal diseases that also occur in uninfected populations. HIV associated nephropathy (HIVAN) is considered to be a subtype of primary focal and segmental glomerulosclerosis that is distinct in HIV infected patients. It is more frequent in the African-American population and associated with mutations of the apolipoprotein L1 (APOL1) gene. HIV associated immune complex kidney disease (HIVICD) encompasses a spectrum of HIV associated renal diseases characterized by the presence of immune complex deposition within glomeruli. Thrombotic microangiopathy (TMA) is a complication of HIV infection that presents with hemolytic anemia, thrombocytopenia, and renal failure. TMA in HIV patients is associated with very high mortality. Lastly, the multitude of antiretroviral drugs used for treatment of HIV infections can result in nephrotoxicity. Although a kidney biopsy may not be the first line study for renal disease, knowledge of the different histopathologic features of HIV-associated and unassociated diseases is of paramount importance in the treatment and subsequent outcome of renal function in HIV infected patients. In this review we will describe the histopathologic features and discuss the pathophysiology of the entities previously named.


Background: Cancer remains an important cause of morbidity and mortality in people with human immunodeficiency virus (PWHIV) on effective antiretroviral therapy (ART). Estimates of cancer-attributable mortality can inform public health efforts. Methods: We evaluated 46956 PWHIV receiving ART in North American HIV cohorts (1995-2009). Using information on incident cancers and deaths, we calculated population-attributable fractions (PAFs), estimating the proportion of deaths due to cancer. Calculations were based on proportional hazards models adjusted for age, sex, race, HIV risk group, calendar year, cohort, CD4 count, and viral load. Results: There were 1997 incident cancers and 8956 deaths during 267145 person-years of follow-up, and 11.9% of decedents had a prior cancer. An estimated 9.8% of deaths were attributable to cancer (cancer-attributable mortality rate 327 per 100000 person-years). PAFs were 2.6% for AIDS-defining cancers (ADCs, including non-Hodgkin lymphoma, 2.0% of deaths) and 7.1% for non-AIDS-defining cancers (NADCs: lung cancer, 2.3%; liver cancer, 0.9%). PAFs for NADCs were higher in males and increased strongly with age, reaching 12.5% in PWHIV aged 55+ years. Mortality rates attributable to ADCs and NADCs were highest for PWHIV with CD4 counts <100 cells/mm3. PAFs for NADCs increased during 1995-2009, reaching 10.1% in 2006-2009. Conclusions: Approximately 10% of deaths in PWHIV prescribed ART during 1995-2009 were attributable to cancer, but this fraction increased over time. A large proportion of cancer-attributable deaths were associated with non-Hodgkin lymphoma, lung cancer, and liver cancer. Deaths due to NADCs will likely grow in importance as AIDS mortality declines and PWHIV age.

BACKGROUND: Non-HIV/AIDS-related diseases are gaining prominence as important causes of morbidity and mortality among people living with HIV. The purpose of this study was to characterize and compare changes over time in mortality rates and causes of death among a population-based cohort of persons living with and without HIV in British Columbia (BC), Canada.

METHODS: We analysed data from the Comparative Outcomes And Service Utilization Trends (COAST) study; a retrospective population-based study created via linkage between the BC Centre for Excellence in HIV/AIDS and Population Data BC, and containing data for HIV-infected individuals and the general population of BC, respectively. Our analysis included all known HIV-infected adults (≥ 20 years) in BC and a random 10% sample of uninfected BC adults followed from 1996 to 2012. Deaths were identified through Population Data BC – which contains information on all registered deaths in BC (BC Vital Statistics Agency dataset) and classified into cause of death categories using International Classification of Diseases (ICD) 9/10 codes. Age-standardized mortality rates (ASMR) and mortality rate ratios were calculated. Trend test were performed. RESULTS: 3401 (25%), and 47,647 (9%) individuals died during the 5,620,150 person-years of follow-up among 13,729 HIV-infected and 510,313 uninfected individuals, respectively. All-cause and cause-specific mortality rates were consistently higher among HIV-infected compared to HIV-negative individuals, except for neurological disorders. All-cause ASMR decreased from 126.75 (95% CI: 84.92-168.57) per 1000 population in 1996 to 21.29 (95% CI: 17.79-24.79) in 2011-2012 (83% decline; p < 0.001 for trend), compared to a change from 7.97 (95% CI: 7.61-8.33) to 6.87 (95% CI: 6.70-7.04) among uninfected individuals (14% decline; p < 0.001). Mortality rates from HIV/AIDS-related causes decreased by 94% from 103.85 per 1000 population in 1996 to 6.72 by the 2011-2012 era (p < 0.001). Significant ASMR reductions were also observed for hepatic/liver disease and drug abuse/overdose deaths. ASMRs for neurological disorders increased significantly over time. Non-AIDS-defining cancers are currently the leading non-HIV/AIDS-related cause of death in both HIV-infected and uninfected individuals. CONCLUSIONS: Despite the significant mortality rate reductions observed among HIV-infected individuals from 1996 to 2012, they still have excess mortality risk compared to uninfected individuals. Additional efforts are needed to promote effective risk factor management and appropriate screening measures among people living with HIV.

Importance: Persons with human immunodeficiency virus (HIV) that is treated with antiretroviral therapy have improved longevity but face an elevated risk of myocardial infarction (MI) due to common MI risk factors and HIV-specific factors. Despite these elevated MI rates, optimal methods to predict MI risks for HIV-infected persons remain unclear. Objective: To determine the extent to which existing and de novo estimation tools predict MI in a multicenter HIV cohort with rigorous MI adjudication. Design, Setting, and Participants: We evaluated the performance of standard of care and 2 new data-derived MI risk estimation models in 5 Centers for AIDS Research Network of Integrated Clinical Systems sites across the United States where a multicenter clinical prospective cohort of 19 829 HIV-infected adults received care in inpatient and outpatient settings since 1995. The new risk estimation models were validated in a separate cohort from the derivation cohort. Exposures: Traditional cardiovascular risk factors, HIV viral load, CD4 lymphocyte count, statin use, antihypertensive use, and antiretroviral medication use were used to calculate predicted event rates. Main Outcomes and Measures: We observed MI rates over the course of follow-up that were scaled to 10 years using the Greenwood-Nam-D'Agostino Kaplan-Meier approach to account for dropout and loss to follow-up before 10 years. Results: Of the 11 288 patients with complete baseline data, 6904 were white and 9250 were men. Myocardial infarction rates were higher among black men (6.9 per 1000 person-years) and black women (7.2 per 1000 person-years) than white men (4.4 per 1000 person-years) and white women (3.3 per 1000 person-years), older participants (7.5 vs 2.2 MI per 1000 person-years for adults 40 years and older vs < 40 years old at study entry, respectively) and participants who were not virally suppressed (6.3 vs 4.7 per 1000 person-years for participants with and without detectable viral load, respectively). The 2013 Pooled Cohort Equations, which predict composite rates of MI and stroke, adequately discriminated MI risk (Harrell C statistic = 0.75; 95% CI, 0.71-0.78). Two data-derived models incorporating HIV-specific covariates exhibited weak calibration in a validation sample and did not discriminate risk any better (Harrell C statistic = 0.72; 95% CI, 0.67-0.78 and 0.73; 95% CI, 0.68-0.79) than the Pooled Cohort Equations. The Pooled Cohort Equations were moderately calibrated in the Centers for AIDS Research Network of Clinical Systems but predicted consistently lower MI rates. Conclusions and Relevance: The Pooled Cohort Equations discriminated MI risk and were moderately calibrated in this context.
multicenter HIV cohort. Adding HIV-specific factors did not improve model performance. As HIV-infected cohorts capture and assess MI and stroke outcomes, researchers should revisit the performance of risk estimation tools.


Objective: </bold>Data from MarketScan research databases were used to select adult HIV-infected patients from each payer. Treated HIV-infected patients were matched to HIV-negative controls. Cross-sectional analyses were performed between 2003 and 2013 among HIV-infected patients to quantify the proportion with individual comorbidities over the period, by payer. Results: Overall, 36298 HIV-infected patients covered by commercial payers, 26246 covered by Medicaid payers, and 1854 covered by Medicare payers were identified between 2003 and 2013. Essential hypertension (31.4%, 39.3%, and 76.2%, respectively), hyperlipidemia (29.2%, 22.1%, and 49.6%), and endocrine disease (21.8%, 27.2%, and 54.0%) were the most common comorbidities. Comparison of data from 2003 to data from 2013 revealed significant increases across payers in the percentage of patients with the comorbidities specified above (P < .05). Across all payers, the proportions of treated HIV-infected patients with deep vein thrombosis, hepatitis C, renal impairment, thyroid disease, and liver disease from 2003 to 2013 was significantly greater (P < .05) than for matched controls. Conclusions: Comorbidities are common among the aging HIV-infected population and have increased over time. There should be a consideration in treatment choices for HIV infection, including the choices of antiretroviral regimens. [ABSTRACT FROM AUTHOR]


BACKGROUND: A consequence of the widespread uptake of anti-retroviral therapy (ART) is that the older South African population will experience an increase in life expectancy, increasing their risk for cardiometabolic diseases (CMD), and its risk factors. The long-term interactions between HIV infection, treatment, and CMD remain to be elucidated in the African population. The HAALSI cohort was established to investigate the impact of these interactions on CMD morbidity and mortality among middle-aged and older adults. METHODS: We recruited randomly selected adults aged 40 or older residing in the rural Agincourt sub-district in Mpumalanga Province. In-person interviews were conducted to collect baseline household and socioeconomic data, self-reported health, anthropometric measures, blood pressure, high-sensitivity C-reactive protein (hsCRP), Hba1c, HIV-status, and point-of-care glucose and lipid levels. RESULTS: Five thousand fifty nine persons (46.4% male) were enrolled with a mean age of 61.7 +/- 13.06 years. Waist-to-hip ratio was high for men and women (0.92 +/- 0.08 vs. 0.89 +/- 0.08), with 70% of women and 44% of men being overweight or obese. Blood pressure was similar for men and women with a combined hypertension prevalence of 58.4% and statistically significant increases were observed with increasing age. High total cholesterol prevalence in women was twice that observed for men (8.5 vs. 4.1%). The prevalence of self-reported CMD conditions was higher among women, except for myocardial infarction, and women had a statistically significantly higher prevalence of angina (10.82 vs. 6.97%) using Rose Criteria. The HIV(-) persons were significantly more likely to have hypertension, diabetes, or be overweight or obese than HIV(+)- persons. Approximately 56% of the cohort had at least 2 measured or self-reported clinical co-morbidities, with HIV(+)- persons having a consistently lower prevalence of co-morbidities compared to those without HIV. Absolute 10-year risk cardiovascular risk scores ranged from 7.7-9.7% for women and from 12.5-15.3% for men, depending on the risk score equations used. CONCLUSIONS: This cohort has high CMD risk based on both traditional risk factors and novel markers like hsCRP. Longitudinal follow-up of the cohort will allow us to determine the long-term impact of increased lifespan in a population with both high HIV infection and CMD risk.

Aims: HIV and highly active antiretroviral therapy (HAART) may affect cardiac conduction, and a higher incidence of sudden death has been recognized in HIV-positive patients. Nevertheless, predictors of prolonged corrected QT interval (cQT) have been poorly described. The aim of the study was to investigate the prevalence and predictors of long cQT in a cohort of HIV-positive patients. Methods: Consecutive HIV-positive patients followed in a primary prevention clinic at two Italian institutions were retrospectively enrolled. A 12-lead ECG was recorded in all patients; main clinical features were collected. Prevalence of long cQT (defined as cQT >470 ms in women and >450 ms in men) was the primary end-point. Secondary end-points were the identification of predictors of cQT prolongation, and the association between HAART and HIV-related features with long cQT. Results: Three hundred and fifty-one HIV-positive patients were included, 26 (7.4%) with long cQT. Mean age was higher among those with long cQT (51.6 vs. 57.6 years; P = 0.007). A higher prevalence of long cQT was reported for patients with a CD4+ cell count below 200 cells/μL at the moment of ECG (60 vs. 24.2%; P = 0.002) and with a nadir of CD4+ cell count below 200 cells/μL (91.3 vs. 58.6%; P = 0.001). At multivariate analysis, only the nadir of CD4+ cell count below 200 cells/μL consistently related to the presence of long cQT (odds ratio 5.8, 95% confidence interval 1.3-26.4). Conclusion: A low CD4+ cell count is associated with long cQT independently from HAART in HIV-positive patients and may be useful to correctly stratify arrhythmic risk in these patients.


Background: Late presentation (LP) at the time of HIV diagnosis is defined as presentation with AIDS whatever the CD4 cell count or with CD4 <350 cells/μL. The objective of our study was to assess the prevalence of non-infectious comorbidities (NICM) and multimorbidity among HIV-positive individuals with and without a history of LP (HIV + LP and HIV + EP, respectively), and compare them to matched HIV-negative control participants from a community-based cohort. The secondary objective was to provide estimates and determinants of direct cost of medical care in HIV patients. Methods: We performed a matched cohort study including HIV + LP and HIV + EP among people attending the Modena HIV Metabolic Clinic (MHMC) in 2014. HIV-positive participants were matched in a 1:3 ratio with HIV-negative participants from the CINECA ARNO database. Multimorbidity was defined as the concurrent presence of >/=2 NICM. Logistic regression models were constructed to evaluate associated predictors of NICM and multimorbidity. Results: We analyzed 452 HIV + LP and 73 HIV + EP participants in comparison to 1575 HIV-negative controls. The mean age was 46 +/- 9 years, 27.5% were women. Prevalence of NICM and multimorbidity were fourfold higher in the HIV + LP compared to the general population (p < 0.001), while HIV + EP present an intermediate risk. LP was associated with increased total costs in all age strata, but appear particularly relevant in patients above 50 years of age, after adjusting for age, multimorbidity, and antiretroviral costs. Conclusions: LP with HIV infection is still very frequent in Italy, is associated with higher prevalence of NICM and multimorbidity, and contributes to higher total care costs. Encouraging early testing and access to care is still urgently needed.


Objective: Very-low-level viremia (VLLV) is a relatively new concept in the realm of human immunodeficiency virus (HIV) care. Newer generation assays are now able to detect plasma HIV RNA Viral Load (VL) levels as low as 20 copies/mL. The authors characterized patients with VLLV (VL between 20 and 50 copies/mL) in order to identify possible risk factors associated with virologic failure and poor clinical outcomes. Methods: The authors reviewed 119 consecutive charts of patients with VLLV. Sociodemographic data were extracted and viral load and CD4 counts were trended over a 12 month period (February 2013-February 2014). Regression analysis was used to assess the role of different factors on virologic failure at 1 year. Results: Of the study participants with evaluable data (n=100), the median age was 53 years (interquartile range: 43-57.5), 67% were nonwhite, 34% were women, 58% were smokers, 47% were alcoholics, 58% had a history of intravenous drug use, and 40% were coinfected with hepatitis C virus. More than half of the participants had 3 or more comorbidities and their HIV pill burden was high (more than 2 pills daily). After 12 months, 65 participants achieved undetectable viral load levels, whereas 15 experienced virologic failure (2 consecutive viral loads > 50 copies/mL) and the remaining 20 had persistent VLLV. In the virologic failure group, there was a predominance of white males (66%) with a significant number of comorbidities and pill burden. Univariate logistic regression suggested that there was a difference between the failure versus nonfailure groups in terms of race, ethnicity, and alcohol use. Multivariate regression with virological failure as the outcome suggested a trend only in terms of participant’s alcohol use. Conclusion: Most patients with initial VLLV (70%) achieved virologic suppression at 1 year with no antiretroviral therapy changes. Thus, VLLV does not necessarily predict virologic failure and should not prompt more frequent clinic visits or antiretroviral regimen.
changes. Further research is needed in order to determine the predictors of virologic failure in this subset of patients and the clinicians’ attitude toward VLLV.


    The objective was to examine gender differences in causes of death using the San Francisco HIV/AIDS and death registries. Data from San Francisco residents diagnosed with HIV/AIDS who died from 1996 to 2013 were analyzed. Age, race/ethnicity, year, and gender-adjusted standardized mortality ratios and Poisson 95% confidence intervals were calculated for underlying causes of death. Among the 6268 deaths, deaths attributed to drug use, mental disorders due to substance use, cerebrovascular disease, chronic obstructive pulmonary disease, renal disease, and septicemia were more likely among women than among men. Compared to the California population, women had elevated standardized mortality ratios for drug overdose (25.37), mental disorders due to substance abuse (27.21), cerebrovascular disease (2.83), chronic obstructive pulmonary disease (7.37), heart disease (2.37), and liver disease (5.54), and these were higher than the standardized mortality ratios for the men in our study. Men, but not women, had elevated standardized mortality ratios for suicide (2.70), undetermined intent (3.88), renal disease (2.29), and non-AIDS cancer (1.68) compared to population rates. Continued efforts to reduce HIV-related illnesses and an increased emphasis on diagnosing and treating preventable causes of death, including substance use, heart disease, and mental health disorders, are needed as part of comprehensive HIV care.


    BACKGROUND: Renal dysfunction is recognized with increasing frequency among the noninfectious comorbidities associated with human immunodeficiency virus (HIV) infection. Urinary liver-type fatty acid-binding protein (L-FABP) has been shown to be a new biomarker to screen for not only tubulointerstitial damage but also kidney dysfunction. METHODS: We performed a cross-sectional study to determine the association between the urinary L-FABP and chronic kidney disease (CKD) among 77 HIV-infected Japanese patients by backward-stepwise multivariable logistic regression. RESULTS: The prevalence of individuals in the low risk was 80%. Urinary L-FABP level was not associated with antiretroviral therapy and tenofovir disoproxil fumarate. On the other hand, urinary L-FABP level was independently associated with the CKD classification. CONCLUSION: Urinary L-FABP may be used as an adjunct to diagnose the CKD stage.


    The transformation of HIV from a fatal disease to lifelong disease has resulted in an HIV-infected population that is growing and aging, placing new and increasing demands on public programs and health services. We used National HIV Surveillance System and US census data to project the demographic composition of the population of people living with diagnosed HIV (PLWHD) in the United States through 2045. The input parameters for the projections include: (1) census projections, (2) number of people with an existing HIV diagnosis in 2013, (3) number of new HIV diagnoses in 2013, and (4) death rate within the PLWHD population in 2013. Sex-, risk group-, and race-specific projections were estimated through an adapted Leslie Matrix Model for age-structured populations. Projections for 2013-2045 suggest that the number of PLWHD in the U.S. will consistently grow, from 917,294 to 1,232,054, though the annual growth rate will slow from 1.8% to 0.8%. The number of PLWHD aged 55 years and older will increase from 232,113 to 470,221. The number of non-Hispanic (NH) African Americans/Blacks and Hispanics is projected to consistently grow, shifting the racial/ethnic composition of the US PLWHD population from 32 to 23% NH-White, 42 to 38% NH-Black, and 20-32% Hispanic between 2013 and 2045. Given current trends, the composition of the PLWHD population is projected to change considerably. Public health practitioners should anticipate large shifts in the age and racial/ethnic structure of the PLWHD population in the United States.
BACKGROUND: Increased incidence of cardiovascular diseases (CVD) in both HIV infection and type 2 diabetes (T2D) compared to the general population has been described. Little is known about the combined effect of HIV infection and T2D on inflammation and endothelial function, both of which may contribute to elevated risk of CVD. METHODS: Cross-sectional study including 50 HIV-infected persons on combination anti-retroviral therapy (cART), with HIV RNA <200 copies/mL (n = 25 with T2D (HIV+T2D+), n = 25 without T2D (HIV+T2D-)) and 50 uninfected persons (n = 22 with T2D (HIV-T2D+) and n = 28 without T2D (HIV-T2D-)). Groups were matched on age and sex. High sensitive C-reactive protein (hsCRP) was used to determine inflammation (cut-off 3 mg/L). The marker of endothelial dysfunction asymmetric dimethylarginine (ADMA) was measured using high performance liquid chromatography. Trimethylamine-N-oxide (TMAO), a microbiota-dependent, pro-atherogenic marker was measured using stable isotope dilution LC/MS/MS. RESULTS: The percentage of HIV+T2D+, HIV+T2D-, HIV-T2D+, and HIV-T2D- with hsCRP above cut-off was 50%, 19%, 47%, and 11%, respectively. HIV+T2D+ had elevated ADMA (0.67 μM (0.63-0.72) compared to HIV+T2D- (0.60 μM (0.57-0.64) p = 0.017), HIV-T2D+ (0.57 μM (0.51-0.63) p = 0.008), and HIV-T2D- (0.55 μM (0.52-0.58) p < 0.001). No differences in TMAO between groups were found. However, a positive correlation between ADMA and TMAO was found in the total population (rs = 0.32, p = 0.001), which was mainly driven by a close correlation in HIV+T2D+ (rs = 0.63, p = 0.001). CONCLUSION: Elevated inflammation and evidence of endothelial dysfunction was found in HIV-infected persons with T2D. The effect on inflammation was mainly driven by T2D, while both HIV infection and T2D may contribute to endothelial dysfunction. Whether gut microbiota is a contributing factor to this remains to be determined.


PURPOSE: To evaluate the incidence of intermediate-stage age-related macular degeneration (AMD) in patients with acquired immunodeficiency syndrome (AIDS). DESIGN: Cohort study. METHODS: Patients enrolled in the Longitudinal Study of the Ocular Complications of AIDS (LSOCA) underwent 5- and 10-year follow-up retinal photographs. Intermediate-stage AMD (AREDS stage 3) was determined from these photographs by graders at a centralized Reading Center, using the Age-Related Eye Disease Study-2 grading system. The incidence of AMD in LSOCA was compared with that in the Multi-Ethnic Study of Atherosclerosis (MESA), a Human Immunodeficiency Virus (HIV)-uninfected cohort, which used a similar photographic methodology. RESULTS: The incidence of AMD in LSOCA was 0.65/100 person-years (PY). In a multivariate analysis the only significant risk factor for AMD in LSOCA was smoking; the relative risk vs never-smokers was 3.4 for former smokers (95% confidence interval [CI] 1.3, 9.5; P = .02) and 3.3 for current smokers (95% CI 1.1, 9.7; P = .03). Compared with the MESA cohort, the race/ethnicity- and sex-adjusted risk of AMD in LSOCA was 1.75 (95% CI 1.16, 2.64; P = .008), despite the fact that the mean age of the MESA cohort was 17 years greater than the LSOCA cohort (61 +/- 9 years vs 44 +/- 8 years). CONCLUSIONS: Patients with AIDS have a 1.75-fold increased race- and sex-adjusted incidence of intermediate-stage AMD compared with that found in an HIV-uninfected cohort. This increased incidence is consistent with the increased incidence of other age-related diseases in antiretroviral-treated, immune-restored, HIV-infected persons when compared with HIV-uninfected persons.


In developed countries, remarkable advances in antiretroviral therapy have transformed HIV infection into a chronic condition. As a result, HIV-associated nephropathy, the classic HIV-driven kidney lesion among individuals of African descent, has largely disappeared in these regions. However, HIV-positive blacks continue to have much higher rates of ESRD than HIV-positive whites, which could be attributed to the APOL1 renal risk variants. Additionally, HIV-positive individuals face adverse consequences beyond HIV itself, including traditional risk factors for CKD and nephrotoxic effects of antiretroviral therapy. Concerns for nephrotoxicity also extend to HIV-negative individuals using tenofovir disoproxil fumarate-based pre-exposure prophylaxis for the prevention of HIV infection. Therefore, CKD remains an important comorbid condition in the HIV-positive population and an emerging concern among HIV-negative persons receiving pre-exposure prophylaxis. With the improved longevity of HIV-positive individuals, a kidney transplant has become a viable option for many who have progressed to ESRD. Herein, we review the growing
knowledge regarding the APOL1 renal risk variants in the context of HIV infection, antiretroviral therapy-related nephrotoxicity, and developments in kidney transplantation among HIV-positive individuals.


Prevalence of kidney disease (KD) is increasing among human immunodeficiency virus (HIV)-infected population. Different factors have been related, varying on different published series. The objectives were to study prevalence of KD in those patients, its evolution, and associated risk factors. An observational cohort study of 1596 HIV-positive patients with cross-sectional data collection in 2008 and 2010 was conducted. We obtained clinical and laboratory markers, and registered previous or current treatment with tenofovir (TDF) and indinavir (IDV). The sample was divided according to estimated glomerular filtration rate (eGFR) by modification of diet in renal disease (MDRD) equation. Group 1: eGFR <60 mL/min/1.73 m; group 2: eGFR >60 mL/min/1.73 m. Among the patients, 76.4% were men, mean age (SD) 45 +/- 9 years, time since diagnose of HIV 14 +/- 7 years, and 47.2% of the patients received previous treatment with TDF and 39.1% with IDV. In 2008, eGFR <60: 4.9% (91.4% of them in chronic kidney disease [CKD] stage 3, eGFR 59-30 mL/min); this group was older, presented higher fibrinogen levels, and more patients were treated previously with TDF and IDV. In 2010, eGFR <60: 3.9% (87.1% stage 3 CKD). The 2.4% of cohort showed renal improvement and 1.3% decline of renal function over time. The absence of hypertension and treatment with TDF were associated with improvement in eGFR. Increased age, elevated fibrinogen, decreased albumin, diabetes mellitus, hyperTG, and worse virological control were risk factors for renal impairment. The HIV-positive patients in our area have a CKD prevalence of 4% to 5% (90% stage 3 CKD) associated with ageing, inflammation, worse immune control of HIV, TDF treatment, and metabolic syndrome.


OBJECTIVE: To examine if monocyte and macrophage activity may be on the mechanistic pathway to non-AIDS comorbidity by investigating the associations between plasma-soluble CD163 (sCD163) and incident non-AIDS comorbidities in well treated HIV-infected individuals. DESIGN: Prospective single-center cohort study. METHODS: Plasma sCD163 was quantified by ELISA technique at study entry in 2004/2005, and non-AIDS comorbidity was identified by International Classification of Disease Tenth revision diagnosis codes and registry linkage in 2014/2015. Associations between sCD163 and incident comorbidity was examined using multivariable Cox proportional hazards models adjusted for pertinent covariates. RESULTS: In HIV-1-infected individuals (n = 799), the highest quartile of plasma sCD163 was associated with incident chronic lung disease [adjusted hazard ratio (aHR), 3.2; 95% confidence interval (CI): 1.34; 7.46] and incident chronic kidney disease (aHR, 10.94; 95% CI: 2.32; 51.35), when compared with lowest quartiles. Further, (every 1 mg) increase in plasma sCD163 was positively correlated with incident liver disease (aHR, 1.12; 95% CI: 1.05; 1.19). The sCD163 level was not associated with incident cancer, cardiovascular disease or diabetes mellitus. CONCLUSION: sCD163 was independently associated with incident chronic kidney disease, chronic lung disease and liver disease in treated HIV-1-infected individuals, suggesting that monocyte/macrophage activation may be involved in the pathogenesis of non-AIDS comorbidity and a potential target for therapeutic intervention.


BACKGROUND: People with acquired immune deficiency syndrome (AIDS) develop ischemic stroke through distinct mechanisms. These include infections such as syphilis, tuberculosis, varicella, and other conditions such as cocaine abuse, endocarditis, and hypercoagulability. The effect of improved awareness, detection, and treatment with highly active antiretroviral therapy (HAART) on the incidence and outcome of AIDS patients with stroke is unknown. METHODS: Data from the Nationwide Inpatient Sample from 1995 to 2010 were analyzed. Patients with ischemic stroke and AIDS were identified using ICD-9 (International Classification of Diseases) codes. Time trends for demographics, survival, and frequency of AIDS-associated conditions were analyzed. RESULTS: Proportion of AIDS among stroke patients increased significantly during the study. Median age of all strokes decreased from 75 years in 1995 to 72 years in 2010. Conversely, median age for men with stroke and AIDS increased from 43 years to 53 years; and for women with stroke and AIDS, from 41 years to 51 years. Death rates from stroke in the AIDS patients declined. In recent years, the death rates from stroke are similar to patients without HIV/AIDS. Stroke patients with AIDS had increased odds of syphilis (odds ratio [OR]: 33.50), varicella (OR: 48.34), tuberculosis (OR: 137.48), endocarditis (OR: 5.19), cocaine abuse (OR: 26.05), and hypercoagulability (OR: 4.82). CONCLUSIONS: In the HAART era, the median age of incident stroke in AIDS has increased and the mortality from stroke has improved. Research should focus on optimal management of dyslipidemia while on HAART. Whether HAART can reduce the incidence and improve survival of stroke needs to be explored.


BACKGROUND: HIV-infected individuals may be at risk for the premature onset of age-associated noncommunicable comorbidities. Being HIV-positive, having comorbidities and being of higher age may adversely impact health-related quality of life (HRQL). We investigated the possible contribution of HIV infection, comorbidities and age on HRQL and depression. METHODS: HIV-infected individuals and uninfected controls from the AGEhIV Cohort Study were screened for the presence of comorbidities. They completed the Short Form 36-item Health Survey to assess HRQL and the nine-item Patient Health Questionnaire to assess depression. Linear and logistic regression were used to investigate to which extent comorbidities, aging and HIV infection were independently associated with HRQL and depression. RESULTS: HIV-infected individuals (n = 541) reported significantly worse physical and mental HRQL and had a higher prevalence of depression than HIV-uninfected individuals (n = 526). A higher number of comorbidities and HIV-positive status were each independently associated with worse physical HRQL, whereas HIV-positive status and younger age were independently associated with worse mental HRQL and more depression. The difference in physical HRQL between HIV-positive and HIV-negative individuals did not become greater with a higher number of comorbidities or with higher age. CONCLUSION: In a cohort of largely well suppressed HIV-positive participants and HIV-negative controls, HIV-positive status was significantly and independently associated with worse physical and mental HRQL and with an increased likelihood of depression. Our finding that a higher number of comorbidities was independently associated with worse physical HRQL reinforces the importance to optimize prevention and management of comorbidities as the HIV-infected population continues to age.


BACKGROUND & AIMS: Obesity, kidney disease, and diabetes are common conditions that can affect outcomes of patients with chronic hepatitis C. The authors aimed to quantify the burden of these comorbid conditions among adults with chronic hepatitis C in the United States and to estimate the risk of death among people with chronic hepatitis C and comorbidities. METHODS: The authors conducted cross-sectional and prospective analyses of 13,726 participants in the third National Health and Nutrition Examination Survey (NHANES III) and 23,691 participants of NHANES 1999-2012. Serum samples were analyzed for the presence of antibodies to hepatitis C virus (anti-HCV); in samples found to be positive for anti-HCV, the authors quantified HCV RNA (viral load). Individuals with anti-HCV and detectable HCV RNA were considered to have chronic hepatitis C. Comorbidities were defined using self-reported, physical examination, and laboratory data, as available. The authors used logistic models and predictive margins to estimate the adjusted prevalence of comorbidities in patients with chronic hepatitis C. The authors used Poisson regression models to estimate adjusted mortality rates based on chronic hepatitis C status, with or without comorbidities. Cox proportional hazards regression models to estimate adjusted hazard ratios (HRs) and 95% confidence intervals (CIs) of all-cause, cardiovascular, and cancer mortality according to chronic hepatitis C status, with and without comorbidities. RESULTS: Among persons with chronic hepatitis C, the demographic-adjusted prevalence estimate of diabetes was 17.9% (95% CI, 11.2%-27.5%) and of obesity was 20.9% (95% CI, 12.4%-29.5%). Overall, 69.6% of persons with chronic hepatitis C had at least 1 major cardiometabolic...
People living with human immunodeficiency virus (HIV) infection and receiving antiretroviral therapy now have the same life expectancy as the general population. However, they have a higher risk of atherosclerotic cardiovascular events because of a complex and polyfactorial vasculopathy, combining the effects of antiretroviral therapy, the HIV virus itself, immune activation, chronic inflammation and metabolic disturbances. Whether people living with HIV infection experience increased vascular aging compared with the general population remains controversial. To summarize current knowledge of the association between HIV infection and aortic stiffness as a marker of vascular aging. This review included 18 clinical studies in adult populations, published between 2009 and 2016, and identified on PubMed/MEDLINE or other databases. Search terms were aortic stiffness, arterial stiffness, vascular aging, pulse wave velocity and HIV. All 18 studies were observational, and compared groups infected (HIV+) and not infected (HIV-) with HIV. Ten studies (55%) reported no significant differences in aortic stiffness between HIV+ groups and age-matched HIV- control groups. The main reported determinants of aortic stiffness were age, blood pressure, smoking, metabolic syndrome and HIV-related variables, including CD4/CD8 ratio, current T-CD4 count < 200/mm3 and nadir T-CD4+ count < 200/mm3. We found discordant results regarding whether HIV+ patients had increased aortic stiffness compared with HIV- controls. However, HIV-related conditions were associated with vascular health. This association has been confirmed in recent prospective studies. There is emerging evidence that HIV itself and immune activity affect vascular health and the large arteries.

OBJECTIVES: With the increasing impact of cardiovascular disease among populations aging with HIV, contemporary prevalence estimates for predisposing metabolic comorbidities will be important for guiding the provision of relevant lifestyle and pharmacological interventions. We estimated the citywide prevalence of hypertension, type 2 diabetes, dyslipidaemia, and obesity; examined differences by demographic subgroups; and assessed clinical correlates. METHODS: Utilizing an electronic medical record (EMR) database from the DC Cohort study - a multicentre prospective cohort study of HIV-infected outpatients - we assessed the period prevalence of metabolic comorbidities between 2011 and 2015 using composite definitions that incorporated diagnoses, pharmacy records, and clinical/laboratory results. RESULTS: Of 7018 adult patients (median age 50 years; 77% black), 50% [95% confidence interval (CI) 49-51] had hypertension, 13% (95% CI: 12-14) had diabetes, 48% (95% CI: 47-49) had dyslipidaemia, and 35% (95% CI: 34-36) had obesity. Hypertension was more prevalent among black patients, diabetes and obesity were more prevalent among female and black patients, dyslipidaemia was more prevalent among male and white patients, and comorbidities were more prevalent among older patients (all P < 0.001). For many patients, evidence of treatment for these comorbidities was not available in the EMR. Longer time since HIV diagnosis, greater duration of antiretroviral treatment, and having controlled immunovirological parameters were associated with metabolic comorbidities. CONCLUSIONS: These findings underscore the pervasive burden of metabolic comorbidities among HIV-infected persons, serve as the basis for future analyses characterizing their impact on subsequent adverse cardiovascular outcomes, and highlight the need for an increased focus on the prevention and control of comorbid complications in this population.

To evaluate hospitalization rates and causes among human immunodeficiency virus (HIV) patients in the late highly active antiretroviral therapy (HAART) era. Data during the years 2000 to 2012 were obtained from hospital/clinical charts. Hospitalizations were defined as a >/=24 hours hospital admission. Obstetric admissions were excluded. Causes of hospitalizations were defined as acquired immune deficiency syndrome (AIDS)-defining illnesses, AIDS-related diseases (HAART adverse events, metabolic
complications and non-AIDS-defining tumors/infections), and non-HIV-related diseases. Hospitalization rates are presented as admissions per 100 patient years. The number of HIV patients (58% males) in our center increased from 521 in 2000 to 1169 in 2012. 1676 hospital admissions (in 557 patients) were observed during the years of the study. The mean number of admissions per hospitalized patient was 3 +/- 3.39. Hospitalization rates of HIV patients declined significantly (18.4/100 in 2000, 9/100 patient years in 2012; P = .0001), but it was higher than the rates reported in the Israeli general population (X8.76 in 2000, X6.04 in 2012). Furthermore, hospitalizations for AIDS-defining illness declined (from 46.9% to 16.1%) whereas non-HIV-related hospitalizations increased (from 31.3% to 60.1%). Lower cluster of differentiation 4 (CD4) cell counts and older age, at the time of HIV diagnosis, were associated with higher rates of admissions (especially for AIDS-defining illnesses) and mortality. Hospitalization rates of HIV patients, especially for AIDS-defining illness, continue to decline in the late HAART era despite the increasing age of the patients, though it is still higher than that of the general population. Low CD4 cell counts and older age, at the time of HIV diagnosis, are associated with readmissions and mortality.


Only limited efficacy and tolerability data on raltegravir (RAL) use are currently available. Study objectives were to describe the efficacy and tolerability profile of RAL-based antiretroviral therapy (ART) in routine clinical practice in Germany. The WIP study (WIP = "Wirksamkeit von Isentress unter Praxisbedingungen", Efficacy of Isentress under routine clinical conditions) was a prospective, multi-centre cohort study in Germany. Human immunodeficiency virus (HIV)-infected patients aged >/= 18 years in whom combinational ART with RAL 400 mg BID was indicated were enrolled. The primary endpoint was virologic response (HIV-RNA <50 copies/mL; non-completion equals failure) after 48 weeks. Of 451 patients, 85.1% (n = 384) were still receiving RAL at week 48. At baseline (BL), the prevalence of concomitant diseases was higher in patients of the age group >/=50 years (94.2% vs. 75.7%) as well as concomitant medications (74.8 % vs. 55.4%). Virologic response at week 48 was 74.7% (overall), 75.0% (naive at BL), 81.5% (suppressed at BL), 47.1% (interrupted previous treatment at BL) and 64.9% (failing at BL), without significant differences by age group. A significant correlation of achievement of HIV-RNA <50 copies/mL was seen with treatment status at BL (p = 0.004). In addition, 77.3 % of the patients with a CD4 cell count >200 cells/µL at BL achieved HIV-RNA <50 copies/mL (p = 0.004). In 49 patients (10.9%) and 8 serious AEs (SAEs) in 6 patients (1.3%) reported to be drug related. A total of 22 patients (4.9%) discontinued treatment due to AEs. The WIP study shows that the previously reported efficacy and safety profile of RAL can be achieved in a population with multiple comorbidities and comedication, with no major difference observed in ageing patients (>/>=50 years) vs. younger patients. RAL is therefore an attractive treatment option in routine medical care in Germany.


Osteoporosis has become an emerging comorbid condition in people living with HIV (PLWH). The increase in survival and the progressive aging of PLWH will make this complication more frequent in the near future. In addition to the traditional risk factors affecting the general population, factors directly or indirectly associated with HIV infection, including antiretroviral therapy, can increase the risk of osteoporosis. The present article is an executive summary of the document that updates the previous recommendations on the prevention and treatment of osteoporosis in PLWH. This document is intended for all professionals who work in clinical practice in the field of HIV infection.

With increasing survival of patients infected with human immunodeficiency virus type 1 (HIV-1), the manifestation of heterogeneous neurological complications is also increasing alarmingly in these patients. Currently, more than 30% of about 40 million HIV-1 infected people worldwide develop central nervous system (CNS)-associated dysfunction, including dementia, sensory, and motor neuropathy. Furthermore, the highly effective antiretroviral therapy has been shown to increase the prevalence of mild cognitive functions while reducing other HIV-1-associated neurological complications. On the contrary, the presence of neurological disorder frequently affects the outcome of conventional HIV-1 therapy. Although, both the children and adults suffer from the post-HIV treatment-associated cognitive impairment, adults, especially depending on the age of disease onset, are more prone to CNS dysfunction. Thus, addressing neurological complications in an HIV-1-infected patient is a delicate balance of several factors and requires characterization of the molecular signature of associated CNS disorders involving intricate cross-talk with HIV-1-derived neurotoxins and other cellular factors. In this review, we summarize some of the current data supporting both the direct and indirect mechanisms, including neuro-inflammation and genome instability in association with aging, leading to CNS dysfunction after HIV-1 infection, and discuss the potential strategies addressing the treatment or prevention of HIV-1-mediated neurotoxicity.


Background: Veterans are disproportionately affected by HIV, hepatitis C (HCV) and hepatitis B (HBV). Homeless veterans are at particularly high risk for HIV, HCV and HBV due to a variety of overlapping risk factors, including high rates of mental health disorders and substance use disorders. The prevalence of HIV, HCV and HBV among homeless veterans nationally is currently unknown. This study describes national testing rates and prevalence of HIV, HCV and HBV among homeless veterans. Methods: Using data from the VA's Corporate Warehouse Data from 2015, we evaluated HCV, HIV, and HBV laboratory testing and infection confirmation rates and diagnoses on the Problem List for non-homeless veterans and for veterans utilizing homeless services in 2015. Results: Among 242,740 homeless veterans in VA care in 2015, HIV, HCV and HBV testing occurred in 63.8% (n=154,812), 78.1% (n=189,508), and 52.8% (n=128,262), respectively. The HIV population prevalence was 1.52% (3,684/242,740) among homeless veterans, compared to 0.44% (23,797/5,424,685) among non-homeless veterans. The HCV population prevalence among homeless veterans was 12.1% (29,311/242,740), compared to 2.7% (148,079/5,424,685) among non-homeless veterans, while the HBV population prevalence was 0.99% (2,395/242,740) for homeless veterans, and 0.40% (21,611/5,424,685) among non-homeless veterans. Conclusions: To our knowledge this work represents the most comprehensive tested prevalence and population prevalence estimates of HIV, HCV and HBV among homeless veterans nationally. The data demonstrate high prevalence of HIV, HCV and HBV among homeless veterans, and reinforce the need for integrated healthcare services along with homeless programming.


Cardiovascular disease (CVD) related to HIV infection is becoming a major public health concern in the United States. Epidemiologic studies show that prolonged use of Highly Active Antiretroviral Therapy, HIV/AIDS itself, and a combination of traditional vascular risk factors increase the risk for CVD among people with HIV/AIDS. However, little is known about any racial disparities in the risk for CVD in the HIV/AIDS population. We conducted a systematic review and meta-analysis of the literature on HIV/AIDS and CVD (June 1, 2010-July 31, 2014) through MEDLINE to examine whether and how HIV-positive African Americans are disproportionately affected by CVD compared to their white counterparts. The corrected pooled effect from the eligible studies was 1.26 (95% confidence interval 1.22-1.30). Blacks living with HIV/AIDS have a higher risk for CVD than non-Hispanic whites. The findings of this study provide an important basis for prevention efforts as well as recommendations for addressing the existing racial disparities in the risk for CVD among people living with HIV/AIDS. [ABSTRACT FROM AUTHOR]


Problem/Condition: As a result of the 2010 Patient Protection and Affordable Care Act, millions of U.S. adults attained health insurance coverage. However, millions of adults remain uninsured or underinsured. Compared with adults without barriers to health care, adults who lack health insurance coverage, have coverage gaps, or skip or delay care because of limited personal
finances might face increased risk for poor physical and mental health and premature mortality. Period Covered: 2014. Description of System: The Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing, state-based, landline- and cellular-telephone survey of noninstitutionalized adults aged ≥18 years residing in the United States. Data are collected from states, the District of Columbia, and participating U.S. territories on health risk behaviors, chronic health conditions, health care access, and use of clinical preventive services (CPS). An optional Health Care Access module was included in the 2014 BRFSS. This report summarizes 2014 BRFSS data from all 50 states and the District of Columbia on health care access and use of selected CPS recommended by the U.S. Preventive Services Task Force or the Advisory Committee on Immunization Practices among working-aged adults (aged 18-64 years), by state, state Medicaid expansion status, expanded geographic region, and federal poverty level (FPL). This report also provides analysis of primary type of health insurance coverage at the time of interview, continuity of health insurance coverage during the preceding 12 months, and other health care access measures (i.e., unmet health care need because of cost, unmet prescription need because of cost, medical debt [medical bills being paid off over time], number of health care visits during the preceding year, and satisfaction with received health care) from 43 states that included questions from the optional BRFSS Health Care Access module. Results: In 2014, health insurance coverage and other health care access measures varied substantially by state, state Medicaid expansion status, expanded geographic region (i.e., states categorized geographically into nine regions), and FPL category. The following proportions refer to the range of estimated prevalence for health insurance and other health care access measures by examined geographical unit (unless otherwise specified), as reported by respondents. Among adults with health insurance coverage, the range was 70.8%-94.5% for states, 78.8%-94.5% for Medicaid expansion states, 70.8%-89.1% for nonexpansion states, 73.3%-91.0% for expanded geographic regions, and 64.2%-95.8% for FPL categories. Among adults who had a usual source of health care, the range was 57.2%-86.6% for states, 57.2%-86.6% for Medicaid expansion states, 61.8%-83.9% for nonexpansion states, 64.4%-83.6% for expanded geographic regions, and 61.0%-81.6% for FPL categories. Among adults who received a routine checkup, the range was 52.1%-75.5% for states, 56.0%-75.5% for Medicaid expansion states, 52.1%-71.1% for nonexpansion states, 56.8%-70.2% for expanded geographic regions, and 59.9%-69.2% for FPL categories. Among adults who had unmet health care need because of cost, the range was 8.0%-23.1% for states, 8.8%-21.9% for Medicaid expansion states, 11.9%-23.1% for nonexpansion states, 11.6%-20.3% for expanded geographic regions, and 5.3%-32.9% for FPL categories. Estimated prevalence of cancer screenings, influenza vaccination, and having ever been tested for human immunodeficiency virus also varied by state, state Medicaid expansion status, expanded geographic region, and FPL category. The prevalence of insurance coverage varied by approximately 25 percentage points among racial/ethnic groups (range: 63.9% among Hispanics to 88.4% among non-Hispanic Asians) and by approximately 32 percentage points by FPL category (range: 64.2% among adults with household income <100% of FPL to 95.8% among adults with household income >400% of FPL). The prevalence of unmet health care need because of cost varied by nearly 14 percentage points among racial/ethnic groups (range: 11.3% among non-Hispanic Asians to 25.0% among Hispanics), by approximately 17 percentage points among adults with and without disabilities (30.8% versus 13.7%), and by approximately 28 percentage points by FPL category (range: 5.3% among adults with household income >400% of FPL to 32.9% among adults with household income <100% of FPL). Among the 43 states that included questions from the optional module, a majority of adults reported private health insurance coverage (63.4%), followed by public health plan coverage (19.4%) and no primary source of insurance (17.1%). Financial barriers to health care (unmet health care need because of cost, unmet prescription medication need because of cost, and medical bills being paid off over time [medical debt]) were typically lower among adults in Medicaid expansion states than those in nonexpansion states regardless of source of insurance. Approximately 75.6% of adults reported being continuously insured during the preceding 12 months, 12.9% reported a gap in coverage, and 11.5% reported being uninsured during the preceding 12 months. The largest proportion of adults reported ≥3 visits to a health care professional during the preceding 12 months (47.3%), followed by 1-2 visits (37.1%), and no health care visits (15.6%). Adults in expansion and nonexpansion states reported similar levels of satisfaction with received health care by primary source of health insurance coverage and by continuity of health insurance coverage during the preceding 12 months. Interpretation: This report presents for the first time estimates of population-based health care access and use of CPS among adults aged 18-64 years. The findings in this report indicate substantial variations in health insurance coverage; other health care access measures; and use of CPS by state, state Medicaid expansion status, expanded geographic region, and FPL category. In 2014, health insurance coverage, having a usual source of care, having a routine checkup, and not experiencing unmet health care need because of cost were higher among adults living below the poverty level (i.e., household income <100% of FPL) in states that expanded Medicaid than in states that did not. Similarly, estimates of breast and cervical cancer screening and influenza vaccination were higher among adults living below the poverty level in states that expanded Medicaid than in states that did not. These disparities might be due to larger differences to begin with, decreased disparities in Medicaid expansion states versus nonexpansion states, or increased disparities in nonexpansion states. Public Health Action: BRFSS data from 2014 can be used as a baseline by which to assess and monitor changes that might occur after 2014 resulting from programs and policies designed to increase access to health care, reduce health disparities, and improve the health of the adult population. Post-2014 changes in
health care access, such as source of health insurance coverage, attainment and continuity of coverage, financial barriers, preventive care services, and health outcomes, can be monitored using these baseline estimates. [ABSTRACT FROM AUTHOR]


BACKGROUND: Tenofovir disoproxil fumarate (TDF) use during pregnancy has been increasing, and studies linking bone toxicity with exposure to TDF have raised concern for its use in infants. METHODS: Hand/wrist and spine radiographs were obtained at 3 days and 12 weeks of age in infants born to HIV-infected pregnant women enrolled in the HIV Prevention Trials Network 057 pharmacokinetic study of TDF conducted in Malawi and Brazil assigned to 3 TDF dosing cohorts. In cohort 1, mothers received 600 mg of TDF during labor. In cohort 2, infants received 4 mg/kg dose on days 0, 3 and 5. In cohort 3, a 900 mg maternal dose was given during labor, followed by a 6 mg/kg infant dose on days 0, 3 and 5 of life. RESULTS: Across all 3 cohorts, 89 infants had radiographs performed at either time point, and 85 had radiographs performed at both time points. Metaphyseal lucency was present in 1 case in Brazil and 2 in Malawi. Fifteen percent of infants from Brazil and 9% of infants from Malawi presented bone age discrepancies. No other abnormalities were identified in Brazil, whereas in Malawi, there were 7 more cases of wrist osteopenia, 2 of spine osteopenia and 3 other abnormalities. CONCLUSION: Bone abnormalities were not uncommon in the overall cohort of HIV-exposed infants. Because of very limited study drug exposure at the time of birth, it is unlikely that TDF was associated with these findings. Untreated maternal HIV disease and/or maternal nutritional status could potentially be related to fetal bone development. This association should be explored in future cohort studies.


High HIV viral load (VL >100,000 cp/ml) is associated with increased HIV transmission risk, faster progression to AIDS, and reduced response to some antiretroviral regimens. To better understand factors associated with high VL, we examined characteristics of patients presenting for treatment in Hanoi, Vietnam. We examined baseline data from the Viral Load Monitoring in Vietnam Study, a randomized controlled trial of routine VL monitoring in a population starting antiretroviral therapy (ART) at a clinic in Hanoi. Patients with prior treatment failure or ART resistance were excluded. Characteristics examined included demographics, clinical and laboratory data, and substance use. Logistic regression was used to calculate crude and adjusted odds ratios (aOR) and 95% confidence intervals (95% CI). Out of 636 patients, 62.7% were male, 72.9% were >/=30 years old, and 28.3% had a history of drug injection. Median CD4 was 132 cells/mm3, and 34.9% were clinical stage IV. Active cigarette smoking was reported by 36.3% with 14.0% smoking >10 cigarettes per day. Alcohol consumption was reported by 20.1% with 6.1% having >/=5 drinks per event. Overall 53.0% had a VL >100,000 cp/ml. Male gender, low body weight, low CD4 count, prior TB, and cigarette smoking were associated with high VL. Those who smoked 1-10 cigarettes per day were more likely to have high VL (aOR = 1.99, 95% CI = 1.15-3.45), while the smaller number of patients who smoked >10 cigarettes per day had a non-significant trend toward higher VL (aOR = 1.41, 95% CI = 0.75-2.66). Alcohol consumption was not significantly associated with high VL. Tobacco use is increasingly recognized as a contributor to premature morbidity and mortality among HIV-infected patients. In our study, cigarette smoking in the last 30 days was associated with a 1.5 to 2-fold higher odds of having an HIV VL >100,000 cp/ml among patients presenting for ART. These findings provide further evidence of the negative effects of tobacco use among HIV-infected patients.


PURPOSE OF REVIEW: HIV replication and immunodeficiency are important risk factors for chronic kidney disease (CKD). Widespread use of antiretrovirals that may affect kidney function underscores the need for monitoring kidney function, allowing early detection of drug-induced kidney injury and identification of patients who may benefit from antiretroviral therapy switches. RECENT FINDINGS: Several cohorts have reported an increased incidence of CKD with tenofovir [tenofovir disoproxil fumarate (TDF)], atazanavir, and lopinavir, and CKD risk scores have been developed to identify those most at risk of kidney disease progression while receiving these agents. Recent data suggest that TDF discontinuation and substitution of atazanavir or lopinavir with darunavir may stabilize or improve renal function. Tenofovir alafenamide (TAF) is a new tenofovir formulation with minimal effect on renal tubular function. Patients with preserved or mild-moderately impaired renal function who switched from TDF to TAF-containing regimens
experienced rapid and sustained improvement in proteinuria and stable renal function, suggesting that TAF will be the preferred tenofovir formulation for patients with CKD and those at increased risk of developing CKD. SUMMARY: Suppression of HIV replication and antiretroviral switches away from TDF and atazanavir are important measures to maintain kidney function and reduce CKD risk in older adults living with HIV.


Pulmonary disease remains a primary source of morbidity and mortality in persons living with HIV (PLWH), although the advent of potent combination antiretroviral therapy has resulted in a shift from predominantly infectious to noninfectious pulmonary complications. PLWH are at high risk for COPD, pulmonary hypertension, and lung cancer even in the era of combination antiretroviral therapy. The underlying mechanisms of this are incompletely understood, but recent research in both human and animal models suggests that oxidative stress, expression of matrix metalloproteinases, and genetic instability may result in lung damage, which predisposes PLWH to these conditions. Some of the factors that drive these processes include tobacco and other substance use, direct HIV infection and expression of specific HIV proteins, inflammation, and shifts in the microbiome toward pathogenic and opportunistic organisms. Further studies are needed to understand the relative importance of these factors to the development of lung disease in PLWH.


ABSTRACT Many sources have highlighted the high incidence of premature cardiovascular events in HIV infected patients. This raises the suspicion of an accelerated aging of the vascular system in this disease characterized by chronic systemic subliminal inflammation and immune dysregulation. Unfortunately all currently available risk assessment algorithms based on traditional risk factors, and even those containing more HIV-specific factors, fail to accurately predict risk in a large proportion of patients. In the general population several models have implemented imaging data to refine risk assessment, and the concept of vascular aging has been of value in improving the performance of these algorithms. It is expected that HIV patients may benefit from a similar approach as it becomes clearer that vascular imaging provides valuable prognostic information in this patient category.


IMPORTANCE: The Human Immunodeficiency Virus (HIV) epidemic has evolved, with an increasing non-communicable disease (NCD) burden emerging and need for long-term management, yet there are limited data to help delineate the optimal care model to screen for NCDs for this patient population. OBJECTIVE: The primary aim was to compare rates of NCD preventive screening in persons living with HIV/AIDS (PLWHA) by type of HIV care model, focusing on metabolic/cardiovascular disease (CVD) and cancer screening. We hypothesized that primary care models that included generalists would have higher preventive screening rates. DESIGN: Prospective observational cohort study. SETTING: Partners HealthCare System (PHS) encompassing Brigham & Women’s Hospital, Massachusetts General Hospital, and affiliated community health centers. PARTICIPANTS: PLWHA age >18 engaged in active primary care at PHS. EXPOSURE: HIV care model categorized as infectious disease (ID) providers only, generalist providers only, or ID plus generalist providers. MAIN OUTCOME(S) AND MEASURES(S): Odds of screening for metabolic/CVD outcomes including hypertension (HTN), obesity, hyperlipidemia (HL), and diabetes (DM) and cancer including colorectal cancer (CRC), cervical cancer, and breast cancer. RESULTS: In a cohort of 1565 PLWHA, distribution by HIV care model was 875 ID (56%), 90 generalists (6%), and 600 ID plus generalists (38%). Patients in the generalist group had lower odds of viral suppression but similar CD4 counts and ART exposure as compared with ID and ID plus generalist groups. In analyses adjusting for sociodemographic and clinical covariates and clustering within provider, there were no significant differences in metabolic/CVD or cancer screening rates among the three HIV care models. CONCLUSIONS: There were no notable differences in metabolic/CVD or cancer screening rates by HIV care model after adjusting for sociodemographic and clinical factors. These findings suggest that HIV patients receive similar preventive health care for NCDs independent of HIV care model.

BACKGROUND: Combination antiretroviral therapy (cART) has reduced mortality from AIDS-related illnesses and chronic comorbidities have become prevalent among HIV-infected patients. We examined the association between hepatitis C virus (HCV) co-infection and chronic kidney disease (CKD) among patients initiating modern antiretroviral therapy. METHODS: Data were obtained from the Canadian HIV Observational Cohort for individuals initiating cART from 2000 to 2012. Incident CKD was defined as two consecutive serum creatinine-based estimated glomerular filtration (eGFR) measurements <60 mL/min/1.73m(2) obtained >/=3 months apart. CKD incidence rates after cART initiation were compared between HCV co-infected and HIV mono-infected patients. Hazard ratios (HRs) and 95% confidence intervals (CIs) were estimated using multivariable Cox regression. RESULTS: We included 2595 HIV-infected patients with eGFR >60 mL/min/1.73m(2) at cART initiation, of which 19% were HCV co-infected. One hundred and fifty patients developed CKD during 10,903 person-years of follow-up (PYFU). The CKD incidence rate was higher among co-infected than HIV mono-infected patients (26.0 per 1000 PYFU vs. 10.7 per 1000 PYFU). After adjusting for demographics, virologic parameters and traditional CKD risk factors, HCV co-infection was associated with a significantly shorter time to incident CKD (HR 1.97; 95% CI: 1.33, 2.90). Additional factors associated with incident CKD were female sex, increasing age after 40 years, lower baseline eGFR below 100 mL/min/1.73m(2), increasing HIV viral load and cumulative exposure to tenofovir and lopinavir. CONCLUSIONS: HCV co-infection was associated with an increased risk of incident CKD among HIV-infected patients initiating cART. HCV-HIV co-infected patients should be monitored for kidney disease and may benefit from available HIV treatments.


: The last decade has seen a dramatic change in the demographic structure of the population of people living with HIV (PLWH). The majority of PLWH who start treatment with combination antiretroviral therapy now have good virological and immunological responses and this has resulted in improvements in life expectancy. In addition, there have also been continued new HIV diagnoses (and new HIV infections) in those aged more than 50 years. The average age of those attending HIV clinics has therefore increased, with this trend expected to continue into the future. As the cohort of PLWH has aged, so the spectrum and burden of age-associated noncommunicable comorbidities (AANCCs) in the cohort has increased. PLWH are likely, therefore, to have increased healthcare needs for the foreseeable future. Although it appears that the average age at diagnosis of several AANCC is lower in PLWH, current evidence remains insufficient to demonstrate that HIV infection leads to either accelerated or accentuated aging. The results from several well designed longitudinal cohorts, with appropriately matched control groups, will provide more robust evidence to confirm a potential impact of HIV on the incidence of these AANCC. However, regardless of the impact of HIV itself, the role of other, non-HIV, factors is becoming increasingly important, with coinfection with other viral infections and lifestyle factors playing an increasing role in the development of many AANCC. It is likely that attempts to reduce smoking prevalence and obesity may be associated with important reductions in the incidence of some of these events in the future.


BACKGROUND: The Community Health Outreach Work to Prevent AIDS (CHOW) Project is the first and longest-standing statewide integrated and funded needle and syringe exchange program (SEP) in the US. Initiated on O'ahu in 1990, CHOW expanded statewide in 1993. The purpose of this study is to estimate the prevalences of hepatitis C virus (HCV) and human immunodeficiency virus (HIV) infection, and to characterize risk behaviors associated with infection among clients of a long-standing SEP through the analysis of the 2012 CHOW evaluation data. METHODS: A cross-sectional sample of 130 CHOW Project clients was selected from January 1, 2012 through December 31, 2012. Questionnaires captured self-reported exposure information. HIV and HCV antibodies were detected via rapid, point-of-care FDA-approved tests. Log-binomial regressions were used to estimate prevalence proportion ratios (PPRs). A piecewise linear log-binomial regression model containing 1 spline knot was used to fit the age-HCV relationship. RESULTS: The estimated seroprevalence of HCV was 67.7% (95% confidence interval [CI]=59.5-75.8%), HIV seroprevalence was 2.3% (95% CI=0-4.9%). Anti-HCV prevalence demonstrated age-specific patterns, ranging from 31.6% through 90.9% in people who inject drugs (PWID) <30 to >/=60 years respectively. Age (continuous/year) prior to spline knot at 51.5 years (adjusted PPR [APPR]=1.03; 95% CI=1.02-1.05) and months exchanging syringes (quartiles) (APPR=1.92; 95% CI=1.3-3.29) were independently associated with

BACKGROUND: Tenofovir (TDF) is one of the most widely used antiretroviral drug. Despite the high degree of tolerability a small percentage of patients experienced alteration in tubular function during TDF use. Intracellular TDF disposition is regulated by ATP-binding cassette (ABC) drug efflux transporters and, a reduced transport activity may be implicated in accumulation of TDF into the cells. The aim of our study was to assess the major determinants of TDF associated tubular dysfunction (KTD) in a real-life setting including the usefulness of single-nucleotide polymorphisms (SNPs) mapping into ABCC2, ABCC4 and ABCC10 genes. METHODS: We retrospectively analyzed all HIV positive patients who were followed at the Infectious Diseases Unit, DIBIC Luigi Sacco, University of Milan from April 2013 to June 2016. All patients treated with TDF who underwent a genotypization for the functional variants mapping in ABCC2 rs717620 (-24 C>T), ABCC4 rs1751034 (3463 A>G) and ABCC10 rs2125739 (T>C) were evaluated. KTD was defined as the presence of urine phosphate wasting and/or proteinuria at 24 h urine analysis. RESULTS: One hundred fifty-eight patients were genotyped, of which 42 (26.6%) experienced signs of KTD. No statistical significant differences were observed among patients with or without KTD regarding age, gender, ethnicity and comorbidities (hypertension and diabetes). The percentage of patients with KTD was higher among those with "GG" genotype at rs1751034 of ABCC4 compared to patients without KTD [6 (14.3%) vs 4 (3.5%), \( p = 0.01 \)]. No statistical significant differences were observed regarding the distribution of ABCC2 and ABCC10 SNPs. Carriers of "G" allele in homozogous status at rs1751034 of ABCC4 showed a significant association with KTD (Odds Ratio 4.67, 95% CI 1.25-17.46, \( p = 0.02 \)) in bivariate analysis, but this association was lost in multivariable analysis. A significant association between bone diseases and KTD was observed (Odds Ratio 3.178, 95%CI 1.529-6.603, \( p = 0.002 \)). CONCLUSIONS: According to our results ABCC4 rs1751034 could be a genetic determinant of KTD; however validation studies are needed for therapy personalization. Noteworthy, a strong association between bone disease and KTD was also observed.


BACKGROUND: Identifying older people affected by cancer who are more at risk of negative health outcomes is a major issue in health initiatives focusing on medical effectiveness. In this regard, psychological risk factors such as patients' perception of their own aging and cancer could be used as indicators to improve customization of cancer care. We hypothesize that more negative self-perception of aging (SPA) and view of cancer could be linked to worse physical and mental health outcomes in cancer patients. METHODS: One hundred one patients diagnosed with cancer (breast, gynecological, lung or hematological) were followed for 1 year. They were evaluated on four occasions (baseline, 3, 6 and 12 months after the baseline). Their SPA, view of cancer and health (physical and mental) were assessed at each time of evaluation. RESULTS: Negative SPA and/or view of cancer at baseline are associated with negative evolution of patients' physical and mental health. Moreover, when the evolution of SPA and cancer view were taken into account, these two stigmas are still linked with the evolution of mental health. In comparison, only a negative evolution of SPA was linked to worse physical health outcomes. CONCLUSIONS: Such results indicate that SPA and view of cancer could be used as markers of vulnerability in older people with cancer.


Cardiovascular disease (CVD) is a major comorbidity among HIV-infected individuals. Common carotid artery intima-media thickness (cCIMT) is a valid and reliable subclinical measure of atherosclerosis and is known to predict CVD. We performed genome-wide association (GWA) and admixture analysis among 682 HIV-positive and 288 HIV-negative Black, non-Hispanic women from the Women's Interagency HIV study (WHIHS) cohort using a combined and stratified analysis approach. We found some suggestive associations but none of the SNPs reached genome-wide statistical significance in our GWAS analysis. The top GWAS SNPs were rs2280828 in the region intergenic to mediator complex subunit 30 and exostosin glycosyltransferase 1 (MED30 | EXT1) among all
women, rs2907092 in the catenin delta 2 (CTNND2) gene among HIV-positive women, and rs7529733 in the region intergenic to family with sequence similarity 5, member C and regulator of G-protein signaling 18 (FAM5C | RGS18) genes among HIV-negative women. The most significant local European ancestry associations were in the region intergenic to the zinc finger and SCAN domain containing 50 gene and NADH: ubiquinone oxidoreductase complex assembly factor 1 (ZSCAN5D | NDUF1) pseudogene on chromosome 19 among all women, in the region intergenic to vomeronasal 1 receptor 6 pseudogene and zinc finger protein 845 (VN1R6P | ZNF845) gene on chromosome 19 among HIV-positive women, and in the region intergenic to the SEC23-interacting protein and phosphatidic acid phosphatase type 2 domain containing 1A (SEC23IP PPAPDC1A) genes located on chromosome 10 among HIV-negative women. A number of previously identified SNP associations with cCIMT were also observed and included rs2572204 in the ryanodine receptor 3 (RYR3) and an admixture region in the secretion-regulating guanine nucleotide exchange factor (SERGEF) gene. We report several SNPs and gene regions in the GWAS and admixture analysis, some of which are common across HIV-positive and HIV-negative women as demonstrated using meta-analysis, and also across the two analytic approaches (i.e., GWA and admixture). These findings suggest that local European ancestry plays an important role in genetic associations of cCIMT among black women from WIHS along with other environmental factors that are related to CVD and may also be triggered by HIV. These findings warrant confirmation in independent samples.


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/microL (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.


PURPOSE OF REVIEW: Lung cancer is emerging as a leading cause of death in HIV-infected persons. This review will discuss the latest scientific evidence regarding the mechanisms driving lung cancer risk in HIV infection, the clinical presentation of lung cancer in HIV-infected persons and recent data regarding the outcomes, treatment and prevention of lung cancer in this group. RECENT FINDINGS: Increased risk of lung cancer in HIV-infected persons is primarily due to higher smoking rates, but emerging evidence also implicates immunosuppression and inflammatory processes. Lung cancer outcomes may be worse in HIV-infected persons in the antiretroviral era, but this may stem, in part, from treatment disparities. Early detection of lung cancer using chest computed tomography (CT) is being increasingly adopted for smokers in the general population, and recent studies suggest that it may be safe and efficacious in HIV-infected smokers. SUMMARY: Lung cancer is an important complication associated with chronic HIV infection. It is associated with unique HIV-related causal mechanisms, and may be associated with worse outcomes in some HIV-infected persons. Smoking cessation and early cancer detection with chest CT are likely to benefit HIV-infected smokers.
BACKGROUND: HIV infection is independently associated with risk of lung cancer, but few data exist for the relation between longitudinal measurements of immune function and lung-cancer risk in people living with HIV. METHODS: We followed up participants with HIV from the Veterans Aging Cohort Study for a minimum of 3 years between Jan 1, 1998, and Dec 31, 2012, and used cancer registry data to identify incident cases of lung cancer. The index date for each patient was the later of the date HIV care began or Jan 1, 1998. We excluded patients with less than 3 years' follow-up, prevalent diagnoses of lung cancer, or incomplete laboratory data. We used Cox regression models to investigate the relation between different time-updated lagged and cumulative exposures (CD4 cell count, CD8 cell count, CD4/CD8 ratio, HIV RNA, and bacterial pneumonia) and risk of lung cancer. Models were adjusted for age, race or ethnicity, smoking, hepatitis C virus infection, alcohol use disorders, drug use disorders, and history of chronic obstructive pulmonary disease and occupational lung disease. FINDINGS: We identified 277 cases of incident lung cancer in 21 666 participants with HIV. In separate models for each time-updated 12 month lagged, 24 month simple moving average cumulative exposure, increased risk of lung cancer was associated with low CD4 cell count (p trend=0.001), low CD4/CD8 ratio (p trend=0.0001), high HIV RNA concentration (p=0.004), and more cumulative bacterial pneumonia episodes (12 month lag only; p trend=0.0004). In a mutually adjusted model including these factors, CD4/CD8 ratio and cumulative bacterial pneumonia episodes remained significant (p trends 0.003 and 0.004, respectively). INTERPRETATION: In our large HIV cohort in the antiretroviral therapy era, we found evidence that dysfunctional immune activation and chronic inflammation contribute to the development of lung cancer in the setting of HIV infection. These findings could be used to target lung-cancer prevention measures to high-risk groups. FUNDING: US National Institutes of Health.


BACKGROUND: Lymphoma is a leading cause of cancer-related death among human immunodeficiency virus (HIV)-infected individuals in the current era of potent anti-retroviral therapy (ART). Globally, mortality after HIV-associated lymphoma has profound regional variation. Little is known about HIV-associated lymphoma mortality in Nigeria and other resource-limited setting in sub-Saharan Africa. Therefore, we evaluated the all-cause mortality after lymphoma and associated risk factors including HIV at the Jos University Teaching Hospital (JUTH) Nigeria. METHODS: We conducted a ten-year retrospective cohort study of lymphoma patients managed in JUTH. The main outcome measured was all-cause mortality and HIV infection was the main exposure variable. Overall death rate was estimated using the total number of death events and cumulative follow up time from lymphoma diagnosis to death. Cox proportional hazard regression was used to assess factors associated with mortality after lymphoma diagnosis. RESULTS: Out of 40 lymphoma patients evaluated, 8(20.0%) were HIV positive and 32(80.0%) were HIV negative. After 127.63 person-years of follow-up, there were 16 deaths leading to a crude mortality rate of 40.0 per 100 person-years. The 2-year probability of survival was 30% for HIV-infected patients and 74% for HIV-uninfected. Median survival probability for HIV-infected patients was 2.1 years and 7.6 years for those without HIV. Unadjusted hazard of death was associated with late stage, HR 11.33(95% CI 2.55, 50.26,p = 0.001); low cumulative cycles of chemotherapy, HR 6.43(95% CI 1.80, 22.89,p = 0.004); greater age, HR 5.12(95% CI 1.45,18.08,p = 0.01); presence of comorbidity, HR 3.43(95% CI 1.10,10.78,p = 0.03); and HIV-infection, HR 3.32(95% CI 1.05, 10.51,p = 0.04). In an adjusted model only stage was significantly associated with death, AHR 5.45(1.14, 22.89,p = 0.004). CONCLUSION: Our findings suggest that HIV-infection accounted for three times probability of death in lymphoma patients compared to their HIV-uninfected counterparts due to late stage of lymphoma presentation in this population. Also initiation of chemotherapy was associated with lower probability of death among lymphoma patients managed at JUTH, Nigeria. Earlier stage at lymphoma diagnosis and prompt therapeutic intervention is likely to improve survival in these patients. Future research should undertake collaborative studies to obtain comprehensive regional data and identify unique risk factors of poor outcomes among HIV-infected patients with lymphoma in Nigeria.


BACKGROUND: Multimorbidity With HIV: Views of Community-Based People Living With HIV and Other Chronic Conditions." J Assoc Nurses AIDS Care 28(4): 603-611.
People living with HIV (PLWH) experience an increase in chronic conditions with aging, but little is known about experiences of living with multimorbidity with HIV. Because early palliative care services may improve well-being for individuals with multimorbidity, we planned to test an intervention to provide these services to community-dwelling PLWH with other chronic conditions. To tailor our intervention to the target population, we conducted four focus groups (n = 22) that elicited health-related needs, experiences, and views regarding palliative and other health services. We identified four themes related to patients’ needs and experiences: views of HIV as background to other chronic conditions, challenges managing medications and provider interactions, concerns about coping with future health needs, and persistence of HIV stigma. In addressing multimorbidity with HIV, providers and patients may benefit from enhanced attention to communication when crossing specialty areas and from additional support to decrease stressors associated with HIV stigma.


Background: Country-specific forecasts of the growing non-communicable disease (NCD) burden in ageing HIV-positive patients will be key to guide future HIV policies. We provided the first national forecasts for Italy and the Unites States of America (USA) and quantified direct cost of caring for these increasingly complex patients. Methods and Setting: We adapted an individual-based model of ageing HIV-positive patients to Italy and the USA, which followed patients on HIV-treatment as they aged and developed NCDs (chronic kidney disease, diabetes, dyslipidaemia, hypertension, non-AIDS malignancies, myocardial infarctions and strokes). The models were parameterised using data on 7,469 HIV-positive patients from the Italian Cohort Naive to Antiretrovirals Foundation Study and 3,748 commercially-insured patients in the USA and extrapolated to national level using national surveillance data. Results: The model predicted that mean age of HIV-positive patients will increase from 46 to 59 in Italy and from 49 to 58 in the USA in 2015–2035. The proportion of patients in Italy and the USA diagnosed with ≥1 NCD is estimated to increase from 64% and 71% in 2015 to 89% and 89% by 2035, respectively, driven by moderate cardiovascular disease (CVD) (hypertension and dyslipidaemia), diabetes and malignancies in both countries. NCD treatment costs as a proportion of total direct HIV costs will increase from 11% to 23% in Italy and from 40% to 56% in the USA in 2015–2035. Conclusions: HIV patient profile in Italy and the USA is shifting to older patients diagnosed with multiple co-morbidity. This will increase NCD treatment costs and require multi-disciplinary patient management. [ABSTRACT FROM AUTHOR]


Purpose of review To examine the epidemiology and mechanistic underpinnings of heightened cardiovascular disease (CVD) risk among women living with HIV (WLHIV) in North America and Europe. Recent findings WLHIV in North America and Europe exhibit high CVD incidence rates, which are at par with those of compatriot men living with HIV. Compared with uninfected women, WLHIV in these regions face a 2-4-fold increased relative risk for myocardial infarction, stroke, and heart failure. HIV-associated CVD risk is fuelled by a negative synergy of traditional cardiometabolic risk factors and heightened systemic immune activation/inflammation. Among WLHIV, female sex and endogenous sex hormone production influence both traditional cardiometabolic risk factors and patterns of systemic immune activation/inflammation. WLHIV in North America and Europe may also experience heightened CVD risk in relation to a relatively increased prevalence of behavioral and psychosocial CVD risk factors, coupled with suboptimal therapeutic targeting of known traditional cardiometabolic risk factors. Summary Additional research on sex-specific mechanisms of HIV-associated CVD -based not only out of North America and Europe but also and especially out of Africa, Asia, and South America -will inform the development of CVD prediction algorithms and prevention guidelines clinically relevant to the approximately 17 million women aging with HIV globally.


BACKGROUND: Liver disease has become an important cause of morbidity and mortality even in those HIV-infected individuals who are devoid of hepatitis virus co-infection. The aim of this study was to evaluate the degree of hepatic fibrosis and the role of associated factors using liver stiffness measurement in HIV mono-infected patients without significant alcohol intake. METHODS: We performed a cross-sectional study of 101 HIV mono-infected patients recruited prospectively from March 1, 2014 to
October 30, 2014 at the Center for HIV, St Istvan and St Laszlo Hospital, Budapest, Hungary. To determine hepatic fibrosis, liver stiffness was measured with transient elastography. Demographic, immunologic and other clinical parameters were collected to establish a multivariate model. Bayesian Model Averaging (BMA) was performed to identify predictors of liver stiffness. RESULTS: Liver stiffness ranged from 3.0-34.3 kPa, with a median value of 5.1 kPa (IQR 1.7). BMA provided a very high support for age (Posterior Effect Probability-PEP: 84.5%), moderate for BMI (PEP: 49.3%), CD4/8 ratio (PEP: 44.2%) and lipodystrophy (PEP: 44.0%). For all remaining variables, the model rather provides evidence against their effect. These results overall suggest that age and BMI have a positive association with LS, while CD4/8 ratio and lipodystrophy are negatively associated. DISCUSSION: Our findings shed light on the possible importance of ageing, overweight and HIV-induced immune dysregulation in the development of liver fibrosis in the HIV-infected population. Nonetheless, further controlled studies are warranted to clarify causal relations.


Little evidence is available for the incidence of chronic kidney disease (CKD) and rate of estimated glomerular filtration rate (eGFR) decrement among Asians with low body weight who are susceptible to tenofovir disoproxil fumarate (TDF) nephrotoxicity. In this 12-year observational cohort in Tokyo, we examined 1383 treatment-naive HIV-1-infected Asians [720 started TDF-containing (TDF group) and 663 started non-TDF-containing (control) combination antiretroviral therapy (cART)]. The CKD incidence was calculated, and the effect of TDF use on CKD development was estimated using logistic regression. The eGFR slopes, before and after cART initiation, were estimated using mixed-effects linear spline models. Most patients were males (median weight, 62.6 kg; 83% started ritonavir-boosted protease inhibitors; median observation duration, 5.08 years). CKD developed in 150 patients (10.8%), with an incidence of 20.6 per 1000 person-years [confidence interval (95% CI), 17.6-24.2]. None developed end-stage renal disease. TDF use was associated with CKD [odds ratio (OR), 1.8; 95% CI, 1.00-3.13; p = 0.052]. The cumulative mean loss in the TDF group, relative to the control, increased over time after 1, 4, and 8 years of TDF exposure (-3.8, -5.5, and -9.0 mL/min/1.73 m(2), respectively; p < 0.0001). The eGFR rapidly declined during the first 3 months of cART, particularly in the TDF group (-26.4 vs. -7.4 mL/min/1.73 m(2)/year in the control). In the TDF group, CART introduction was significantly associated with a faster rate of eGFR decline (from -0.44 to -2.11 mL/min/1.73 m(2)/year; p = 0.010), whereas in the control, the difference was not significant. For HIV-1-infected Asian patients with low body weight, TDF-containing cART is associated with CKD and faster eGFR declines.


BACKGROUND: HIV-infected patients may be at a greater risk of Hospital-Acquired Infections (HAIs) but risks factors for HAIs have not been well described in this population. OBJECTIVE: The aim of this study was to examine the incidence, temporal trends and risk factors of HAIs among adult HIV positive patients. METHODS: This was a retrospective cohort study carried out in an academic health system in New York City which included four hospitals over a 9-year period from 2006 to 2014. Simple and multiple logistic regression models were built to determine risk factors associated with site-specific HAIs such as Urinary Tract Infections (UTIs), Pneumonia (PNUs) and Bloodstream Infections (BSIs). FINDINGS: There were 10,575 HIV positive discharges and 1,328 had HAIs: 697 UTIs, 555 BSIs and 192 PNUs. The incidence rate of HAIs decreased from 19.8 to 15.1 new infections per 1000 person days between 2006 and 2014 (p value<0.001). In addition to the expected risk factors of urinary catheter use for UTI and central venous line use for BSI, symptomatic HIV and renal failure were significant risk factors for both UTIs (95% CI OR: (1.24, 2.27) and (1.46, 2.11) respectively) and BSIs (95% CI OR: (2.28, 4.18) and (1.81, 2.71) respectively). CONCLUSION: HIV-infected patients had similar risk factors for HAIs as HIV-uninfected patients. Further research is required to address how patients’ CD4 counts and viral loads affect their susceptibility to HAIs.


Vitamin D may play an important role in a range of disease processes. In the general population, lower vitamin D levels have been associated with kidney dysfunction. HIV-infected populations have a higher risk of chronic kidney disease. Few studies have
examined the link between lower vitamin D levels and kidney function decline among HIV-infected persons. We investigated the associations of serum 25-hydroxyvitamin D [25(OH)D] and 1,25-dihydroxyvitamin D [1,25(OH)2D] with kidney function decline in a cohort of HIV-infected white and black men under highly active antiretroviral therapy treatment in the vitamin D ancillary study of the Multicenter AIDS Cohort Study. The associations of 25(OH)D and 1,25(OH)2D with annual change in estimated glomerular filtration rate (eGFR) were evaluated using linear mixed effects models. This study included 187 whites and 86 blacks with vitamin D measures and eGFR >/=60 ml/min/1.73 m(2) at baseline. Over a median follow-up of 8.0 years, lower 25(OH)D levels were significantly associated with faster eGFR decline in whites (adjusted annual change in eGFR, tertile 1: -2.06 ml/min/1.73 m(2) vs. tertile 3: -1.23 ml/min/1.73 m(2), p trend .03), while no significant association was detected in blacks. Lower 1,25(OH)2D was associated with faster kidney function decline in both whites and blacks, although the estimates were not statistically significant. In conclusion, lower 25(OH)D levels were significantly associated with faster eGFR decline in a cohort of HIV-infected white men, but not in those with black ancestry. Further research is warranted to investigate the association of 25(OH)D and 1,25(OH)2D with kidney function decline in larger and ethnically diverse populations.


This paper measures syndemic substance use disorder, violence, and mental health and compares the syndemic among HIV-infected heterosexual men, heterosexual women, and men who have sex with men (MSM). Data were from a sample of high needs substance-using, HIV-infected people in South Florida between 2010 and 2012 (n = 481). We used confirmatory factor analysis to measure a syndemic latent variable and applied measurement invariance models to identify group differences in the data structure of syndemic co-morbidities among heterosexual men, heterosexual women, and MSM. We found that variables used to measure the syndemic fit each sub-group, supporting that substance use disorder, violence, and mental health coincide in HIV-infected individuals. Heterosexual men and MSM demonstrated similar syndemic latent variable factor loadings, but significantly different item intercepts, indicating that heterosexual men had larger mean values on substance use disorder, anxiety, and depression than MSM. Heterosexual men and heterosexual women demonstrated significantly different syndemic variable factor loadings, indicating that anxiety and depression contribute more (and substance use contributes less) to the syndemic in heterosexual men compared to heterosexual women. MSM and heterosexual women demonstrated similar syndemic latent variable factor loadings and intercepts, but had significantly different factor residual variances indicating more variance in violent victimization and depression for MSM and more variance in stress for heterosexual women than what is captured by the observed syndemic indicators. Furthermore, heterosexual men had a larger syndemic factor mean than MSM, indicating that the syndemic burden is greater among heterosexual women than MSM. Our findings support that measurement invariance can elucidate differences in the syndemic to tailor interventions to sub-group needs.


The association of coronary heart disease (CHD) and human immunodeficiency virus (HIV) infection has been well recognized for many years. The etiology of the increased prevalence of CHD in HIV-infected populations is the result of complex interactions among the viral infection, host factors, traditional risk factors, and therapies for HIV. As the HIV population is living longer, largely attributable to combination antiretroviral therapy, there is concern about the effect of the rising prevalence of CHD on morbidity and mortality, as well its effect on health systems around the world. This review will highlight the epidemiological evidence linking HIV infection and CHD. It will also focus on our current understanding of the pathogenesis and factors associated with HIV infection and CHD. In addition, the review will highlight modes of presentation and management strategies for mitigating risk and treatment of HIV-positive patients presenting with CHD.


INTRODUCTION: South Africa faces epidemics of HIV and non-communicable diseases (NCDs). The aim of this study was to characterize the prevalence of non-communicable disease risk factors and depression, stratified by HIV status, in a community with a high burden of HIV. METHODS: We conducted a home-based HIV counselling and testing study in KwaZulu-Natal, South Africa between November 2011 and June 2012. Contiguous households were approached and all adults >/=18 years old were offered an HIV test. During follow-up visits in January 2015, screening for HIV, depression, obesity, blood glucose, cholesterol and blood pressure were conducted using point-of-care tests. RESULTS: Of the 570 participants located and screened; 69% were female and 33% were HIV-positive. NCD risk factor prevalence was high in this sample; 71% were overweight (body mass index (BMI) 25 to 29.9 kg/m(2) ) or obese (BMI>/=30 kg/m(2) ), 4% had hyperglycaemia (plasma glucose >11.0 mmol/l/200 mg/dl), 33% had hypertension (HTN, >140/90 mmHg), 20% had hyperlipidaemia (low density cholesterol >5.2 mmol/l/193.6 mg/dl) and 12% had major depressive symptoms (nine item Patient Health Questionnaire >/=10). Of the 570 participants, 87% had one or more of HIV, hyperglycaemia, HTN, hyperlipidaemia and/or depression. Over half (56%) had two or more. Older age and female gender were significantly associated with the prevalence of both HIV infection and NCD risk factors. Around 80% of both HIV-positive and negative persons had one of the measured risk factors (i.e. obesity, hyperglycaemia, hyperlipidaemia, HTN), or depression. CONCLUSIONS: In a community-based sample of adults in KwaZulu-Natal, South Africa, the prevalence of both HIV infection and NCD risk factors were high. This study is among the first to quantify the substantial burden of NCD risk factors and depression in this non-clinic based population.


Liver disease is a leading cause of morbidity and mortality among people with HIV, and in this era of safer and more effective hepatitis C therapy, non-alcoholic fatty liver disease (NAFLD) could soon emerge as the most common liver disease in this population. NAFLD is common among patients with HIV, and might be more likely to progress to non-alcoholic steatohepatitis (NASH) and NAFLD-related fibrosis or cirrhosis in these patients than in individuals without HIV. Several mechanisms of NAFLD pathogenesis are postulated to explain the disease severity in patients with HIV; these mechanisms include the influence of the gut microbiome, and also metabolic, genetic, and immunological factors. Although treatment strategies are currently based on modification of NAFLD risk factors, many new drugs are now in clinical trials, including trials specifically in patients with HIV. Thus, the identification and risk-stratification of patients with HIV and NAFLD are becoming increasingly important for accurately counselling of these patients regarding their prognosis and for establishing the most appropriate disease-altering therapy.


Cardiovascular disease is a leading cause of death in women, nevertheless it is often underestimated in female patients without overt risk factors. The chronic infection by Human Immunodeficiency Virus (HIV) is clearly associated, along with the use of certain antiretroviral drugs and traditional risk factors, with an increased risk of cardiovascular diseases. The aim of this manuscript is to review the epidemiology, risk factors, pathogenesis, diagnostic approach, primary and secondary prevention strategies of cardiovascular disease in HIV-negative and HIV-positive female subjects. The ultimate goal is to promote knowledge and development of specific and appropriate clinical interventions and guidelines in this group of high-risk patients, mostly in view of the expected growth of ageing females with HIV.


Background: Recent guidelines recommend a systolic blood pressure (SBP) goal of less than 150 mm Hg for adults aged 60 years or older, but the balance of benefits and harms is unclear in light of newer evidence. Purpose: To systematically review the effects of more versus less intensive BP control in older adults. Data Sources: Multiple databases through January 2015 and

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MEDLINE to September 2016. Study Selection: 21 randomized, controlled trials comparing BP targets or treatment intensity, and 3 observational studies that assessed harms. Data Extraction: Two investigators extracted data, assessed study quality, and graded the evidence using published criteria. Data Synthesis: Nine trials provided high-strength evidence that BP control to less than 150/90 mm Hg reduces mortality (relative risk [RR], 0.90 [95% CI, 0.83 to 0.98]), cardiac events (RR, 0.77 [CI, 0.68 to 0.89]), and stroke (RR, 0.74 [CI, 0.65 to 0.84]). Six trials yielded low- to moderate-strength evidence that lower targets (</=140/85 mm Hg) are associated with marginally significant decreases in cardiac events (RR, 0.82 [CI, 0.64 to 1.00]) and stroke (RR, 0.79 [CI, 0.59 to 0.99]) and nonsignificantly fewer deaths (RR, 0.86 [CI, 0.69 to 1.06]). Low- to moderate-strength evidence showed that lower BP targets do not increase falls or cognitive impairment. Limitation: Data relevant to frail elderly adults and the effect of multimorbidity are limited.

Conclusion: Treatment to at least current guideline standards for BP (<150/90 mm Hg) substantially improves health outcomes in older adults. There is less consistent evidence, largely from 1 trial targeting SBP less than 120 mm Hg, that lower BP targets are beneficial for high-risk patients. Lower BP targets did not increase falls or cognitive decline but are associated with hypotension, syncope, and greater medication burden. Primary Funding Source: U.S. Department of Veterans Affairs, Veterans Health Administration, Office of Research and Development, Quality Enhancement Research Initiative. (PROSPERO 2015: CRD42015017677).


Background: There remains concern regarding the occurrence of noncommunicable diseases (NCDs) among individuals aging with human immunodeficiency virus (HIV), but few studies have described whether disparities between demographic subgroups are present among individuals on antiretroviral therapy (ART) with access to care. Methods: We assessed the first documented incidence of type 2 diabetes mellitus (DM), chronic kidney disease (CKD), and treated hypertension (HTN) by age, sex, and race within the North American AIDS Cohort Collaboration on Research and Design (NA-ACCORD). HIV-infected adults (>/=18 years) who initiated ART were observed for first NCD occurrence between 1 January 2000 and 31 December 2013. Cumulative incidences as of age 70 were estimated accounting for the competing risk of death; Poisson regression was used to compare rates of NCD occurrence by demographic subgroup. Results: We included >50000 persons with >250000 person-years of follow-up. Median follow-up was 4.7 (interquartile range, 2.4-8.1) years. Rates of first occurrence (per 100 person-years) were 1.2 for DM, 0.6 for CKD, and 2.6 for HTN. Relative to non-black women, the cumulative incidences were increased in black women (68% vs 51% for HTN, 52% vs 41% for DM, and 38% vs 35% for CKD; all P < .001); this disparity was also found among men (73% vs 60% for HTN, 44% vs 34% for DM, and 30% vs 25% for CKD; all P < .001). Conclusions: Racial disparities in the occurrence of DM, CKD, and HTN emphasize the need for prevention and treatment options for these HIV populations receiving care in North America.


The risk of acute and chronic kidney disease remains higher in HIV-infected persons than in the general population, and kidney disease in HIV-infected persons is associated with poor outcomes, including increased mortality. HIV-associated nephropathy occurs less frequently in the era of antiretroviral therapy. HIV immune complex kidney disease is being diagnosed more frequently, but the term is currently used to refer to a heterogeneous group of kidney diseases. Comorbid chronic kidney disease poses a growing burden in HIV-infected persons due to an overrepresentation of risk factors such as black race, diabetes, hypertension, and coinfection with hepatitis C virus. Drug-induced kidney toxicity also remains a concern. This article summarizes a presentation by Christina M. Wyatt, MD, at the Ryan White HIV/AIDS Program Clinical Care Conference held in New Orleans, Louisiana, in December 2015.

The purpose of this study was to estimate, through meta-analysis, the global prevalence of hypertension among people living with HIV (PLWH). A total of 49 studies published during 2011-2016 with 63,554 participants were included in analysis. These studies were conducted in America (25), Europe (13), Africa (10), and Asia (1) with data collected during 1996-2014. Prevalence of hypertension and confidence interval was estimated and stratified by participants' age, antiretroviral therapy (ART), and calendar-years using random effects modeling. The quality assessed using the Joanna Briggs Institute Prevalence Critical Appraisal Tool was high for all included studies. The estimated prevalence (95% confidence interval) of hypertension was 25.2% (21.2%, 29.6%) for the overall sample, 34.7% (27.4%, 42.8%) for ART-experienced, and 12.7% (7.4%, 20.8%) for ART-naive participants. The estimated prevalence was found increased with age and in studies conducted after 2010. Hypertension among PLWH shows an increasing trend and is associated with receiving ART and older age. Findings of this study provide data for decision makers to incorporate blood pressure assessment in primary prevention and for researchers to further investigate factors and mechanisms related to hypertension among PLWH.


BACKGROUND: Acute kidney injury (AKI) is commonly associated with HIV infection. OBJECTIVES: To describe the profile of AKI in HIV infected versus non-infected persons. PATIENTS AND METHODS: This is a prospective study that was carried out during the study period from January 2010 to December 2015 in the department of nephrology-internal medicine D of Treichville University Hospital (Cote d'Ivoire). RESULTS: The prevalence of HIV infection was 35.2% in the population of AKI. The average age of patients was 42+/−18 years in the HIV positive group against 51+/−18 years in the HIV negative group (P=0.0001). Etiologies were infections in 65.1% in the HIV positive group against 38.8% in the HIV negative group (P=0.0001) and water loss in 24.7% in the HIV positive group against 7.8% in the HIV negative group (P=0.0001). Factors such as the AIDS stage (P=0.002), severe sepsis (P=0.002) and acute pyelonephritis (P=0.001) were associated with mortality in HIV positive patients against severe anemia (P=0.0001) and severe sepsis (P=0.0001) in the HIV-negative group. CONCLUSION: HIV positive patients are younger with a female predominance. The mortality rate is identical in both groups.


BACKGROUND: Women's under-representation in HIV and cardiovascular disease (CVD) research suggests a need for novel strategies to ensure robust representation of women in HIV-associated CVD research. OBJECTIVE: To elicit perspectives on CVD research participation among a community-sample of women with or at risk for HIV, and to apply acquired insights toward the development of an evidence-based campaign empowering older women with HIV to participate in a large-scale CVD prevention trial. METHODS: In a community-based setting, we surveyed 40 women with or at risk for HIV about factors which might facilitate or impede engagement in CVD research. We applied insights derived from these surveys into the development of the Follow YOUR Heart campaign, educating women about HIV-associated CVD and empowering them to learn more about a multi-site HIV-associated CVD prevention trial: REPRIEVE. RESULTS: Endorsed best methods for learning about a CVD research study included peer-to-peer communication (54%), provider communication (46%) and video-based communication (39%). Top endorsed non-monetary reasons for participating in research related to gaining information (63%) and helping others (47%). Top endorsed reasons for not participating related to lack of knowledge about studies (29%) and lack of request to participate (29%). Based on survey results, the REPRIEVE Follow YOUR Heart campaign was developed. Interwoven campaign components (print materials, video, web presence) offer provider-based information/knowledge, peer-to-peer communication, and empowerment to learn more. Campaign components reflect women's self-identified motivations for research participation - education and altruism. CONCLUSIONS: Investigation of factors influencing women's participation in HIV-associated CVD research may be usefully applied to develop evidence-based strategies for enhancing women's enrollment in disease-specific large-scale trials. If proven efficacious, such strategies may enhance conduct of large-scale research studies across disciplines.

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Approximately 10-15% of persons living with HIV (PLWH) have a comorbid diagnosis of diabetes mellitus (DM). Both of these long-term chronic conditions are associated with high rates of symptom burden. The purpose of our study was to describe symptom patterns for PLWH with DM (PLWH+DM) using a large secondary dataset. The prevalence, burden, and bothersomeness of symptoms reported by patients in routine clinic visits during 2015 were assessed using the 20-item HIV Symptom Index. Principal component analysis was used to identify symptom clusters. Three main clusters were identified: (a) neurological/psychological, (b) gastrointestinal/flu-like, and (c) physical changes. The most prevalent symptoms were fatigue, poor sleep, aches, neuropathy, and sadness. When compared to a previous symptom study with PLWH, symptoms clustered differently in our sample of patients with dual diagnoses of HIV and diabetes. Clinicians should appropriately assess symptoms for their patients' comorbid conditions.

EPIDEMIOLOGY


Although the rate of HIV infection among US prison inmates is considerably higher than that of the general population, little is known about age-related changes in HIV-infected inmates over the last decade. This study of the nation's largest state prison system examined (1) whether the mean age of the HIV-infected inmate increased over the last decade, and (2) whether the prevalence of HIV and associated comorbidities varied according to age. The study population included all 230,103 inmates incarcerated in the Texas prison system for any duration during 2014. A separate analysis was conducted on all HIV-infected inmates incarcerated between 2004 and 2014. Information on medical conditions and demographic factors was obtained from an institution-wide electronic medical record system. From 2004 to 2014, the mean age of HIV-infected inmates in the prison system increased from 39.3 to 42.5 years, compared to an increase of 36.1-37.9 for all Texas prison inmates. Multivariable logistic regression was used to assess the independent contributions of multiple demographic and clinical covariates in predicting the binary outcome, HIV infection. The model showed that, in 2014, HIV infection was elevated in inmates who were aged 40-49 years (OR=3.1; 95% CI 2.7-3.3), aged 50-59 years (OR=2.4; 95% CI 2.1-2.7), African American (OR=3.0; 95% CI 2.8-3.3), and in those with several chronic diseases, including chronic obstructive pulmonary disease (OR=1.7; 95% CI 1.5-1.9), hepatitis C (OR=2.7; 95% CI 2.5-3.1), major depressive disorder (OR=1.7; 95% CI 1.5-2.1), bipolar disorder (OR=2.3; 95% CI 1.8-2.8), and schizophrenia (OR=1.5; 95% CI 1.3-1.8). Among HIV-infected inmates (n=2960), the percentage with comorbid disease increased in a linear fashion according to age (p<.01). Correctional health systems must adapt to address the evolving epidemiology of HIV among inmate populations.


OBJECTIVE: To evaluate HIV-related and other clinical risk factors associated with oropharynx cancer (OPSCC) in HIV-infected U.S. Veterans. METHODS: Retrospective cohort study utilizing Veterans Affairs HIV Clinical Case Registry (CCR) data from 1985 to 2010. Outcome was incident OPSCC as indicated by 1 inpatient or 2 outpatient ICD-9 codes. Cox proportional hazard models were used to determine hazard ratios (HR) and 95% confidence intervals (CI) for each risk factor on the time to OPSCC diagnosis. RESULTS: A total of 40,996 HIV-infected male veterans were included in the cohort with 97 cases of OPSCC. The age adjusted incidence rate was 23.2/100,000 [95% CI 17.8-29.2]. Age>50 (aHR=3.8, 95% CI 1.9-7.8), recent CD4<200 (aHR=3.8, 95% CI 2.0-7.3), and undetectable HIV viral loads 40-79% of the time (aHR=1.8, 95% CI 1.1-3.0) were associated with an increased risk of OPSCC. CONCLUSION: Patients who were older at beginning of follow up, had lower CD4 counts around the time of OPSCC diagnosis, and moderate HIV viral control during follow-up had an increased risk of OPSCC. Other HPV-related diseases such as SCCA and condyloma did not increase the risk for OPSCC.
Objectives: To examine population and HIV care outcomes of people living with HIV/AIDS (PLWHA) at their first incarceration of 2014 in 2 county jails in King County, Washington. Methods: Using HIV surveillance data linked with jail booking data, we examined demographic information, viral loads, CD4 counts, and incarceration details for the period prior to jail booking, during incarceration, and year following jail release. Results: In 2014, 202 PLWHA were incarcerated, 51% of whom were virally nonsuppressed at booking. This population represented approximately 3% of all HIV-diagnosed persons and 7% of virally nonsuppressed persons in King County. Within a year of release, 62% were virally suppressed, compared with 79% of the general HIV-diagnosed population in King County. Conclusions: Incarcerated PLWHA are disproportionately virally nonsuppressed compared with nonincarcerated PLWHA up to a year after release from jail. Public Health Implications. Coordination of health information exchange between the health department and jails could enhance public health efforts to improve the HIV care continuum.


BACKGROUND: Non-HIV/AIDS-related diseases are gaining prominence as important causes of morbidity and mortality among people living with HIV. The purpose of this study was to characterize and compare changes over time in mortality rates and causes of death among a population-based cohort of persons living with and without HIV in British Columbia (BC), Canada. METHODS: We analysed data from the Comparative Outcomes And Service Utilization Trends (COAST) study; a retrospective population-based study created via linkage between the BC Centre for Excellence in HIV/AIDS and Population Data BC, and containing data for HIV-infected individuals and the general population of BC, respectively. Our analysis included all known HIV-infected adults (≥ 20 years) in BC and a random 10% sample of uninfected BC adults followed from 1996 to 2012. Deaths were identified through Population Data BC - which contains information on all registered deaths in BC (BC Vital Statistics Agency dataset) and classified into cause of death categories using International Classification of Diseases (ICD) 9/10 codes. Age-standardized mortality rates (ASMR) and mortality rate ratios were calculated. Trend test were performed. RESULTS: 3401 (25%), and 47,647 (9%) individuals died during the 5,620,150 person-years of follow-up among 13,729 HIV-infected and 510,313 uninfected individuals, respectively. All-cause and cause-specific mortality rates were consistently higher among HIV-infected compared to HIV-negative individuals, except for neurological disorders. All-cause ASMR decreased from 126.75 (95% CI: 84.92-168.57) per 1000 population in 1996 to 21.29 (95% CI: 17.79-24.79) in 2011-2012 (83% decline; p = 0.001 for trend), compared to a change from 7.97 (95% CI: 7.61-8.33) to 6.87 (95% CI: 6.70-7.04) among uninfected individuals (14% decline; p < 0.001). Mortality rates from HIV/AIDS-related causes decreased by 94% from 103.85 per 1000 population in 1996 to 6.72 by the 2011-2012 era (p < 0.001). Significant ASMR reductions were also observed for hepatic/liver disease and drug abuse/overdose deaths. ASMRs for neurological disorders increased significantly over time. Non-AIDS-defining cancers are currently the leading non-HIV/AIDS-related cause of death in both HIV-infected and uninfected individuals. CONCLUSIONS: Despite the significant mortality rate reductions observed among HIV-infected individuals from 1996 to 2012, they still have excess mortality risk compared to uninfected individuals. Additional efforts are needed to promote effective risk factor management and appropriate screening measures among people living with HIV.


AIMS: HIV and highly active antiretroviral therapy (HAART) may affect cardiac conduction, and a higher incidence of sudden death has been recognized in HIV-positive patients. Nevertheless, predictors of prolonged corrected QT interval (cQT) have been poorly described. The aim of the study was to investigate the prevalence and predictors of long cQT in a cohort of HIV-positive patients. METHODS: Consecutive HIV-positive patients followed in a primary prevention clinic at two Italian institutions were retrospectively enrolled. A 12-lead ECG was recorded in all patients; main clinical features were collected. Prevalence of long cQT (defined as cQT >470 ms in women and >450 ms in men) was the primary end-point. Secondary end-points were the identification of predictors of cQT prolongation, and the association between HAART and HIV-related features with long cQT. RESULTS: Three hundred and fifty-one HIV-positive patients were included, 26 (7.4%) with long cQT. Mean age was higher among those with long
A higher prevalence of long cQT was reported for patients with a CD4+ cell count below 200 cells/mul at the moment of ECG (60 vs. 24.2%; P = 0.002) and with a nadir of CD4+ cell count below 200 cells/mul (91.3 vs. 58.6%; P = 0.001). At multivariate analysis, only the nadir of CD4+ cell count below 200 cells/mul consistently related to the presence of long cQT (odds ratio 5.8, 95% confidence interval 1.3-26.4). CONCLUSION: A low CD4+ cell count is associated with long cQT independently from HAART in HIV-positive patients and may be useful to correctly stratify arrhythmic risk in these patients.


OBJECTIVE: Very-low-level viremia (VLLV) is a relatively new concept in the realm of human immunodeficiency virus (HIV) care. Newer generation assays are now able to detect plasma HIV RNA Viral Load (VL) levels as low as 20 copies/mL. The authors characterized patients with VLLV (VL between 20 and 50 copies/mL) in order to identify possible risk factors associated with virologic failure and poor clinical outcomes. METHODS: The authors reviewed 119 consecutive charts of patients with VLLV. Sociodemographic data were extracted and viral load and CD4 counts were trended over a 12 month period (February 2013-February 2014). Regression analysis was used to assess the role of different factors on virologic failure at 1 year. RESULTS: Of the study participants with evaluable data (n = 100), the median age was 53 years (interquartile range: 43-57.5), 67% were nonwhite, 34% were women, 58% were smokers, 47% were alcoholics, 58% had a history of intravenous drug use, and 40% were coinfected with hepatitis C virus. More than half of the participants had 3 or more comorbidities and their HIV pill burden was high (more than 2 pills daily). After 12 months, 65 participants achieved undetectable viral load levels, whereas 15 experienced virologic failure (2 consecutive viral loads > 50 copies/mL) and the remaining 20 had persistent VLLV. In the virologic failure group, there was a predominance of white males (66%) with a significant number of comorbidities and pill burden. Univariate logistic regression suggested that there was a difference between the failure versus nonfailure groups in terms of race, ethnicity, and alcohol use. Multivariate regression with virological failure as the outcome suggested a trend only in terms of participant’s alcohol use. CONCLUSION: Most patients with initial VLLV (70%) achieved virologic suppression at 1 year with no antiretroviral therapy changes. Thus, VLLV does not necessarily predict virologic failure and should not prompt more frequent clinic visits or antiretroviral regimen changes. Further research is needed in order to determine the predictors of virologic failure in this subset of patients and the clinicians' attitude toward VLLV.


The objective was to examine gender differences in causes of death using the San Francisco HIV/AIDS and death registries. Data from San Francisco residents diagnosed with HIV/AIDS who died from 1996 to 2013 were analyzed. Age, race/ethnicity, year, and gender-adjusted standardized mortality ratios and Poisson 95% confidence intervals were calculated for underlying causes of death. Among the 6268 deaths, deaths attributed to drug use, mental disorders due to substance use, cerebrovascular disease, chronic obstructive pulmonary disease, renal disease, and septicemia were more likely among women than among men. Compared to the California population, women had elevated standardized mortality ratios for drug overdose (25.37), mental disorders due to substance abuse (27.21), cerebrovascular disease (2.83), chronic obstructive pulmonary disease (7.37), heart disease (2.37), and liver disease (5.54), and these were higher than the standardized mortality ratios for the men in our study. Men, but not women, had elevated standardized mortality ratios for suicide (2.70), undetermined intent (3.88), renal disease (2.29), and non-AIDS cancer (1.68) compared to population rates. Continued efforts to reduce HIV-related illnesses and an increased emphasis on diagnosing and treating preventable causes of death, including substance use, heart disease, and mental health disorders, are needed as part of comprehensive HIV care.


The transformation of HIV from a fatal disease to lifelong disease has resulted in an HIV-infected population that is growing and aging, placing new and increasing demands on public programs and health services. We used National HIV Surveillance System and US census data to project the demographic composition of the population of people living with diagnosed HIV (PLWDH) in the
United States through 2045. The input parameters for the projections include: (1) census projections, (2) number of people with an existing HIV diagnosis in 2013, (3) number of new HIV diagnoses in 2013, and (4) death rate within the PLWDH population in 2013. Sex, risk group, and race-specific projections were estimated through an adapted Leslie Matrix Model for age-structured populations. Projections for 2013-2045 suggest that the number of PLWDH in the U.S. will consistently grow, from 917,294 to 1,232,054, though the annual growth rate will slow from 1.8% to 0.8%. The number of PLWDH aged 55 years and older will increase from 232,113 to 470,221. The number of non-Hispanic (NH) African Americans/Blacks and Hispanics is projected to consistently grow, shifting the racial/ethnic composition of the US PLWDH population from 32 to 23% NH-White, 42 to 38% NH-Black, and 20-32% Hispanic between 2013 and 2045. Given current trends, the composition of the PLWDH population is projected to change considerably. Public health practitioners should anticipate large shifts in the age and racial/ethnic structure of the PLWDH population in the United States.


People living with human immunodeficiency virus (HIV) infection and receiving antiretroviral therapy now have the same life expectancy as the general population. However, they have a higher risk of atherosclerotic cardiovascular events because of a complex and polyfactorial vasculopathy, combining the effects of antiretroviral therapy, the HIV virus itself, immune activation, chronic inflammation and metabolic disturbances. Whether people living with HIV infection experience increased vascular aging compared with the general population remains controversial. To summarize current knowledge of the association between HIV infection and aortic stiffness as a marker of vascular aging. This review included 18 clinical studies in adult populations, published between 2009 and 2016, and identified on PubMed/MEDLINE or other databases. Search terms were aortic stiffness, arterial stiffness, vascular aging, pulse wave velocity and HIV. All 18 studies were observational, and compared groups infected (HIV+) and not infected (HIV-) with HIV. Ten studies (55%) reported no significant differences in aortic stiffness between HIV+ groups and age-matched HIV- control groups. The main reported determinants of aortic stiffness were age, blood pressure, smoking, metabolic syndrome and HIV-related variables, including CD4/CD8 ratio, current T-CD4 count < 200/mm3 and nadir T-CD4+ count < 200/mm3. We found discordant results regarding whether HIV+ patients had increased aortic stiffness compared with HIV- controls. However, HIV-related conditions were associated with vascular health. This association has been confirmed in recent prospective studies. There is emerging evidence that HIV itself and immune activity affect vascular health and the large arteries.


To evaluate hospitalization rates and causes among human immunodeficiency virus (HIV) patients in the late highly active antiretroviral therapy (HAART) era. Data during the years 2000 to 2012 were obtained from hospital/clinical charts. Hospitalizations were defined as a >/=24 hours hospital admission. Obstetric admissions were excluded. Causes of hospitalizations were defined as acquired immune deficiency syndrome (AIDS)-defining illnesses, AIDS-related diseases (HAART adverse events, metabolic complications and non-AIDS-defining tumors/infections), and non-HIV-related diseases. Hospitalization rates are presented as admissions per 100 patient years. The number of HIV patients (58% males) in our center increased from 521 in 2000 to 1169 in 2012. 1676 hospital admissions (in 557 patients) were observed during the years of the study. The mean number of admissions per hospitalized patient was 3 +/- 2.39. Hospitalization rates of HIV patients declined significantly (18.4/100 in 2000, 9/100 patient years in 2012; P = .0001), but it was higher than the rates reported in the Israeli general population (X8.76 in 2000, X6.04 in 2012). Furthermore, hospitalizations for AIDS-defining illness declined (from 46.9% to 16.1%) whereas non-HIV-related hospitalizations increased (from 31.3% to 60.1%). Lower cluster of differentiation 4 (CD4) cell counts and older age, at the time of HIV diagnosis, were associated with higher rates of admissions (especially for AIDS-defining illnesses) and mortality. Hospitalization rates of HIV patients, especially for AIDS-defining illness, continue to decline in the late HAART era despite the increasing age of the patients, though it is still higher than that of the general population. Low CD4 cell counts and older age, at the time of HIV diagnosis, are associated with readmissions and mortality.


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With increasing survival of patients infected with human immunodeficiency virus type 1 (HIV-1), the manifestation of heterogeneous neurological complications is also increasing alarmingly in these patients. Currently, more than 30% of about 40 million HIV-1 infected people worldwide develop central nervous system (CNS)-associated dysfunction, including dementia, sensory, and motor neuropathy. Furthermore, the highly effective antiretroviral therapy has been shown to increase the prevalence of mild cognitive functions while reducing other HIV-1-associated neurological complications. On the contrary, the presence of neurological disorder frequently affects the outcome of conventional HIV-1 therapy. Although, both the children and adults suffer from the post-HIV treatment-associated cognitive impairment, adults, especially depending on the age of disease onset, are more prone to CNS dysfunction. Thus, addressing neurological complications in an HIV-1-infected patient is a delicate balance of several factors and requires characterization of the molecular signature of associated CNS disorders involving intricate cross-talk with HIV-1-derived neurotoxins and other cellular factors. In this review, we summarize some of the current data supporting both the direct and indirect mechanisms, including neuro-inflammation and genome instability in association with aging, leading to CNS dysfunction after HIV-1 infection, and discuss the potential strategies addressing the treatment or prevention of HIV-1-mediated neurotoxicity.


Background: Veterans are disproportionately affected by HIV, hepatitis C (HCV) and hepatitis B (HBV). Homeless veterans are at particularly high risk for HIV, HCV and HBV due to a variety of overlapping risk factors, including high rates of mental health disorders and substance use disorders. The prevalence of HIV, HCV and HBV among homeless veterans nationally is currently unknown. This study describes national testing rates and prevalence of HIV, HCV and HBV among homeless veterans. Methods: Using data from the VA's Corporate Warehouse Data from 2015, we evaluated HIV, HCV, and HBV laboratory testing and infection confirmation rates and diagnoses on the Problem List for non-homeless veterans and for veterans utilizing homeless services in 2015. Results: Among 242,740 homeless veterans in VA care in 2015, HIV, HCV and HBV testing occurred in 63.8% (n=154,812), 78.1% (n=189,508), and 52.8% (n=128,262), respectively. The HIV population prevalence was 1.52% (3,684/242,740) among homeless veterans, compared to 0.44% (23,797/5,424,685) among non-homeless veterans. The HCV population prevalence among homeless veterans was 12.1% (29,311/242,740), compared to 2.7% (148,079/5,424,685) among non-homeless veterans, while the HBV population prevalence was 0.99% (2,395/242,740) for homeless veterans, and 0.40% (21,611/5,424,685) among non-homeless veterans. Conclusions: To our knowledge this work represents the most comprehensive tested prevalence and population prevalence estimates of HIV, HCV and HBV among homeless veterans nationally. The data demonstrate high prevalence of HIV, HCV and HBV among homeless veterans, and reinforce the need for integrated healthcare services along with homeless programming.


Problem/Condition: As a result of the 2010 Patient Protection and Affordable Care Act, millions of U.S. adults attained health insurance coverage. However, millions of adults remain uninsured or underinsured. Compared with adults without barriers to health care, adults who lack health insurance coverage, have coverage gaps, or skip or delay care because of limited personal finances might face increased risk for poor physical and mental health and premature mortality. Period Covered: 2014. Description of System: The Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing, state-based, landline- and cellular-telephone survey of noninstitutionalized adults aged =18 years residing in the United States. Data are collected from states, the District of Columbia, and participating U.S. territories on health risk behaviors, chronic health conditions, health care access, and use of clinical preventive services (CPS). An optional Health Care Access module was included in the 2014 BRFSS. This report summarizes 2014 BRFSS data from all 50 states and the District of Columbia on health care access and use of selected CPS recommended by the U.S. Preventive Services Task Force or the Advisory Committee on Immunization Practices among working-aged adults (aged 18-64 years), by state, state Medicaid expansion status, expanded geographic region, and federal poverty level (FPL). This report also provides analysis of primary type of health insurance coverage at the time of interview, continuity of health insurance coverage during the preceding 12 months, and other health care access measures (i.e., unmet health care need because of cost, unmet prescription need because of cost, medical debt [medical bills being paid off over time], number of health care visits during the preceding year, and satisfaction with received health care) from 43 states that included questions from the optional BRFSS Health Care Access module. Results: In 2014, health insurance coverage and other health care access measures varied substantially by state, state Medicaid expansion status, expanded geographic region (i.e., states categorized geographically into nine regions), and FPL category. The following
proportions refer to the range of estimated prevalence for health insurance and other health care access measures by examined geographical unit (unless otherwise specified), as reported by respondents. Among adults with health insurance coverage, the range was 70.8%-94.5% for states, 78.8%-94.5% for Medicaid expansion states, 70.8%-89.1% for nonexpansion states, 73.3%-91.0% for expanded geographic regions, and 64.2%-95.8% for FPL categories. Among adults who had a usual source of health care, the range was 57.2%-86.6% for states, 57.2%-86.6% for Medicaid expansion states, 61.8%-83.9% for nonexpansion states, 64.4%-83.6% for expanded geographic regions, and 61.0%-81.6% for FPL categories. Among adults who received a routine checkup, the range was 52.1%-75.5% for states, 56.0%-75.5% for Medicaid expansion states, 52.1%-71.1% for nonexpansion states, 56.8%-70.2% for expanded geographic regions, and 59.9%-69.2% for FPL categories. Among adults who had unmet health care need because of cost, the range was 8.0%-23.1% for states, 8.0%-21.9% for Medicaid expansion states, 11.9%-23.1% for nonexpansion states, 11.6%-20.3% for expanded geographic regions, and 5.3%-32.9% for FPL categories. Estimated prevalence of cancer screenings, influenza vaccination, and having ever been tested for human immunodeficiency virus also varied by state, state Medicaid expansion status, expanded geographic region, and FPL category. The prevalence of insurance coverage varied by approximately 25 percentage points among racial/ethnic groups (range: 63.9% among Hispanics to 88.4% among non-Hispanic Asians) and by approximately 32 percentage points by FPL category (range: 64.2% among adults with household income <100% of FPL to 95.8% among adults with household income >400% of FPL). The prevalence of unmet health care need because of cost varied by nearly 14 percentage points among racial/ethnic groups (range: 11.3% among non-Hispanic Asians to 25.0% among Hispanics), by approximately 17 percentage points among adults with and without disabilities (30.8% versus 13.7%), and by approximately 28 percentage points by FPL category (range: 5.3% among adults with household income >400% of FPL to 32.9% among adults with household income <100% of FPL). Among the 43 states that included questions from the optional module, a majority of adults reported private health insurance coverage (63.4%), followed by public health plan coverage (19.4%) and no primary source of insurance (17.1%). Financial barriers to health care (unmet health care need because of cost, unmet prescribed medication need because of cost, and medical bills being paid off over time [medical debt]) were typically lower among adults in Medicaid expansion states than those in nonexpansion states regardless of source of insurance. Approximately 75.6% of adults reported being continuously insured during the preceding 12 months, 12.9% reported a gap in coverage, and 11.5% reported being uninsured during the preceding 12 months. The largest proportion of adults reported 3 visits to a health care professional during the preceding 12 months (47.3%), followed by 1-2 visits (37.1%), and no health care visits (15.6%). Adults in expansion and nonexpansion states reported similar levels of satisfaction with received health care by primary source of health insurance coverage and by continuity of health insurance coverage during the preceding 12 months. Interpretation: This report presents for the first time estimates of population-based health care access and use of CPS among adults aged 18-64 years. The findings in this report indicate substantial variations in health insurance coverage; other health care access measures; and use of CPS by state, state Medicaid expansion status, expanded geographic region, and FPL category. In 2014, health insurance coverage, having a usual source of care, having a routine checkup, and not experiencing unmet health care need because of cost were higher among adults living below the poverty level (i.e., household income <100% of FPL) in states that expanded Medicaid than in states that did not. Similarly, estimates of breast and cervical cancer screening and influenza vaccination were higher among adults living below the poverty level in states that expanded Medicaid than in states that did not. These disparities might be due to larger differences to begin with, decreased disparities in Medicaid expansion states versus nonexpansion states, or increased disparities in nonexpansion states. Public Health Action: BRFSS data from 2014 can be used as a baseline by which to assess and monitor changes that might occur after 2014 resulting from programs and policies designed to increase access to health care, reduce health disparities, and improve the health of the adult population. Post-2014 changes in health care access, such as source of health insurance coverage, attainment and continuity of coverage, financial barriers, preventive care services, and health outcomes, can be monitored using these baseline estimates. [ABSTRACT FROM AUTHOR]


High HIV viral load (VL >100,000 cp/ml) is associated with increased HIV transmission risk, faster progression to AIDS, and reduced response to some antiretroviral regimens. To better understand factors associated with high VL, we examined characteristics of patients presenting for treatment in Hanoi, Vietnam. We examined baseline data from the Viral Load Monitoring in Vietnam Study, a randomized controlled trial of routine VL monitoring in a population starting antiretroviral therapy (ART) at a clinic in Hanoi. Patients with prior treatment failure or ART resistance were excluded. Characteristics examined included demographics, clinical and laboratory data, and substance use. Logistic regression was used to calculate crude and adjusted odds ratios (aOR) and 95% confidence intervals (95% CI). Out of 636 patients, 62.7% were male, 72.9% were >/=30 years old, and 28.3% had a history of

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drug injection. Median CD4 was 132 cells/mm3, and 34.9% were clinical stage IV. Active cigarette smoking was reported by 36.3% with 14.0% smoking >10 cigarettes per day. Alcohol consumption was reported by 20.1% with 6.1% having >/=5 drinks per event. Overall 53.0% had a VL >100,000 cp/ml. Male gender, low body weight, low CD4 count, prior TB, and cigarette smoking were associated with high VL. Those who smoked 1-10 cigarettes per day were more likely to have high VL (aOR = 1.99, 95% CI = 1.15-3.45), while the smaller number of patients who smoked >10 cigarettes per day had a non-significant trend toward higher VL (aOR = 1.41, 95% CI = 0.75-2.66). Alcohol consumption was not significantly associated with high VL. Tobacco use is increasingly recognized as a contributor to premature morbidity and mortality among HIV-infected patients. In our study, cigarette smoking in the last 30 days was associated with a 1.5 to 2-fold higher odds of having an HIV VL >100,000 cp/ml among patients presenting for ART. These findings provide further evidence of the negative effects of tobacco use among HIV-infected patients.


: The last decade has seen a dramatic change in the demographic structure of the population of people living with HIV (PLWH). The majority of PLWH who start treatment with combination antiretroviral therapy now have good virological and immunological responses and this has resulted in improvements in life expectancy. In addition, there have also been continued new HIV diagnoses (and new HIV infections) in those aged more than 50 years. The average age of those attending HIV clinics has therefore increased, with this trend expected to continue into the future. As the cohort of PLWH has aged, so the spectrum and burden of age-associated noncommunicable comorbidities (AANCCs) in the cohort has increased. PLWH are likely, therefore, to have increased healthcare needs for the foreseeable future. Although it appears that the average age at diagnosis of several AANCC is lower in PLWH, current evidence remains insufficient to demonstrate that HIV infection leads to either accelerated or accentuated aging. The results from several well designed longitudinal cohorts, with appropriately matched control groups, will provide more robust evidence to confirm a potential impact of HIV on the incidence of these AANCC. However, regardless of the impact of HIV itself, the role of other, non-HIV, factors is becoming increasingly important, with coinfection with other viral infections and lifestyle factors playing an increasing role in the development of many AANCC. It is likely that attempts to reduce smoking prevalence and obesity may be associated with important reductions in the incidence of some of these events in the future.

**ETIOLOGY**


HIV latency remains a major obstacle to viral elimination. The activation rate of latently infected cells may depend on the age of latent infection. In this paper, we develop a model of HIV infection including age-structured latently infected cells. We mathematically analyse the model and use numerical simulations with different activation functions to show that the model can explain the persistence of low-level viremia and the latent reservoir stability in patients on therapy. Sensitivity tests suggest that the model is robust to the changes of most parameters but is sensitive to the relative magnitude of the net generation rate and the long-term activation rate of latently infected cells. To reduce the sensitivity, we extend the model to include homeostatic proliferation of latently infected cells. The new model is robust in reproducing the long-term dynamics of the virus and latently infected cells observed in patients receiving prolonged combination therapy.


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.


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.


Analysis of aging and pharmacogenetics (PGx) on antiretroviral pharmacokinetics (PKs) could inform precision dosing for older human HIV-infected patients. Seventy-four participants receiving either atazanavir/ritonavir (ATV/RTV) or efavirenz (EFV) with tenofovir/emtricitabine (TFV/FTC) provided PK and PGx information. Aging-PGx-PK association and interaction analyses were conducted using one-way analysis of variance (ANOVA), multiple linear regression, and Random Forest ensemble methods. Our analyses associated unbound ATV disposition with multidrug resistance protein (MRP)4, RTV with P-glycoprotein (P-gp), and EFV with cytochrome P450 (CYP)2B6 and MRP4 genetic variants. The clearance and cellular distribution of TFV were associated with P-gp, MRP2, and concentrative nucleoside transporters (CNTs), and FTC parameters were associated with organic cation transporters (OCTs) and MRP2 genetic variants. Notably, p16(INK4a) expression, a cellular aging marker, predicted EFV and FTC PK when genetic factors were adjusted. Both age and p16(INK4a) expression interacted with PGx on ATV and TFV disposition, implying potential dose adjustment based on aging may depend on genetic background.


Microgli support productive human immunodeficiency virus type 1 (HIV-1) infection and disturbed microglial function could contribute to the development of HIV-associated neurocognitive disorders (HAND). Better understanding of how HIV-1 infection and viral protein exposure modulate microglial function during the course of infection could lead to the identification of novel therapeutic targets for both the eradication of HIV-1 reservoir and treatment of neurocognitive deficits. This review first describes microglial origins and function in the normal central nervous system (CNS), and the changes that occur during aging. We then critically discuss how HIV-1 infection and exposure to viral proteins such as Tat and gp120 affect various aspects of microglial homeostasis including activation, cellular metabolism and cell cycle regulation, through pathways implicated in cellular stress.

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responses including p38 mitogen-activated protein kinase (MAPK) and nuclear factor kappaB (NF-kappaB). We thus propose that the functions of human microglia evolve during both healthy and pathological aging. Aging-associated dysfunction of microglia comprises phenotypes resembling cellular senescence, which could contribute to cognitive impairments observed in various neurodegenerative diseases. In addition, microglia seems to develop characteristics that could be related to cellular senescence post-HIV-1 infection and after exposure to HIV-1 viral proteins. However, despite its potential role as a component of HAND and likely other neurocognitive disorders, microglia senescence has not been well characterized and should be the focus of future studies, which could have high translational relevance. GLIA 2017;65:431-446.


Due to the advent of antiretroviral therapy HIV is no longer a terminal disease and the HIV infected patients are becoming increasingly older. While this is a major success, with increasing age comes an increased risk for disease. The age-related comorbidities that HIV infected patients experience suggest that they suffer from accelerated aging. One possible contributor to this accelerated aging is cellular senescence, an age-associated response that can occur prematurely in response to stress, and that is emerging as a contributor to disease and aging. HIV patients experience several stressors such as the virus itself, antiretroviral drugs and to a lesser extent, substance abuse that can induce cellular senescence. This review summarizes the current knowledge of senescence induction in response to these stressors and their relation to the comorbidities in HIV patients. Cellular senescence may be a possible therapeutic target for these comorbidities.


OBJECTIVE: To establish whether HIV disease is associated with abnormal levels of age-related brain atrophy, by estimating apparent brain age using neuroimaging and exploring whether these estimates related to HIV status, age, cognitive performance, and HIV-related clinical parameters. METHODS: A large sample of virologically suppressed HIV-positive adults (n = 162, age 45-82 years) and highly comparable HIV-negative controls (n = 105) were recruited as part of the Comorbidity in Relation to AIDS (COBRA) collaboration. Using T1-weighted MRI scans, a machine-learning model of healthy brain aging was defined in an independent cohort (n = 2,001, aged 18-90 years). Neuroimaging data from HIV-positive and HIV-negative individuals were then used to estimate brain-predicted age; then brain-predicted age difference (brain-PAD = brain-predicted brain age - chronological age) scores were calculated. Neuropsychological and clinical assessments were also carried out. RESULTS: HIV-positive individuals had greater brain-PAD score (mean +/- SD 2.15 +/- 7.79 years) compared to HIV-negative individuals (-0.87 +/- 8.40 years; b = 3.48, p < 0.01). Increased brain-PAD score was associated with decreased performance in multiple cognitive domains (information processing speed, executive function, memory) and general cognitive performance across all participants. Brain-PAD score was not associated with age, duration of HIV infection, or other HIV-related measures. CONCLUSION: Increased apparent brain aging, predicted using neuroimaging, was observed in HIV-positive adults, despite effective viral suppression. Furthermore, the magnitude of increased apparent brain aging related to cognitive deficits. However, predicted brain age difference did not correlate with chronological age or duration of HIV infection, suggesting that HIV disease may accentuate rather than accelerate brain aging.


Studies of persons living with HIV (PLWH) have compared current non-drinkers to at-risk drinkers without differentiating whether current non-drinkers had a prior alcohol use disorder (AUD). The purpose of this study was to compare current non-drinkers with and without a prior AUD on demographic and clinical characteristics to understand the impact of combining them. We included data from six sites across the US from 1/2013 to 3/2015. Patients completed tablet-based clinical assessments at routine clinic appointments using the most recent assessment. Current non-drinkers were identified by AUDIT-C scores of 0. We identified a prior probable AUD by a prior AUD diagnosis in the electronic medical record (EMR) or a report of attendance at alcohol treatment in the clinical assessment. We used multivariate logistic regression to examine factors associated with prior AUD. Among 2235 PLWH who were current non-drinkers, 36% had a prior AUD with more patients with an AUD identified by the clinical assessment than the EMR. Higher proportions with a prior AUD were male, depressed, and reported current drug use compared to non-drinkers without a prior AUD. Former cocaine/crack (70% vs. 25%), methamphetamine/crystal (49% vs. 16%), and opioid/heroin use (35% vs. 7%)

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were more commonly reported by those with a prior AUD. In adjusted analyses, male sex, past methamphetamine/crystal use, past marijuana use, past opioid/heroin use, past and current cocaine/crack use, and cigarette use were associated with a prior AUD. In conclusion, this study found that among non-drinking PLWH in routine clinical care, 36% had a prior AUD. We found key differences between those with and without prior AUD in demographic and clinical characteristics, including drug use and depression. These results suggest that non-drinkers are heterogeneous and need further differentiation in studies and that prior alcohol misuse (including alcohol treatment) should be included in behavioural health assessments as part of clinical care.


PURPOSE OF REVIEW: The purpose of this article is to review age-associated alterations in microbiota composition, diversity and functional features in context of immune senescence, chronic inflammation and comorbidities associated with HIV infection. The overall goal is to assess whether modulating the microbiome will likely improve resilience of the immune system and augment return to health. RECENT FINDINGS: Alteration in the gut microbiota composition diversity and function occur in HIV and aging. Importantly, butyrate producing bacteria are reduced in both HIV and aging individuals. There is increasing relevance of studying metabolomics in the context of HIV-associated non-AIDS comorbidities and aging. Interventional prospects of probiotics, prebiotics and fecal microbiota transplantation in HIV and aging will provide novel therapeutic approaches. SUMMARY: Increasing evidence suggests a significant link in changes in the composition, diversity and functional aspects of intestinal microbiome with normal aging and HIV infection. Data on association of metabolites produced by the microbiome with HIV-associated non-AIDS comorbidities is mounting. The impact of the microbiome alterations on inflammation, immune and organ senescence and mechanisms by which bio-behavioral pathways will exacerbate these outcomes needs to be further evaluated.

Dickens, A. M., et al. Chronic low-level expression of HIV-1 Tat promotes a neurodegenerative phenotype with aging.

The widespread use of combinational antiretroviral therapies (cART) in developed countries has changed the course of Human Immunodeficiency Virus (HIV) infection from an almost universally fatal disease to a chronic infection for the majority of individuals. Although cART has reduced the severity of neurological damage in HIV-infected individuals, the likelihood of cognitive impairment increases with age, and duration of infection. As cART does not suppress the expression of HIV non-structural proteins, it has been proposed that a constitutive production of HIV regulatory proteins in infected brain cells may contribute to neurological damage. However, this assumption has never been experimentally tested. Here we take advantage of the leaky tetracycline promoter system in the Tat-transgenic mouse to show that a chronic very low-level expression of Tat is associated with astrocyte activation, inflammatory cytokine expression, ceramide accumulation, reductions in brain volume, synaptic, and axonal damage that occurs over a time frame of 1 year. These data suggest that a chronic low-level production of Tat may contribute to progressive neurological damage in virally suppressed HIV-infected individuals.


OBJECTIVE: Both HIV infection and pre-eclampsia (PE) are associated with considerable maternal mortality in South Africa. This study was designed to compare the urinary levels of kidney injury molecule-1 (KIM-1), calbindin, interleukin-18 (IL-18), and monocyte chemoattractant protein-1 (MCP-1) in HIV associated normotensive and preeclamptic pregnancies. METHODS: Following ethical approval and written consent, urine samples were collected from HIV negative (HIV -ve) normotensive pregnant (n = 19), HIV positive (HIV +ve) normotensive pregnant (n = 19), HIV -ve pre-eclamptic (n = 19) and HIV +ve pre-eclamptic (n = 19) women. The concentrations of KIM-1, calbindin, IL-18 and MCP-1 were assessed using the Bioplex technology. RESULTS: In contrast to IL-18 (p < 0.05) and MCP-1 (p > 0.05), the concentrations of KIM-1 (p = 0.02) and calbindin (p = 0.02) were significantly higher in PE compared to normotensive pregnancies, irrespective of HIV status. Based on HIV status, all 4 analytes were similar between HIV+ve and HIV-ve groups. Urinary KIM-1 levels in the HIV -ve pre-eclamptics were significantly higher than those in the HIV -ve women with normal
pregnancies (p = 0.007). The maternal hypertension and/or HIV profile has no marked impact on the fetal weight. CONCLUSION: Our results demonstrate an increase in the urinary level of kidney injury molecule-1 and calbindin in PE, implicating their possible value as biomarkers of kidney injury. We observed no differences in the levels of KIM-1, IL-18, MCP-1 and calbindin based on HIV status. We propose that studies with larger sample sizes using these markers be conducted to establish their use as markers of diagnosing kidney injury in PE.


Background: Cancer remains an important cause of morbidity and mortality in people with human immunodeficiency virus (PWHIV) on effective antiretroviral therapy (ART). Estimates of cancer-attributable mortality can inform public health efforts. Methods: We evaluated 46956 PWHIV receiving ART in North American HIV cohorts (1995-2009). Using information on incident cancers and deaths, we calculated population-attributable fractions (PAFs), estimating the proportion of deaths due to cancer. Calculations were based on proportional hazards models adjusted for age, sex, race, HIV risk group, calendar year, cohort, CD4 count, and viral load. Results: There were 1997 incident cancers and 8956 deaths during 267145 person-years of follow-up, and 11.9% of decedents had a prior cancer. An estimated 9.8% of deaths were attributable to cancer (cancer-attributable mortality rate 327 per 100000 person-years). PAFs were 2.6% for AIDS-defining cancers (ADCs, including non-Hodgkin lymphoma, 2.0% of deaths) and 7.1% for non-AIDS-defining cancers (NADCs: lung cancer, 2.3%; liver cancer, 0.9%). PAFs for NADCs were higher in males and increased strongly with age, reaching 12.5% in PWHIV aged 55+ years. Mortality rates attributable to ADCs and NADCs were highest for PWHIV with CD4 counts <100 cells/mm3. PAFs for NADCs increased during 1995-2009, reaching 10.1% in 2006-2009. Conclusions: Approximately 10% of deaths in PWHIV prescribed ART during 1995-2009 were attributable to cancer, but this fraction increased over time. A large proportion of cancer-attributable deaths were associated with non-Hodgkin lymphoma, lung cancer, and liver cancer. Deaths due to NADCs will likely grow in importance as AIDS mortality declines and PWHIV age.


Background: The extent to which inflammation, immune activation/immunosenescence, and hormonal abnormalities are driven by human immunodeficiency virus (HIV) or frailty is not clear. Methods: HIV-infected frail men (n = 155) were matched to nonfrail, HIV-infected (n = 141) and HIV-uninfected (n = 150) men by age, calendar year, and antiretroviral therapy use (HIV-infected men only). Frailty was defined by >/=3 frailty-related phenotype criteria (weight loss, exhaustion, low activity, slowness) at >/=2 visits, or at 1 visit with >/=1 criteria at >/=2 visits. The following measurements were obtained: interleukin 6, high-sensitivity C-reactive protein, soluble receptors for tumor necrosis factor alpha 1 and 2, the percentages of CD4+CD28−, CD8+CD28−, CD4+CD38+HLA-DR+, and CD8+CD38+HLA-DR+ T cells, dehydroepiandrosterone sulfate, free testosterone, homeostatic model assessment of insulin resistance, and insulin-like growth factor 1. Log-linear regressions were adjusted for a priori selected covariates to determine differences by frailty and HIV status. Results: In multivariate analyses adjusted for covariates, frailty was associated among HIV-infected men with higher interleukin 6 and high-sensitivity C-reactive protein and lower free testosterone and dehydroepiandrosterone levels. In contrast, HIV infection but not frailty was associated with significantly greater immune senescence (percentage of CD4+CD28− or CD8+CD28− T cells) and immune activation (percentages of CD4+CD38+HLA-DR+ and CD8+CD38+HLA-DR+ T cells). Conclusions: Frailty among HIV-infected men was associated with increased inflammation and lower hormone levels, independent of comorbid conditions. Interventions targeting these pathways should be evaluated to determine the impact on prevention or reversal of frailty among HIV-infected men.


BACKGROUND: Persistent residual viremia (RV) and low grade inflammation and immune activation have been associated with non-AIDS defining events. The impact of persistent RV and HIV-DNA load on immune activation/inflammation remains unclear. The purpose of this study was to gain new insights into the relation between viremia, markers of inflammation and HIV-DNA levels. METHODS: Three hundred and twenty-one HIV-infected patients were studied. A retrospective analysis of viremia values,
prospectively collected for 48 months, was performed. Patients were separated into three groups: 113 TND (Target Not Detected, patients with sustained undetectable viremia); 113 RV (Residual Viremia, patients who had at least three detectable viral load (VL) values <37 copies/ml); 95 LLV (Low Level Viremia, patients with at least two VL values >37 but <200 copies/ml). HIV-DNA, TNF-alpha, IL-6 and sCD14 were analyzed. RESULTS: HIV-DNA, sCD14 and TNF-alpha were significantly lower in the TND group than in the RV and LLV groups. In addition, RV patients showed lower levels of HIV-DNA and sCD14 than LLV individuals. HIV-DNA load was not related to markers of inflammation. The ordinal logistic analysis showed that two independent variables were significantly associated with VL pattern: sCD14, HIV-DNA. In addition NRTIs plus NNRTIs and NRTIs plus PIs were negatively associated to VL pattern compared to INI-containing regimen. CONCLUSIONS: Persistent undetectable viremia was associated with lower levels of inflammatory markers and HIV-DNA. However, the lack of normalization of these biomarkers in the TND group and the fact that HIV-DNA load was not associated with inflammation strongly suggest that other mechanisms play a major role in maintaining inflammation over time.


INTRODUCTION: Despite major progress in controlling HIV disease through antiretroviral therapy, changes in immune phenotype and function persist in individuals with chronic HIV, raising questions about accelerated aging of the immune system. METHODS: We conducted a cross-sectional study (2005-2007) of HIV-infected (n = 111) and uninfected (n = 114) men from the Veterans Aging Cohort Study. All HIV-infected subjects were on antiretroviral therapy with VL <400 copies/mL for at least 3 years. T-cell markers were examined using flow cytometry. We evaluated the impact of HIV serostatus and age on T-cell phenotypes (expressed as percentages of the total CD4 and CD8 T-cell population) using multivariate linear regression, adjusted for smoking, alcohol, and race/ethnicity. We tested for interactions between HIV and age by including interaction terms. RESULTS: Among both HIV-infected and uninfected subjects, increasing age was associated with a decreased proportion of naive CD4 T cells (P = 0.014) and CD8 T cells (P < 0.0001). Both HIV infection and increasing age were associated with higher proportions of effector memory CD4 T cells (P < 0.0001 for HIV; P = 0.04 for age) and CD8 T cells (P = 0.0001 for HIV; P = 0.0004 for age). HIV infection, but not age, was associated with a higher proportion of activated CD8 T cells (P < 0.0001). For all T-cell subsets tested, there were no significant interactions between HIV infection and age. CONCLUSIONS: Age and HIV status independently altered the immune system, but we found no conclusive evidence that HIV infection and advancing age synergistically result in accelerated changes in age-associated T-cell markers among virally suppressed individuals.


HIV infection may potentiate specific biomarkers that influence the development of premature clinical indices commonly associated with aging. Therefore, predicting mortality outcomes in people living with HIV is extremely important as this population ages. This chapter describes biomarkers associated with inflammation, coagulation, and immune activation in HIV, and reviews the association between specific biomarkers and the development of co-morbid conditions in individuals with HIV. Measures that incorporate specific biomarkers related to HIV infection, designed to predict mortality outcomes in individuals with HIV, are also discussed.


As individuals with human immunodeficiency virus (HIV) infection live longer, aging and age-related chronic conditions have become major health concerns for this vulnerable population. Substantial evidence suggests that chronic inflammation and immune activation contribute significantly to chronic conditions in people aging with or without HIV infection. As a result, increasing numbers of inflammation and immune activation biomediators have been measured. While very few studies describe their in vivo relationships, such studies can serve as an important and necessary initial step toward delineating the complex network of chronic inflammation and immune activation. In this study, we evaluated in vivo relationships between serum levels of neopterin, a biomediator of immune activation, and four commonly described inflammatory biomediators: soluble tumor necrosis factor (TNF-α) receptor (sTNFR)-1, sTNFR-2, interleukin (IL)-6, and C-reactive protein (CRP), as well as the impact of HIV infection and aging in the AIDS Linked to the Intravenous Experience (ALIVE) study, a community-recruited observational study of former and current injection drug users (IDUs) with or at high risk for HIV infection in Baltimore, MD, USA. The study included 1,178 participants in total with 316 HIV-infected (HV+) and 862 HIV-uninfected (HV−) IDUs. Multivariate regression analyses were employed, adjusting for age, sex, body mass index, smoking, hepatitis C virus co-infection, injection drug use, comorbidities, and HIV status (for all participants), and HIV viral load, CD4+ T-cell counts, and antiretroviral therapy (for HIV+ participants). The results showed significant impact of aging on all five biomediators and that of HIV infection on all but sTNFR-1. In the adjusted model, neopterin had positive associations with sTNFR-1 and sTNFR-2 (partial correlation coefficients: 0.269 and 0.422, respectively, for all participants; 0.292 and 0.354 for HIV+; and 0.262 and 0.435 for HIV−, all p < 0.0001). No significant associations between neopterin and IL-6 or CRP were identified. Such differential relationships between circulating neopterin and sTNFR-1, sTNFR-2, IL-6, and CRP may help inform their selection in future studies. These findings may also facilitate elucidation of underlying inflammatory and immune activation pathways that contribute to age-related chronic conditions, potentially leading to identification of key biomediators, particularly those upstream of CRP, as novel targets for intervention.


: Among HIV-infected persons, the assessment of nonalcoholic fatty liver disease (NAFLD) provides a window through which overall metabolic health can be evaluated. In this review, we summarize clinical data that support the roles of aging and metabolic dysregulation as factors contributing to fatty liver/NAFLD among HIV-infected persons. Age-related metabolic alterations include hepatic anatomic and functional changes, altered homeostasis of gastrointestinal microbiota and anthropometric changes (such as a shift of body fat depots from the subcutaneous to the visceral compartment) that are often associated with the development of insulin resistance and increased cardiovascular risk. Fatty changes in the liver occur not only with metabolic disruption but also with virus-induced injury. Chronic hepatitis C virus infection is commonly associated with fatty liver, and can be related to both hepatitis C virus genotype and host metabolic features. Similarly, HIV infection is associated with fatty liver as a result of multiple viral and host factors. Clearly, lipodystrophy, dysregulation of the gut-liver axis and HIV infection itself may each contribute simultaneously to NAFLD pathogenesis. Although lifestyle changes are the mainstay of treatment, to date no drug has specifically been approved for use in persons with NAFLD. Moreover, current guidelines provide no specific therapeutic recommendations for persons with NAFLD older than 65 years. Well-designed studies characterizing the epidemiology, pathogenesis, clinical outcomes and potential therapeutic interventions for liver disease and associated metabolic comorbidities in older HIV-infected patients are urgently needed.


BACKGROUND: To compare retinal vascular measurements, biomarkers of cerebral small vessel disease, in HIV-positive men aged 50 years and older with similarly aged HIV-negative men and younger HIV-positive men. METHODS: We recruited white, nondiabetic men into a cross-sectional substudy of a larger cohort including 3 demographically matched groups. Optic disc-centered 45-degree color fundus photographs were used to calculate central retinal arterial and venous caliber and the arterial-venous ratio (AVR). We used univariate and multivariable linear regression to compare retinal vessel measurements in the 3 groups and to identify factors associated with AVR. RESULTS: All HIV-positive men were virologically suppressed. In a multivariable model, study group was not associated with AVR [adjusted beta 0.010 for HIV-positive men <50 (n = 39) compared with HIV-positive men aged >/=50 years (n = 120), 95% confidence interval [CI] -0.018 to 0.038, P = 0.47; adjusted beta 0.00002 for HIV-negative men >/=50 years (n = 52), 95% CI -0.022 to 0.022, P = 0.99]. Factors associated with lower AVR were systolic blood pressure (adjusted beta -
0.009 per +10 mm Hg, 95% CI -0.015 to -0.003, P = 0.002), history of stroke or transient ischemic attack (adjusted beta -0.070, 95% CI -0.12 to -0.015, P = 0.01), and recent recreational drug use (adjusted beta -0.037, 95% CI -0.057 to -0.018, P = 0.0002).

CONCLUSIONS: There were no differences in retinal vascular indices between HIV-positive men aged >/=50 years and HIV-negative men aged >/=50 years or HIV-positive men aged <50 years, suggesting that HIV is not associated with an increased burden of cerebral small vessel disease.


OBJECTIVE: Very-low-level viremia (VLLV) is a relatively new concept in the realm of human immunodeficiency virus (HIV) care. Newer generation assays are now able to detect plasma HIV RNA Viral Load (VL) levels as low as 20 copies/mL. The authors characterized patients with VLLV (VL between 20 and 50 copies/mL) in order to identify possible risk factors associated with virologic failure and poor clinical outcomes. METHODS: The authors reviewed 119 consecutive charts of patients with VLLV. Sociodemographic data were extracted and viral load and CD4 counts were trended over a 12 month period (February 2013-February 2014). Regression analysis was used to assess the role of different factors on virologic failure at 1 year. RESULTS: Of the study participants with evaluable data (n = 100), the median age was 53 years (interquartile range: 43-57.5), 67% were nonwhite, 34% were women, 58% were smokers, 47% were alcoholics, 58% had a history of intravenous drug use, and 40% were coinfected with hepatitis C virus. More than half of the participants had 3 or more comorbidities and their HIV pill burden was high (more than 2 pills daily). After 12 months, 65 participants achieved undetectable viral load levels, whereas 15 experienced virologic failure (2 consecutive viral loads > 50 copies/mL) and the remaining 20 had persistent VLLV. In the virologic failure group, there was a predominance of white males (66%) with a significant number of comorbidities and pill burden. Univariate logistic regression suggested that there was a difference between the failure versus nonfailure groups in terms of race, ethnicity, and alcohol use. Multivariate regression with virological failure as the outcome suggested a trend only in terms of participant’s alcohol use. CONCLUSION: Most patients with initial VLLV (70%) achieved virologic suppression at 1 year with no antiretroviral therapy changes. Thus, VLLV does not necessarily predict virologic failure and should not prompt more frequent clinic visits or antiretroviral regimen changes. Further research is needed in order to determine the predictors of virologic failure in this subset of patients and the clinicians’ attitude toward VLLV.


BACKGROUND AND OBJECTIVES: Insulin resistance (IR) is frequent in human immunodeficiency virus (HIV) infection and may be related to antiretroviral therapy (ART). Increased oxidative stress parameters and carbonyl protein are linked to insulin sensitivity. The present study is aimed to determine IR, its association with oxidative deoxy nucleic acid (DNA) damage in HIV-1-infected patients with different ART status. MATERIALS AND METHODS: In this case-control study, a total 600 subjects were included. We used plasma levels of the oxidized base, 8-hydroxy-2-deoxyguanosine (8-OHdG), as our biomarker of oxidative DNA damage. 8-OHdG was measured with the highly sensitive 8-OHdG check enzyme-linked immunosorbent assay kit. IR was determined using homeostasis model assessment. RESULTS: All subjects were randomly selected and grouped as HIV-negative (control group) (n = 300), HIV-positive without ART (n = 100), HIV-positive with ART first line (n = 100), and HIV-positive with ART second line (n = 100). IR and oxidative DNA damage were significantly higher in HIV-positive patients with second-line ART and HIV-positive patients with first-line ART than ART-naive patients. In a linear regression analysis, increased IR was positively associated with the increased DNA damage (odds ratio: 3.052, 95% confidence interval: 2.595-3.509) P < 0.001. INTERPRETATION AND CONCLUSIONS: In this study, we observed that ART plays a significant role in the development of IR and oxidative DNA damage in HIV-positive patients taking ART. Awareness and knowledge of these biomarkers may prove helpful to clinicians while prescribing ART to HIV/AIDS patients. Larger studies are warranted to determine the exact role of ART in the induction of IR and DNA damage.

Astrocyte activation is a hallmark of HIV infection and aging in the CNS. In chronically infected HIV patients, prolonged activation of astrocytes has been linked to accelerated aging including but not limited to neurocognitive impairment and frailty. The current study addresses the role of HIV protein Tat in inducing a set of small noncoding microRNAs (miRNA) that play critical role in astrogliosis. In our efforts to link astrocyte activation as an indicator of aging, we assessed the brains of both wild type and HIV transgenic rats for the expression of glial fibrillary acidic protein (GFAP). As expected, in the WT animals we observed age-dependent increase in astrogliosis in the older animals compared to the younger group. Interestingly, compared to the young WT group, young HIV Tg rats exhibited higher levels of GFAP in this trend was also observed in the older HIV Tg rats compared to the older WT group. Based on the role of SIRT1 in aging and the regulation of SIRT1 by miRNAs-34a and -138, we next assessed the expression levels of these miRs in the brains of both the young old WT and HIV Tg rats. While there were no significant differences in the young WT versus the HIV Tg rats, in the older HIV Tg rats there was a significant upregulation in the expression of miRs-34a & -138 in the brains. Furthermore, increased expression of miRs-34a & -138 in the older Tg rats, correlated with a concomitant decrease in their common anti-aging target protein SIRT1, in the brains of these animals. To delineate the mechanism of action we assessed the role of HIV-Tat (present in the Tg rats) in inducing miRs-34a & -138 in both the primary astrocytes and the astrocytoma cell line A172, thereby leading to posttranscriptional suppression of SIRT1 with a concomitant up regulation of NF-kB driven expression of GFAP.


BACKGROUND: Chronic kidney disease (CKD) is common among HIV-infected individuals but serum creatinine is insensitive for detecting kidney damage at early stages. We hypothesized that HIV infection would be associated with elevations in subclinical markers of kidney injury and fibrosis in a contemporary cohort of men. METHODS: In this cross-sectional study, we measured urine levels of interleukin-18 (IL-18), kidney injury molecule-1 (KIM-1), pro-collagen type III N-terminal pro-peptide (PIIINP) and albumin-creatinine ratio (ACR) in 813 HIV-infected and 331 uninfected men enrolled in the Multicenter AIDS Cohort Study. RESULTS: Median eGFR was 95 ml/min/1.73 m(2) among African-Americans (n=376) and 87 ml/min/1.73 m(2) among Caucasians (n=768). Among HIV-infected men, the median CD4 lymphocyte count was 572 cells/mm(3) and 76% of men had undetectable HIV RNA levels. After multivariable adjustment for traditional CKD risk factors including eGFR, HIV infection was associated with 52% higher urine IL-18 (95% CI, 33%, 73%), 44% higher KIM-1 (27%, 64%), 30% higher PIIINP (15%, 47%) and 84% higher ACR (54%, 120%), with similar effect sizes among African-Americans and Caucasians (P>0.2 for tests of interaction by race). These associations remained statistically significant in analyses that excluded persons with detectable HIV RNA levels and in models that adjusted for cumulative exposure to tenofovir disoproxil fumarate. CONCLUSIONS: Compared with uninfected men, HIV-infected men had more extensive glomerular and tubulo-interstitial damage, as assessed by urine biomarkers. Future studies should evaluate whether combinations of biomarkers can be used to monitor stages of kidney injury and to predict CKD risk in HIV-infected individuals.


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.

HIV infection leads to severe B cell dysfunction, which manifests as impaired humoral immune response to infection and vaccinations and is not completely reversed by otherwise effective antiretroviral therapy (ART). Despite its inability to correct HIV-induced B cell dysfunction, ART has led to significantly increased lifespans in people living with HIV/AIDS. This has in turn led to escalating prevalence of non-AIDS complications in aging HIV-infected individuals, including malignancies, cardiovascular disease, bone disease, and other end-organ damage. These complications, typically associated with aging, are a significant cause of morbidity and mortality and occur significantly earlier in HIV-infected individuals. Understanding the pathophysiology of these comorbidities and delineating clinical management strategies and potential cures is gaining in importance. Bone loss and osteoporosis, which lead to increase in fragility fracture prevalence, have in recent years emerged as important non-AIDS comorbidities in patients with chronic HIV infection. Interestingly, ART exacerbates bone loss, particularly within the first couple of years following initiation. The mechanisms underlying HIV-induced bone loss are multifactorial and complicated by the fact that HIV infection is linked to multiple risk factors for osteoporosis and fracture, but a very interesting role for B cells in HIV-induced bone loss has recently emerged. Although best known for their important antibody-producing capabilities, B cells also produce two cytokines critical for bone metabolism: the key osteoclastogenic cytokine receptor activator of NF-κB ligand (RANKL) and its physiological inhibitor osteoprotegerin (OPG). Dysregulated B cell production of OPG and RANKL was shown to be a major contributor to increased bone loss and fracture risk in animal models and HIV-infected humans. This review will summarize our current knowledge of the role of the OPG/RANK−RANKL pathway in B cells in health and disease, and the contribution of B cells to HIV-induced bone loss. Data from mouse studies indicate that RANKL and OPG may also play a role in B cell function and the implications of these findings for human B cell biology, as well as therapeutic strategies targeting the OPG/RANK−RANKL pathway, will be discussed.


We assessed firing and voltage-gated Ca(2+) influx in medial prefrontal cortex (mPFC) pyramidal neurons from older (12 months old) HIV-1 transgenic (Tg) rats. We found that neurons from older Tg rats showed increased firing compared to non-Tg rats, but Ca(2+) spikes were unchanged. However, stronger excitatory stimulation was needed to evoke Ca(2+) spikes, which was associated with reduced mPFC Cav1.2 L-type Ca(2+) channel (L-channel) protein. In contrast, L-channel protein was unaltered in younger (6-7 weeks old) Tg rats, which we previously found had enhanced neuronal Ca(2+) influx. These studies demonstrate that aging alters HIV-induced Ca(2+) channel dysfunction that affects mPFC activity.


As individuals with human immunodeficiency virus (HIV) infection live longer, aging and age-related chronic conditions have become major health concerns for this vulnerable population. Substantial evidence suggests that chronic inflammation and immune activation contribute significantly to chronic conditions in people aging with or without HIV infection. As a result, increasing numbers of inflammation and immune activation biomediators have been measured. While very few studies describe their in vivo relationships, such studies can serve as an important and necessary initial step toward delineating the complex network of chronic inflammation and immune activation. In this study, we evaluated in vivo relationships between serum levels of neopterin, a biomediator of immune activation, and four commonly described inflammatory biomediators: soluble tumor necrosis factor (TNF)-α receptor (sTNFR)-1, sTNFR-2, interleukin (IL)-6, and C-reactive protein (CRP), as well as the impact of HIV infection and aging in the AIDS Linked to the Intravenous Experience (ALIVE) study, a community-recruited observational study of former and current injection drug users (IDUs) with or at high risk for HIV infection in Baltimore, MD, USA. The study included 1,178 participants in total with 316 HIV-infected (HV+) and 862 HIV-uninfected (HV-) IDUs. Multivariate regression analyses were employed, adjusting for age, sex, body mass index, smoking, hepatitis C virus co-infection, injection drug use, comorbidities, and HIV status (for all participants), and HIV viral load, CD4(+) T-cell counts, and antiretroviral therapy (for HV+ participants). The results showed significant impact of aging on all five biomediators and that of HIV infection on all but sTNFR-1. In the adjusted model, neopterin had positive associations with sTNFR-1 and sTNFR-2 (partial correlation coefficients: 0.269 and 0.422, respectively, for all participants; 0.292 and 0.354 for HIV+; and 0.262 and 0.435 for HIV-, all p < 0.0001). No significant associations between neopterin and IL-6 or CRP were identified.
Such differential relationships between circulating neopterin and sTNFR-1, sTNFR-2, IL-6, and CRP may help inform their selection in future studies. These findings may also facilitate elucidation of underlying inflammatory and immune activation pathways that contribute to age-related chronic conditions, potentially leading to identification of key biomediators, particularly those upstream of CRP, as novel targets for intervention.


BACKGROUND: The major complications of "treated" Human Immunodeficiency Virus (HIV) infection are cardiovascular disease, malignancy, renal disease, liver disease, bone disease, and perhaps neurological complications, which are phenomena of the normal aging process occurring at an earlier age in the HIV-infected population. The present study is aimed to explore protein carbonyl content as a biomarker for detecting oxidative DNA damage induced ART toxicity and/or accelerated aging in HIV/AIDS patients. OBJECTIVE: To investigate the potential of carbonyl content as a biomarker for detecting oxidative Deoxyribonucleic acid (DNA) damage induced Antiretroviral Theraphy (ART) toxicity and/or accelerated aging in HIV/AIDS patients. METHODS: In this case-control study a total 600 subjects were included. All subjects were randomly selected and grouped as HIV-negative (control group) (n=300), HIV-infected ART naive (n=100), HIV-infected on first line ART (n=100), and HIV-infected on second line ART (n=100). Seronegative control subjects were age- and sex-matched with the ART naive patients and the two other groups. Carbonyl protein was determined by the method described in Levine et al. DNA damage marker 8-OH-dG was determined using 8-hydroxy-2-deoxy Guanosine StressXpress ELA Kit by StressMarq Biosciences. RESULTS: Protein carbonyl content levels and oxidative DNA damage were significantly higher (p<0.05) in HIV-infected patients on second line ART and HIV-infected patients on first line ART than ART naive patients and controls. In a linear regression analysis, increased protein carbonyl content was positively associated with increased DNA damage (OR: 0.356; 95% CI: 0.287-0.426) p<0.05. CONCLUSIONS: Carbonyl content may has a role as a biomarker for detecting oxidative DNA damage induced ART toxicity and/or accelerated aging in HIV/AIDS patients. Larger studies are warranted to elucidate the role of carbonyl content as a biomarker for premature aging in HIV/AIDS patients.


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/know 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.


BACKGROUND: The prevalence of neurocognitive deficits are reported to be high in HIV-1 positive patients, even with suppressive antiretroviral treatment, and it has been suggested that HIV can cause accelerated aging of the brain. In this study we measured phosphorylated tau (p-tau) in cerebrospinal fluid (CSF) as a potential marker for premature central nervous system (CNS) aging. P-tau increases with normal aging but is not affected by HIV-associated neurocognitive disorders. METHODS: With a cross-sectional retrospective design, p-tau, total tau (t-tau), neopterin and HIV-RNA were measured in CSF together with plasma HIV-RNA and blood CD4(+) T-cells of 225 HIV-infected patients <50 y of age, subdivided into 3 groups: untreated neuroasymptomatic (NA) (n = 145), on suppressive antiretroviral treatment (cART) (n = 49), and HIV-associated dementia (HAD) (n = 31). HIV-negative healthy subjects served as controls (n = 79). RESULTS: P-tau was not significantly higher in any HIV-infected group compared to HIV-negative controls. Significant increases in t-tau were found as expected in patients with HAD compared to NA, cART, and control groups (p < 0.001). CONCLUSIONS: P-tau was not higher in HIV-infected patients compared to uninfected controls, thus failing to support a role for premature or accelerated brain aging in HIV infection.


BACKGROUND: People with acquired immune deficiency syndrome (AIDS) develop ischemic stroke through distinct mechanisms. These include infections such as syphilis, tuberculosis, varicella, and other conditions such as cocaine abuse, endocarditis, and hypercoagulability. The effect of improved awareness, detection, and treatment with highly active antiretroviral therapy (HAART) on the incidence and outcome of AIDS patients with stroke is unknown. METHODS: Data from the Nationwide Inpatient Sample from 1995 to 2010 were analyzed. Patients with ischemic stroke and AIDS were identified using ICD-9 (International Classification of Diseases) codes. Time trends for demographics, survival, and frequency of AIDS-associated conditions were analyzed. RESULTS: Proportion of AIDS among stroke patients increased significantly during the study. The median age of all strokes decreased from 75 years in 1995 to 72 years in 2010. Conversely, median age for men with stroke and AIDS increased from 43 years to 53 years; and for women with stroke and AIDS, from 41 years to 51 years. Death rates from stroke in the AIDS patients declined. In recent years, the death rates from stroke are similar to patients without HIV/AIDS. Stroke patients with AIDS had increased odds of syphilis (odds ratio [OR]: 33.50), varicella (OR: 48.34), tuberculosis (OR: 137.48), endocarditis (OR: 5.19), cocaine abuse (OR: 26.05), and hypercoagulability (OR: 4.82). CONCLUSIONS: In the HAART era, the median age of incident stroke in AIDS has increased and the mortality from stroke has improved. Research should focus on optimal management of dyslipidemia while on HAART. Whether HAART can reduce the incidence and improve survival of stroke needs to be explored.


Standard volumetric neuroimaging studies have demonstrated preferential atrophy of subcortical structures among individuals with HIV. However, to our knowledge, no study has investigated subcortical shape alterations secondary to HIV and whether advancing age impacts that relationship. This study employed 3D morphometry to examine the independent and interactive effects of HIV and age on shape differences in nucleus accumbens, amygdala, caudate, hippocampus, pallidum, putamen, and thalamus in 81 participants ranging in age from 24 to 76 including 59 HIV+ individuals and 22 HIV-seronegative controls. T1-weighted MRI underwent a preprocessing pipeline followed by automated subcortical segmentation. Parametric statistical analyses were used to determine independent effects of HIV infection and age on volume and shape in each region of interest (ROI) and the interaction between age and HIV serostatus in predicting volume/shape in each ROI. Significant main effects for HIV were found in the shape of right caudate and nucleus accumbens, left pallidum, and hippocampus. Age was associated with differences in shape in left pallidum, right nucleus accumbens and putamen, and bilateral caudate, hippocampus, and thalamus. Of greatest interest, an age x HIV interaction effect was found in the shape of bilateral nucleus accumbens, amygdala, caudate, and thalamus as well as right pallidum and putamen such that increasing age in HIV participants was associated with greater shape alterations. Traditional volumetric analyses revealed main effects for both HIV and age but no age x HIV interaction. These findings may suggest that age and HIV infection conferred additional deleterious effects on subcortical shape abnormalities beyond the independent effects of these factors. Hum Brain Mapp 38:1025-1037, 2017. (c) 2016 Wiley Periodicals, Inc.

The increased prevalence of age-related comorbidities and mortality is worrisome in ageing HIV-infected patients. Here, we aim to analyse the different ageing mechanisms with regard to HIV infection. Ageing results from the time-dependent accumulation of random cellular damage. Epigenetic modifications and mitochondrial DNA haplogroups modulate ageing. In antiretroviral treatment-controlled patients, epigenetic clock appears to be advanced, and some haplogroups are associated with HIV infection severity. Telomere shortening is enhanced in HIV-infected patients because of HIV and some nucleoside analogue reverse transcriptase inhibitors. Overall, increased inflammation or inflammageing is a major driver of ageing and could result from cell senescence with secreted proinflammatory mediators, altered gut microbiota, and coinfections. In HIV-infected patients, the level of inflammation and innate immunity activation is enhanced and related to most comorbidities and to mortality. This status could result, in addition to age, from the virus itself or viral protein released from reservoirs, from HIV-enhanced gut permeability and dysbiosis, from antiretroviral treatment, from frequent cytomegalovirus and hepatitis C virus coinfections, and also from personal and environmental factors, as central fat accumulation or smoking. Adaptive immune activation and immunosenescence are associated with comorbidities and mortality in the general population but are less predictive in HIV-infected patients. Biomarkers to evaluate ageing in HIV-infected patients are required. Numerous systemic or cellular inflammatory, immune activation, oxidative stress, or senescence markers can be tested in serum or peripheral blood mononuclear cells. The novel European Study to Establish Biomarkers of Human Ageing MARK-AGE algorithm, evaluating the biological age, is currently assessed in HIV-infected patients and reveals an advanced biological age. Some enhanced inflammatory or innate immune activation markers are interesting but still not validated for the patient's follow-up. To be able to assess patients' biological age is an important objective to improve their healthspan. Copyright (C) 2017 Wolters Kluwer Health, Inc. All rights reserved.


The increased prevalence of age-related comorbidities and mortality is worrisome in ageing HIV-infected patients. Here, we aim to analyse the different ageing mechanisms with regard to HIV infection. Ageing results from the time-dependent accumulation of random cellular damage. Epigenetic modifications and mitochondrial DNA haplogroups modulate ageing. In antiretroviral treatment-controlled patients, epigenetic clock appears to be advanced, and some haplogroups are associated with HIV infection severity. Telomere shortening is enhanced in HIV-infected patients because of HIV and some nucleoside analogue reverse transcriptase inhibitors. Overall, increased inflammation or inflammageing is a major driver of ageing and could result from cell senescence with secreted proinflammatory mediators, altered gut microbiota, and coinfections. In HIV-infected patients, the level of inflammation and innate immunity activation is enhanced and related to most comorbidities and to mortality. This status could result, in addition to age, from the virus itself or viral protein released from reservoirs, from HIV-enhanced gut permeability and dysbiosis, from antiretroviral treatment, from frequent cytomegalovirus and hepatitis C virus coinfections, and also from personal and environmental factors, as central fat accumulation or smoking. Adaptive immune activation and immunosenescence are associated with comorbidities and mortality in the general population but are less predictive in HIV-infected patients. Biomarkers to evaluate ageing in HIV-infected patients are required. Numerous systemic or cellular inflammatory, immune activation, oxidative stress, or senescence markers can be tested in serum or peripheral blood mononuclear cells. The novel European Study to Establish Biomarkers of Human Ageing MARK-AGE algorithm, evaluating the biological age, is currently assessed in HIV-infected patients and reveals an advanced biological age. Some enhanced inflammatory or innate immune activation markers are interesting but still not validated for the patient's follow-up. To be able to assess patients' biological age is an important objective to improve their healthspan.


People living with human immunodeficiency virus (HIV) infection and receiving antiretroviral therapy now have the same life expectancy as the general population. However, they have a higher risk of atherosclerotic cardiovascular events because of a complex and polyfactorial vasculopathy, combining the effects of antiretroviral therapy, the HIV virus itself, immune activation,
persons living with human immunodeficiency virus (HIV) harbor an increased risk of age-related conditions. We measured changes in telomere length and DNA methylation in the peripheral blood of 31 intravenous drug users, who were followed longitudinally with blood samples pre-HIV (T1), immediately post-HIV (T2; 1.9+/−1 year from T1), and at a later follow-up time (T3; 2.2+/−1 year from T2). Absolute telomere length measurements were performed using polymerase chain reaction methods. Methylation profiles were obtained using the Illumina Human Methylation450 platform. Methylation aging was assessed using the Horvath method. Telomere length significantly decreased between T1 and T2 (227+/−46 at T1 vs. 201+/−48 kbp/genome at T2, p=0.045), while no differences were observed between T2 and T3 (201+/−48 at T2 vs. 186+/−27 kbp/genome at T3, p=0.244).

Methylation aging as measured by the age acceleration residual increased over the time course of HIV infection (p=0.035). CpG sites corresponding to PCBP2 and CSRP1 were differentially methylated between T1 and T2 at a q-value <0.05. Telomere shortening and methylation changes can therefore be observed in the short-term period immediately following HIV seroconversion. Further studies to confirm these results in larger sample sizes and to compare these results to non-HIV and non-injection drug users are warranted.


Although invasive cytomegalovirus (CMV) disease is uncommon in the era of antiretroviral therapy (ART), asymptomatic CMV coinfection is nearly ubiquitous in HIV infected individuals. While microbial translocation and gut epithelial barrier dysfunction may promote persistent immune activation in treated HIV infection, potentially contributing to morbidity and mortality, it has been unclear whether CMV replication in individuals with no symptoms of CMV disease might play a role in this process. We hypothesized that persistent CMV replication in the intestinal epithelium of HIV/CMV-coinfected individuals impairs gut epithelial barrier function. Using a combination of state-of-the-art in situ hybridization technology (RNAscope) and immunohistochemistry, we detected CMV DNA and proteins and evidence of intestinal damage in rectosigmoid samples from CMV-positive individuals with both untreated and ART-suppressed HIV infection. Two different model systems, primary human intestinal cells differentiated in vitro to form polarized monolayers and a humanized mouse model of human gut, together demonstrated that intestinal epithelial cells are fully permissive to CMV replication. Independent of HIV, CMV disrupted tight junctions of polarized intestinal cells, significantly reducing transepithelial electrical resistance, a measure of monolayer integrity, and enhancing transepithelial permeability. The effect of CMV infection on the intestinal epithelium is mediated, at least in part, by the CMV-induced proinflammatory cytokine IL-6. Furthermore, letermovir, a novel anti-CMV drug, dampened the effects of CMV on the epithelium. Together, our data strongly suggest that CMV can disrupt epithelial junctions, leading to bacterial translocation and chronic inflammation in the gut and that CMV could serve as a target for therapeutic intervention to prevent or treat gut epithelial barrier dysfunction during HIV infection.

the Article discusses the effectiveness of biomarkers CD4 T cells for human immunodeficiency virus (HIV)'s immune suppression and treatment methods. Topics include how Antiretroviral treatment (ART) can only suppress the virus but do not have effect on life expectancy of the infected individuals. It mentions that HIV’s immunopathology is more consistent with immune dysfunction than immune suppression alone. Absolute CD4 count and HIV viral load may not accurately reflect the risks facing patients because immune dysfunction persists despite normalization of CD4 counts. The CD4/ CD8 ratio more accurately describes this overall immune dysfunction and may be a better biomarker for disease progression, response to treatment, morbidity, and mortality for the virally suppressed.


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 Clínica 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/height(2) 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.


OBJECTIVE: Lipodystrophy (LD) syndromes are associated with diabetes mellitus, hypertriglyceridemia, and coronary artery disease. One pathogenetic factor of LD is dysregulation of several adipokines. However, the insulin resistance- and dyslipidemia-promoting adipokines adipocyte (AFABP) and epidermal (EFABP) fatty acid-binding protein have not been investigated in non-HIV-associated LD so far. MATERIAL AND METHODS: We performed a cross-sectional analysis of AFABP and EFABP serum concentrations in 37 LD patients and 37 age-, gender-, and body mass index-matched healthy controls. Moreover, AFABP and EFABP were correlated to clinical and biochemical parameters of inflammation, glucose control, and lipid metabolism. RESULTS: There was no significant difference in median circulating AFABP and EFABP levels between LD patients (21.7mug/l and 7.5mug/l, respectively) and healthy controls (24.5mug/l and 8.6mug/l, respectively). Neither AFABP nor EFABP were related to markers of impaired glucose control or lipid metabolism. Multiple linear regression analysis showed a positive and independent association of AFABP with gender, serum leptin levels, and body mass index. CONCLUSIONS: Circulating levels of AFABP and EFABP are not decreased in LD despite adipose tissue loss in contrast to other adipokines including leptin and adiponectin.


In this paper we suggest that older adults undergo a misalignment between societal age norms and personal lived experience, and attempt reconciliation through discursive strategies: They rewrite how they frame chronological age as well as their subjective relations to it. Using a sample of 4041 midlife and older adults from the 2004-2006 wave of the National Survey of Midlife Development in the United States (MIDUS II), we explore associations of age and gender with subjective age and at what age respondents felt people enter later life. Our results confirm that as men and women age, they push up the age at which they think people enter later life, and slow down subjective aging (there is a growing gap between subjective and chronological age). Relations between a person’s age and at what age they think people enter later life were stronger for men than for women. For every year
they get older get older, men push up when they think people enter later life by 0.24 years, women by 0.16 years. Age norms surrounding the transition to later life may be more prominent for men than for women, and the difference in their tendencies to push up when they mark entry into later life may be a reflection of this greater prominence.


There is evidence that hepatitis C virus (HCV) infection, like HIV infection, may be associated with chronic inflammation, immune activation, and immune senescence, which contribute to increased risks for cardiometabolic or other diseases outside the liver, as well as to ongoing damage in the liver. These effects may persist after a sustained virologic response (SVR) is achieved with HCV therapy. Such findings support initiation of treatment for HCV-infected individuals before damage to the liver is apparent and monitoring of individuals for complications even after an SVR is achieved. Fibrosis is not always reversible after SVR is achieved, and this should serve as an argument against waiting until fibrosis develops before initiating treatment for HCV-infected individuals. This article summarizes a presentation by Susanna Naggie, MD, MHS, at the IAS-USA continuing education program, Management of Hepatitis C Virus in the New Era: Small Molecules Bring Big Changes, in New York, New York, in September 2015.


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.


BACKGROUND: Lower muscle density on computed tomography (CT) provides a measure of fatty infiltration of muscle, an aspect of muscle quality that has been associated with metabolic abnormalities, weakness, decreased mobility, and increased fracture risk in older adults. We assessed the cross-sectional relationship between HIV serostatus, age, thigh muscle attenuation, and thigh muscle cross-sectional area (CSA). METHODS: Mean CT-quantified Hounsfield units (HU) of the thigh muscle bundle and CSA were evaluated in 368 HIV-infected and 145 HIV-uninfected men enrolled in the Multicenter AIDS Cohort Study (MACS) Cardiovascular Substudy using multivariable linear regression. Models all were adjusted for HIV serostatus, age, race, and body mass index (BMI); each model was further adjusted for covariates that differed by HIV serostatus, including insulin resistance, hepatitis C, malignancy, smoking, alcohol use, and self-reported limitation in physical activity. RESULTS: HIV-infected men had greater thigh muscle CSA (p<0.001) but lower muscle density (p<0.001) compared to HIV-uninfected men. Muscle density remained lower in HIV-infected men (p = 0.001) when abdominal visceral adiposity, and thigh subcutaneous adipose tissue area were substituted for BMI in a multivariable model. Muscle density decreased by 0.16 HU per year (p<0.001) of increasing age among the HIV-infected men, but not in the HIV-uninfected men (HIV x age interaction -0.20 HU; p = 0.002). CONCLUSION: HIV-infected men had lower thigh muscle density compared to HIV-uninfected men, and a more pronounced decline with increasing age, indicative of greater fatty infiltration.
These findings suggest that lower muscle quality among HIV-infected persons may be a risk factor for impairments in physical function with aging.


Antiretroviral therapy has significantly improved the quality and length of life for those patients able to access effective and sustained treatment. The resulting restoration of the immune response is associated with a change in the clinical presentation of opportunistic infections, and the histologic reaction to pathogens. A complex combination of alterations in host response across the stages of HIV infection has been documented over the past 3 decades. The defects are seen in both acute and chronic phases of inflammation and involve innate and adaptive immunity. In advanced stages of HIV infection, the marked disruption of lymphoid tissue and loss of follicular dendritic cells limits the host's ability to process antigen and mount specific responses to pathogens. There are qualitative and quantitative defects in CD4 T cells due to HIV infection. The resulting indirect effects include loss of cytokine production, dysregulation of B-cell function, loss of cellular mediated immunity and "holes" in the immunologic repertoire that may not be restored with the use of antiretroviral therapy. Immune reconstitution allows the host to respond to and control infection, but a significant number of patients will have atypical inflammatory syndromes during the recovery period. We briefly discuss the impact of HIV infection on the immune system and give an overview of the spectrum of conditions attributed to the Immune Reconstitution Inflammatory syndrome (IRIS).


OBJECTIVE: HIV-positive individuals are at higher risk than healthy persons for aging-related diseases, including myocardial infarction and non-AIDS defining cancers. Recent evidence suggests that HIV infection may modulate changes in the host cell epigenome, and these changes represent a potential mechanism through which HIV infection accelerates aging. We assessed the difference in DNA methylation (DNAm) age, an aging marker involving multiple age-related cytosine-guanine dinucleotide (CpG) sites, among antiretroviral treatment (ART)-naive HIV-positive and HIV-negative individuals in a cohort of veterans from the Veterans Aging Cohort Study. DESIGN: Peripheral blood samples were collected from 19 ART-naive, HIV-positive, and 19 HIV-negative male participants, matched by age and race. Blood samples were collected from HIV-positive participants 7-11 years after ART initiation. METHODS: We compared DNAm age between HIV-positive and HIV-negative groups at baseline and between HIV-positive patients at baseline and follow-up. We also performed an epigenome-wide analysis to identify CpG methylation sites associated with HIV infection. RESULTS: DNAm age in HIV-positive individuals is, on average, 11.2 years higher than HIV study participants at baseline, and two of 10 HIV-positive individuals showed an increase in DNAm age after ART initiation. Epigenome-wide association studies showed an association of HIV infection with one site, in gene VPS37B, which approached statistical significance in our cohort (P = 3.30 x 10^-11, Bonferroni-corrected threshold = 1.22 x 10^-10) and was replicated in a second, larger cohort. CONCLUSION: ART treatment-naive HIV-positive individuals have significantly older DNAm age compared to HIV-negative individuals in the Veterans Aging Cohort Study cohort. Longitudinal changes in DNAm age are highly variable across individuals after initiation of antiretroviral therapy.


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Objective. We determined metabolic syndrome (MetS) prevalence and assessed the agreement between different diagnostic criteria in HIV-infected South Africans. Method. A random sample included 748 HIV-infected adult patients (79% women) across 17 HIV healthcare facilities in the Western Cape Province. MetS was defined using the Joint Interim Statement (JIS 2009), International Diabetes Federation (IDF 2005), and Adult Treatment Panel III (ATPIII 2005) criteria. Results. Median values were 38 years (age), 5 years (diagnosed HIV duration), and 392 cells/mm(3) (CD4 count), and 93% of the participants were on antiretroviral therapy (ART). MetS prevalence was 28.2% (95%CI: 25-31.4), 26.5% (23.3-29.6), and 24.1% (21-27.1) by the JIS, IDF, and ATPIII 2005 criteria, respectively. Prevalence was always higher in women than in men (all p < 0.001), in participants with longer duration of diagnosed HIV (all p <= 0.003), and in ART users not receiving 1st-line regimens (all p <= 0.039). The agreement among the three criteria was very good overall and in most subgroups (all kappa >/= 0.81). Conclusions. The three most popular diagnostic criteria yielded similarly high MetS prevalence in this relatively young population receiving care for HIV infection. Very good levels of agreement between criteria are unaffected by some HIV-specific features highlighting the likely comparable diagnostic utility of those criteria in routine HIV care settings.


Antiretroviral therapy has revolutionized the care of people with human immunodeficiency virus (HIV) by reducing morbidity and mortality from acquired immunodeficiency syndrome-related conditions. Despite longer life expectancy, however, HIV-infected individuals continue to have a higher risk of death compared with the general population. This has been attributed to the increasing incidence of noncommunicable diseases, in particular, atherosclerotic cardiovascular diseases. This is driven, in part, by the emergence of metabolic disorders, particularly dyslipidemia, insulin resistance, and lipodystrophy, in those on antiretroviral therapy. The pathogenesis of these metabolic derangements is complex and multifactorial, and could be a consequence of an interplay between traditional age-related risk factors, HIV infection, antiretroviral therapy effects, and the inflammatory state and immune activation in this population. Understanding the contributions of each of these factors could not just impact the current management of these individuals and help mitigate the risk for premature cardiovascular disease, but also shape the future direction of research in HIV.


The demographics of the HIV epidemic in the UK have changed significantly. Owing to a steady rate of new diagnoses and improved survival, the population of individuals living with HIV continues to increase. HIV is now widely considered to be a chronic condition and HIV-positive individuals are expected to live into old age. Increasing rates of age-related comorbidities challenge HIV care providers to deliver durable viral suppression, ensure long-term adherence to antiretroviral treatment and promote wellbeing into old age. High rates of mental health disorders and social stigma continue to have a negative impact on the quality of life of people living with HIV. Models of care must adapt to this evolving epidemic.


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To determine the relationships among body mass index (BMI), and HIV-associated neurocognitive impairment and the potential mediating effects of inflammatory cytokines. Among the HIV-infected individuals (N = 90) included in this study, obesity was associated with slower processing speed (beta = -.229, standard error (SE) = 2.15, p = .033), compared to participants with a normal BMI, after controlling for psychosocial and HIV clinical factors. Serum concentrations of the interleukin-16 (IL-16) cytokine were significantly associated with slowed processing speed (beta = -.235, SE = 1.62, p = .033) but did not mediate the relationship between obesity and processing speed. These findings suggest that obesity may contribute to cognitive processing speed deficits in HIV-infected adults. Elevated concentrations of IL-16 are also associated with slowing, though the results suggest that obesity and IL-16 may exert independent effects.


OBJECTIVES: To assess the association among immune activation, immune senescence, inflammation biomarkers and renal function measured by estimated glomerular filtration rate (eGFR) at inclusion and its evolution over a 3-year follow-up in HIV-infected patients with undetectable viral load. DESIGN: The Chronic Immune Activation and Senescence (CIADIS) substudy consecutively included patients between October 2011 and May 2013 enrolled in the ANRS CO3 Aquitaine observational cohort. METHODS: Biomarkers of T-cell, differentiation and senescence were summarized in a cellular-CIADIS weighted score and inflammation biomarkers in a soluble-CIADIS weighted score using principal component analysis. Logistic regression and linear mixed models were used to determine the association between the CIADIS weighted scores and confirmed eGFR less than 60 ml/min per 1.73 m, and evolution of eGFR, respectively. RESULTS: Of 756 patients with an undetectable viral load, 76% were men, and median age was 51 years (Interquartile range: 45-57 years). In multivariable analysis, the soluble-CIADIS weighted score was independently associated with a confirmed eGFR less than 60 (odds ratio = 1.4; 95% confidence interval (CI) 1.1-1.8) but the cellular-CIADIS weighted score was not (odds ratio = 1.2; 95% CI 1.0-1.5). Only in patients with a confirmed eGFR less than 60 ml/min per 1.73 m at inclusion, a higher soluble-CIADIS weighted score (increased inflammation) was associated with a steeper decrease of renal function of -2.3 (ml/min per 1.73 m) per year (95% CI -3.6 to -1.0). CONCLUSION: At inclusion, soluble-CIADIS weighted score was independently associated with a confirmed eGFR less than 60 ml/min per 1.73 m. The soluble-CIADIS weighted score was associated with a decrease of eGFR evolution during a 3-year follow-up only in patients with a confirmed eGFR less than 60 ml/min per 1.73 m.


T follicular helper (Tfh) cells are a subset of CD4 T cells that provide critical signals to antigen-primed B cells in germinal centers to undergo proliferation, isotype switching, and somatic hypermutation to generate long-lived plasma cells and memory B cells during an immune response. The quantity and quality of Tfh cells therefore must be tightly controlled to prevent immune dysfunction in the form of autoimmunity and, on the other hand, immune deficiency. Both Tfh and B cell perturbations appear during HIV infection resulting in impaired antibody responses to vaccines such as seasonal trivalent influenza vaccine, also seen in biologic aging. Although many of the HIV-associated defects improve with antiretroviral therapy (ART), excess immune activation and antigen-specific B and T cell responses including Tfh function are still impaired in virologically controlled HIV-infected persons on ART. Interestingly, HIV infected individuals experience increased risk of age-associated pathologies. This review will discuss Tfh and B cell dysfunction in HIV infection and highlight the impact of chronic HIV infection and aging on Tfh-B cell interactions.


OBJECTIVE: To assess the association between cytomegalovirus (CMV) IgG antibody levels, HIV disease progression, and immune activation markers. DESIGN: A prospective cohort study was conducted among women enrolled in a trial that was designed to determine the effect of acyclovir on HIV disease progression in Rakai, Uganda. METHODS: The primary endpoints were progression to a CD4 T-cell count less than 250 cells/μl, nontraumatic death, or initiation of antiretroviral therapy (ART). CD4 T-cell counts, HIV viral load, C-reactive protein (CRP), and soluble CD14 levels were assessed biannually for 24 months. CMV IgG antibodies were measured at baseline among all women and annually among a subset of women who initiated ART. RESULTS: There were 300 HIV/CMV-coinfected participants who contributed a total of 426.4 person-years with a median follow-up time of 1.81 years.
Compared with the lowest CMV IgG tertile group at baseline, the highest CMV IgG tertile group was associated with an increased risk to reach a primary endpoint independent of acyclovir use, age, CD4 T-cell count, and HIV viral load at baseline [adjusted hazard ratio = 1.59; (95% CI = 1.05-2.39); P = 0.027]. Among pre-ART visits (n = 1200), women in the highest baseline CMV IgG tertile had increasing annual rates of soluble CD14 and CRP levels, which was not observed for the low CMV IgG tertile group. Compared with pre-ART visits, CMV IgG antibody levels were higher post-ART initiation, and concurrent levels remained associated with soluble CD14 and CRP during suppressive ART (n = 88 person-visits). CONCLUSION: The magnitude of the immune response to CMV was associated with HIV disease progression and immune activation in sub-Saharan Africa.


Among the complex determinants of aging, mitochondrial dysfunction has been in the spotlight for a long time. As the hub for many cellular functions, the maintenance of an adequate pool of functional mitochondria is crucial for tissue homeostasis. Their unique role in energy supply makes these organelles essential, especially in those tissues strictly dependent on oxidative metabolism. Mitochondrial quality control (MQC) is ensured by pathways related to protein folding and degradation as well as by processes involving the entire organelle, such as biogenesis, dynamics, and mitophagy. Dysfunctional MQC, oxidative stress and inflammation are hallmarks of senescence and chronic degenerative diseases. One of the consequences of age-related failing MQC and oxidative stress is the release of mitochondria-derived damage-associated molecular patterns (DAMPs). Through their bacterial ancestry, these molecules contribute to mounting an inflammatory response by interacting with receptors similar to those involved in pathogen-associated responses. Mitochondrial DAMPs, especially cell-free mitochondrial DNA, have recently become the subject of intensive research because of their possible involvement in conditions associated with inflammation, such as aging and degenerative diseases. Here, we review the contribution of mitochondrial DAMPs to inflammation and discuss some of the mechanisms at the basis of their generation.


BACKGROUND: We have previously reported that persons co-infected with HIV and hepatitis C virus (HCV) had liver disease stages similar to HIV-uninfected individuals who were approximately 10 years older. Insulin-like growth factor 1 (IGF-1) levels have long been known to decline with advancing age in humans and non-humans alike. We examined whether HIV infection affects the expected decline in IGF-1 in persons with chronic hepatitis C virus (HCV) infection and if that alteration in IGF-1 decline contributes to the link between HIV, aging, and liver disease progression. METHODS: A total of 553 individuals with HCV infection were studied from the AIDS Linked to the Intravenous Experience (ALIVE) cohort for whom more than 10 years of follow-up was available. Serum IGF-1 levels were determined by ELISA and evaluated according to baseline characteristics and over time by HIV status and liver disease progression. Linear regression with generalized estimating equations was used to determine whether IGF-1 decline over time was independently associated with liver disease progression. RESULTS: Baseline IGF-1 levels were strongly associated with age (P < 0.0001) but not with gender or HIV infection. Levels of IGF-1 declined at a rate of -1.75 ng/mL each year in HCV mono-infected individuals and at a rate of -1.23 ng/mL each year in HIV/HCV co-infected individuals (P < 0.05). In a multivariable linear regression model, progression of liver fibrosis was associated with HIV infection and age, as well as with a slower rate of IGF-1 decline (P = 0.001); however, the rate of IGF-1 decline did not alter the strength of the associations between HIV, liver disease, and age. CONCLUSIONS: The normal decline in IGF-1 levels with age was attenuated in HIV/HCV co-infected individuals compared to those with HCV mono-infection, and slower IGF-1 decline was independently associated with liver disease progression.


Older adults with HIV/AIDS living in rural areas face unique challenges to accessing HIV care and medications, and suffer greater mortality than non-rural HIV-infected individuals. This qualitative study examined the intersection of aging and HIV to identify factors that affect overall health, engagement in care, and medication adherence among this understudied population. Qualitative interviews were conducted by phone with 29 HIV-positive adults over the age of 50 living in U.S. rural counties and analyzed using thematic content analysis. Individuals reported complex medical needs in addition to their HIV and noted difficulty
discerning whether symptoms were associated with HIV or aging. Although reported medication adherence rates were high, participants also cited several barriers to maintaining adherence. Given the increase in rural individuals living with HIV, interventions are needed to address the complex intersection of aging and HIV, especially for those in rural environments.


BACKGROUND: Two biomarkers, the neutrophil to lymphocyte ratio (NLR) and platelet to lymphocyte ratio (PLR), have been shown to be indicative of systemic inflammation and predictive of mortality in general population. We aimed to assess the association of NLR and PLR, with risk of death in HIV-infected subjects when also taking account of HIV-related factors. METHODS: We conducted a multicenter Italian cohort study from 2000 to 2012 including HIV-infected subjects naive at antiretroviral treatment. The associations of NLR and PLR with all-cause mortality were tested by univariate and multivariate analyses using both time independent and dependent Cox proportional hazard models. We also fitted models with a cubic-spline for PLR and NLR to evaluate the possible non-linear relationship between biomarkers values and risk of death. RESULTS: Eight-thousand and two hundred thirty patients (73.1% males) with a mean age of 38.4 years (SD 10.1) were enrolled. During a median follow-up of 3.9 years, 539 patients died. PLR < 100 and > = 200, as compared to PLR of 100-200, and NLR > = 2, as compared to < 2, were associated with risk of death at both univariate and multivariate analyses. Using multivariate models with restricted cubic-splines, we found a linear relationship of increasing risk of death with increasing values for NLR over 1.1, and an U-shape curve for PLR, with higher mortality risk for values higher or lower than 120. CONCLUSIONS: Our data suggest that NLR and PLR can reflect the severity of the underlying systemic disturbance of the inflammatory process and coagulation leading to augmented mortality in HIV positive subjects.


The approach to correlate frailty status with potential biomarkers has been generating increasing interest. However, there is currently no standardised definition or agreed biomarker for frailty. Hence, we conducted a systematic review on biomarkers evaluated in the published literature in relation to existing accepted measurements of frailty. The databases PUBMED, EMBASE, Web of Science and Science Direct were searched systematically for articles published from 2009 until July 2017. We included studies on frailty and associated biomarkers among individuals aged 65 years and older. Articles were reviewed by two reviewers independently. We identified 486 titles with 40 papers retained for final review after removal of duplicates and exclusion after the title, abstract and full-text review stages. Large variations in frailty measures and reported biomarkers were present in the published literature. Twenty-six articles recruited subjects from community-dwelling older individuals and 33 used the Fried’s criteria. Of 11 studies, which evaluated Interleukin-6 (IL-6) against the Fried criteria, nine studies showed significant associations. Nearly all studies evaluating tumour necrosis factor-α, fibrinogen and C-reactive protein against Fried and Rockwood phenotypes showed positive associations. A large number of protein, nutritional, endocrine and genetic markers have been found to be associated with frailty defined with Fried, Rockwood and several other criteria, but only in isolated studies. The identification of potential biomarkers should be conducted with detailed knowledge of potential mechanistic pathways. It is likely that concurrent usage of clinical and biomarkers will be the favoured approach to the identification and management of frailty in the near future.


Sub-Saharan Africa is home to 90% of HIV infected (HIV+) children. Since the advent of antiretroviral therapy (ART), HIV/AIDS has transitioned to a chronic condition where central nervous system (CNS) damage may be ongoing. Although, most guidelines recommend early ART to reduce CNS viral reservoirs, the brain may be more vulnerable to potential neurotoxic effects of ART during the rapid development phase in the first years of life. Here we investigate differences in subcortical volumes between 5-year-old HIV+ children who received early ART (before age 18 months) and uninfected children using manual tracing of Magnetic Resonance Images. Participants included 61 Xhosa children (43 HIV+/18 uninfected, mean age = 5.4 +/- 0.3 years, 25 male) from the children with HIV early antiretroviral (CHER) trial; 27 children initiated ART before 12 weeks of age (ART-Before12Wks) and 16 after 12 weeks (ART-After12Wks). Structural images were acquired on a 3T Allegra MRI in Cape Town and manually traced using

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MultiTracer. Volumetric group differences (HIV+ vs. uninfected; ART-Before12Wks vs. ART-After12Wks) were examined for the caudate, nucleus accumbens (NA), putamen (Pu), globus pallidus (GP), and corpus callosum (CC), as well as associations within infected children of structure volumes with age at ART initiation and CD4/CD8 as a proxy for immune health. HIV+ children had significantly larger NA and Pu volumes bilaterally and left GP volumes than controls, whilst CC was smaller. Bilateral Pu was larger in both treatment groups compared to controls, while left GP and bilateral NA were enlarged only in ART-After12Wks children. CC was smaller in both treatment groups compared to controls, and smaller in ART-After12Wks compared to ART-Before12Wks. Within infected children, delayed ART initiation was associated with larger Pu volumes, effects that remained significant when controlling for sex and duration of treatment interruption (left beta = 0.447, p = 0.005; right beta = 0.325, p = 0.051), and lower CD4/CD8 with larger caudates controlling for sex (left beta = -0.471, p = 0.002; right beta = -0.440, p = 0.003). Volumetric differences were greater in children who initiated ART after 12 weeks. Results suggest damage is ongoing despite early ART and viral load suppression; however, earlier treatment is neuroprotective.


Among younger men who have sex with men (MSM), the incidence of HIV is rising nationally. Of the 281 persons who entered into care at a large HIV clinic in the southeastern United States in 2010 to 2012, 78 (27.8%) were <25 years old at the time of diagnosis. Those in the younger group were more likely than those aged >/=25 to be black (59.0% versus 37.4%), MSM (78.2% versus 55.2%), and to have a longer median time from diagnosis to entry into care (71 versus 53 days; P < .05 each). In adjusted survival analysis, persons of black race were less likely to enter care after diagnosis than those of nonblack race (hazard ratio = 0.75, P = .02). Young MSM represent an important target population for prevention and HIV testing interventions, and there is a need to shorten the time from diagnosis to linkage to care, particularly in persons aged <25 and of black race.


Psychological stress is a known immunomodulator. In individuals with HIV, depression, the most common manifestation of increased psychological stress, can affect immune function with lower CD4+ T cell counts correlating with higher levels of depression. It is unknown how other forms of psychological stress can impact immune markers in people living with HIV. We conducted a cross-sectional study to determine how CD4+ T cell subpopulations correlated with different forms of psychological stress. We recruited 50 HIV-positive women as part of the Women's Interagency HIV Study. We assessed perceived stress, worry, acute anxiety, trait anxiety, and depression through self-report questionnaires and CD4+ T cell subpopulations using flow cytometry. Our sample was 96% African-American with a mean +/- SD age and body mass index of 42 +/- 8.8 years and 36.6 +/- 11.5 kg/m(2), respectively. The mean +/- SD scores on the psychological measures were as follows: Perceived Stress Scale (PSS), 16.5 +/- 6.4; Penn State Worry Questionnaire (PSWQ), 47.7 +/- 13.8; State-Trait Anxiety Inventory - State (STAIS), 39.1 +/- 12.3; State-Trait Anxiety Inventory - Trait (STAIT), 40.2 +/- 11.4; Center for Epidemiological Studies Depression Scale (CES-D), 15.6 +/- 11.4. The mean +/- SD values for the immune parameters were as follows: regulatory T cells (Treg), 1.25% +/- 0.7; T helper 1 (Th1), 14.9% +/- 6.1; T helper 2 (Th2), 3.8% +/- 2; Th1/Th2 ratio, 4.6 +/- 3; and CD4+ T cell count (cells/mm(3)), 493 +/- 251. Treg levels positively correlated with PSS, STAIS, and STAIT. CD4+ T cell count negatively correlated with PSS, PSWQ, STAIS, STAIT, and CES-D. These data suggest that immune function may be impacted by various forms of psychological stress in HIV-positive women. Interventions that target stress reduction may be useful in improving immune parameters and quality of life.


Combination antiretroviral therapies (cART) can lead to normal life expectancy in HIV-infected persons, and people aged >50 yrs represent the fastest growing HIV group. Although HIV and aging are independently associated with impaired humoral immunity, immune status in people aging with HIV is relatively unexplored. In this study influenza vaccination was used to probe age associated perturbations in the B cell compartment of HIV-negative "healthy controls" (HC) and virologically controlled HIV-infected participants on cART (HIV) (n=124), grouped by age as young (<40 yrs), middle-aged (40-59yrs) or old (>60 yrs). H1N1 antibody
response at d21 post-vaccination correlated inversely with age in both HC and HIV. Immunophenotyping of cryopreserved PBMC demonstrated increased frequencies of double negative B cells and decreased plasmablasts in old compared to young HC. Remarkably, young HIV were different from young HC but similar to old HC in B cell phenotype, influenza specific spontaneous (d7) or memory (d21) antibody secreting cells. We conclude that B cell immune senescence is a prominent phenomenon in young HIV in comparison to young HC, but distinctions between old HIV and old HC are less evident though both groups manifest age-associated B cell dysfunction.


People living with HIV (PLWH) who are treated with effective highly active antiretroviral therapy (HAART) have a similar life expectancy to the general population. Moreover, an increasing proportion of new HIV diagnoses are made in people older than 50 y. The number of older HIV-infected patients is thus constantly growing and it is expected that by 2030 around 70% of PLWH will be more than 50 y old. On the other hand, HIV infection itself is responsible for accelerated immunosenescence, a progressive decline of immune system function in both the adaptive and the innate arm, which impairs the ability of an individual to respond to infections and to give rise to long-term immunity; furthermore, older patients tend to have a worse immunological response to HAART. In this review we focus on the pathogenesis of HIV-induced immunosenescence and on the clinical management of older HIV-infected patients.


: The last decade has seen a dramatic change in the demographic structure of the population of people living with HIV (PLWH). The majority of PLWH who start treatment with combination antiretroviral therapy now have good virological and immunological responses and this has resulted in improvements in life expectancy. In addition, there have also been continued new HIV diagnoses (and new HIV infections) in those aged more than 50 years. The average age of those attending HIV clinics has therefore increased, with this trend expected to continue into the future. As the cohort of PLWH has aged, so the spectrum and burden of age-associated noncommunicable comorbidities (AANCCs) in the cohort has increased. PLWH are likely, therefore, to have increased healthcare needs for the foreseeable future. Although it appears that the average age at diagnosis of several AANCC is lower in PLWH, current evidence remains insufficient to demonstrate that HIV infection leads to either accelerated or accentuated aging. The results from several well designed longitudinal cohorts, with appropriately matched control groups, will provide more robust evidence to confirm a potential impact of HIV on the incidence of these AANCC. However, regardless of the impact of HIV itself, the role of other, non-HIV, factors is becoming increasingly important, with coinfection with other viral infections and lifestyle factors playing an increasing role in the development of many AANCC. It is likely that attempts to reduce smoking prevalence and obesity may be associated with important reductions in the incidence of some of these events in the future.


A new study employs genome-wide loss-of-function CRISPR/Cas9 screening to identify three novel factors for HIV-1 entry. The factors represent promising targets for therapeutics as they are essential for HIV-1 infection, but dispensable for cell survival. The involved pathways were validated in primary CD4(+) T cells, target cells for HIV-1.


BACKGROUND: Concentrations of tenofovir (TFV) in hair and tenofovir diphosphate (TFV-DP) in dried blood spots (DBSs) as measures of cumulative exposure have been primarily studied in younger, HIV-uninfected individuals taking preexposure HIV prophylaxis. Data on these measures among older HIV-infected individuals are limited. METHODS: We evaluated longitudinal TFV and TFV-DP concentrations in hair and DBS, respectively, from HIV-infected adults. Multivariable model variables included age group (18-35 and 60 years and older), creatinine clearance (CrCl), hematocrit (TFV-DP), and gray hair color (TFV). RESULTS: Baseline hair TFV and DBS TFV-DP were moderately correlated \( r = 0.5 \) (0.2 to 0.7); \( P = 0.001 \) across both age groups [younger (N = 23) and older
In adjusted models, CrCl was associated with increases of 15.9% (7.4% to 25.0%); P = 0.0006, and 5.7% (-0.2% to 11.9%); P = 0.057 for TFV in hair and TFV-DP in DBS, respectively, for every 20-ml/min CrCl decrease. Although older age (versus younger age) was univariately associated with increased TFV hair levels, older age was not significantly associated with higher concentrations in hair [-1.4% (-26.7% to 32.7%); P = 0.93] or DBS [4.0% (-14.1% to 25.9%); P = 0.68] after adjustment. Similarly, gray color was not significantly associated with higher TFV levels in hair [27.6% (-11.1% to 83.0%; P = 0.18)] in adjusted models. In both adjusted and unadjusted models of TFV-DP levels in DBS, a 1% hematocrit increase was associated with a 3.3% (0.2% to 6.5%) TFV-DP increase (P = 0.04).

CONCLUSIONS: Cumulative drug exposure measures (hair and DBS) were comparable in younger and older HIV-infected individuals on TFV-based therapy after adjustment for renal function.


Cardiovascular disease (CVD) is a major comorbidity among HIV-infected individuals. Common carotid artery intima-media thickness (cCIMT) is a valid and reliable subclinical measure of atherosclerosis and is known to predict CVD. We performed genome-wide association (GWA) and admixture analysis among 682 HIV-positive and 288 HIV-negative Black, non-Hispanic women from the Women's Interagency HIV study (WIHS) cohort using a combined and stratified analysis approach. We found some suggestive associations but none of the SNPs reached genome-wide statistical significance in our GWA analysis. The top GWAS SNPs were rs2280828 in the region intergenic to mediator complex subunit 30 and exostosin glycosyltransferase 1 (MED30 | EXT1) among all women, rs2907092 in the catenin delta 2 (CTNND2) gene among HIV-positive women, and rs7529733 in the region intergenic to family with sequence similarity 5, member C and regulator of G-protein signaling 18 (FAM5C | RGS18) genes among HIV-negative women. The most significant local European ancestry associations were in the region intergenic to the zinc finger and SCAN domain containing 5D gene and NADH:ubiquinone oxidoreductase complex assembly factor 1 (ZSCAN5D | NDUF1) pseudogene on chromosome 19 among all women, in the region intergenic to vomeronasal 1 receptor 6 pseudogene and zinc finger protein 845 (VN1R6P | ZNF845) gene on chromosome 19 among HIV-positive women, and in the region intergenic to the SEC23-interacting protein and phosphatidic acid phosphatase type 2 domain containing 1A (SEC23IP PPAPDC1A) genes located on chromosome 10 among HIV-negative women. A number of previously identified SNP associations with cCIMT were also observed and included rs2572204 in the ryanodine receptor 3 (RYR3) and an admixture region in the secretion-regulating guanine nucleotide exchange factor (SEREGF) gene. We report several SNPs and gene regions in the GWAS and admixture analysis, some of which are common across HIV-positive and HIV-negative women as demonstrated using meta-analysis, and also across the two analytic approaches (i.e., GWA and admixture). These findings suggest that local European ancestry plays an important role in genetic associations of cCIMT among black women from WIHS along with other environmental factors that are related to CVD and may also be triggered by HIV. These findings warrant confirmation in independent samples.


OBJECTIVE: The number of people living with HIV (PLWH) over 50 years old in sub-Saharan Africa is predicted to triple in the coming decades, to 6-10 million. Yet, there is a paucity of data on the determinants of health and quality of life for older PLWH in the region.

METHODS: A review was undertaken to describe the impact of HIV infection on aging for PLWH in sub-Saharan Africa.

RESULTS: We (a) summarize the pathophysiology and epidemiology of aging with HIV in resource-rich settings, and (b) describe how these relationships might differ in sub-Saharan Africa, (c) propose a conceptual framework to describe determinants of quality of life for older PLWH, and (d) suggest priority research areas needed to ensure long-term gains in quality of life for PLWH in the region.

CONCLUSIONS: Differences in traditional, lifestyle, and environmental risk factors, as well as unique features of HIV epidemiology and care delivery appear to substantially alter the contribution of HIV to aging in sub-Saharan Africa. Meanwhile, unique preferences and conceptualizations of quality of life will require novel measurement and intervention tools. An expanded research and public health infrastructure is needed to ensure that gains made in HIV prevention and treatment are translated into long-term benefits in this region.

Systemic immune activation has emerged as an essential component of the immunopathogenesis of HIV. It not only leads to faster disease progression, but also to accelerated decline of overall immune competence. HIV-associated immune activation is characterized by an increase in proinflammatory mediators, dysfunctional T regulatory cells, and a pattern of T-cell-senescent phenotypes similar to those seen in the elderly. These changes predispose HIV-infected persons to comorbid conditions that have been linked to immunosenescence and inflamm-ageing, such as atherosclerosis and cardiovascular disease, neurodegeneration, and cancer. In the antiretroviral treatment era, development of such non-AIDS-defining, age-related comorbidities is a major cause of morbidity and mortality. Treatment strategies aimed at curtailing persistent immune activation and inflammation may help prevent the development of these conditions. At present, the most effective strategy appears to be early antiretroviral treatment initiation. No other treatment interventions have been found effective in large-scale clinical trials, and no adjunctive treatment is currently recommended in international HIV treatment guidelines. This article reviews the role of systemic immune activation in the immunopathogenesis of HIV infection, its causes and the clinical implications linked to immunosenescence in adults, and the therapeutic interventions that have been investigated.


BACKGROUND: HIV+ patients on highly active antiretroviral therapy (HAART) with suppressed viral loads have a low incidence of HIV-associated dementia, but increased prevalence of milder forms of HIV-associated neurocognitive disorders (HAND). These milder forms of HAND are often associated with minimal histological abnormalities, and their pathophysiology is unclear. Comorbidities, altered amyloid metabolism, accelerated brain aging, and activated interferon responses are suspected to play a role in HAND pathogenesis in HAART-treated persons. METHODS: To investigate associations between liver disease, accelerated brain aging, and HAND in HIV+ patients in the late HAART era (2002-2015), we studied liver and brain autopsy tissues from 53 older subjects evaluated at UCLA and BWH using histopathological stains, a sensitive fluorescent amyloid stain (AmyloGlo), and targeted gene expression profiling (NanoString). RESULTS: The majority of HIV+ subjects (median age 56) were on HAART (89.3%) with last pre-mortem plasma viral load <400 copies/mL (81.5%); 50% had CD4+ counts <200 cells/μL. Compared to HIV- controls (median age 65), HIV+ subjects had more cancer (p = 0.04), illicit drug use (p <0.00001), and HCV co-infection (p = 0.002), less cardiovascular disease (p = 0.03), and similar prevalence of cerebrovascular disease (~40%), hypertension, hyperlipidemia, and diabetes. Deep frontal white matter showed increased gliosis in HIV+ subjects vs. HIV- controls (p = 0.09), but no significant differences in myelin loss, blood vessel thickening, or inflammation. Liver showed more severe fibrosis/cirrhosis (p = 0.02) and less steatosis (p = 0.03) in HIV+ subjects, but no significant differences in inflammation, blood vessel thickness, or pigment deposition. There were no significant associations between liver and brain pathologies. AmyloGlo staining detected large amyloid deposits in only one HIV+ case (age 69 with Alzheimer’s disease pathology) and two HIV- controls (ages 66 and 74). White matter from HIV+ cases vs. HIV-seronegative controls showed a trend (p = 0.06) towards increased interferon response gene expression (ISG15, MX1, IFIT1, IFIT2, and IFITM1). CONCLUSIONS: Gliosis and cerebrovascular disease, but not accelerated amyloid deposition, are common brain pathologies among older HIV+ patients in the late HAART era. Although HIV+ subjects had more cirrhosis, liver pathology was not associated with any consistent pattern of brain pathology. Cerebrovascular disease, interferon responses, and neuroinflammation are likely factors contributing to brain aging and HAND in older HIV+ patients on current HAART regimens.


The huge success of current antiretroviral therapy is mediated by a triple effect: (i) Halting progression to AIDS in infected persons; (ii) reducing the risk of transmission to contacts (treatment as prevention); and (iii) minimizing the risk of HIV acquisition treating uninfected persons at risk (pre-exposure prophylaxis). However, UNAIDS has estimated that only 70% of infected people globally are diagnosed, only 53% are treated, and overall 44% have undetectable viral load, which is the necessary request for ensuring any antiretroviral benefit. Thus, with 37 million people currently living with HIV worldwide and more than 2 million new infections per year, the prospects for global HIV eradication are far on the horizon. Over the past couple of years, rapid development has been seen for technologies enabling modification of gene expression, either by direct inhibition by RNA interference (RNAi) or by genomic modification at DNA level. In particular, genome-editing endonucleases have significantly improved our ability to make precise changes in the DNA of eukaryotic cells. Notably, firstgeneration genome-editing technologies (i.e., ZFNs and TALENs) have been replaced by clustered regularly interspaced short palindromic repeats (CRISPR/Cas9), which work with a short guide RNA (gRNA) to hybridize to a target DNA site and recruit the Cas9 endonuclease. Once integrated into the host genome, HIV gene
expression is regulated by the LTR promoter. Hypothetically, gene editing of the HIV promoter might have the potential to deactivate viral transcription by the introduction of mutations or fragment excision. HIV gene therapy progressed very slowly until recent breakthroughs in gene-editing methods using CRISPR/Cas9 (Liao et al. Nat Commun 2015;6:6413). Using a shorter version of the Cas9 endonuclease ensemble into an adeno-viral vector, critical segments of thAA/qle viral DNA genome spanning between the LTR and gag regions were successfully removed in HIV transgenic mice. Excision was confirmed in all examined tissues as well as in circulating lymphocytes and resulted in a drastic reduction of HIV-RNA (Kaminski et al. Gene Ther 2016;23:690-5). Moreover, using latently infected CD4+ T lymphocytes from HIV-infected persons, lentiviral-delivered CRISPR/Cas9 precisely removed the entire HIV genome spanning between the 50 and 30 LTRs of integrated HIV proviral DNA (Kaminski et al., Sci Rep 2016;6:22555), providing a proof of concept of the high potential of genome-editing technologies. Before moving to the clinic, the CRISPR/Cas9 technology must solve several major issues in the HIV scenario. First, generation of resistance is a major concern. Mutations may occur surrounding the targeted site and result in the selection of strains that are no longer recognized nor cleaved by CRISPR (Badia et al. Curr Opin Virol 2017;24:46-54). The efficacy of the anti-HIV CRISPR/Cas9 strategy is highly dependent on the gRNA sequence, yet some mutant viral strains show poor or no cleavage at all. Higher CRISPR/Cas9 pressure could delay but not eliminate viral replication when using a combination of distinct gRNAs targeting distinct HIV proviral genes. In this case, although the reading frame may remain unaltered, an accumulation of insertions and/or deletions may occur in the target sequence, rendering new viral strains insensitive to CRISPR/Cas9 cleavage. Finally, double-strand breaks resulting from CRISPR/Cas9 activity and subsequent cellular non-homologous end joining machinery may introduce mutations in sequences that are no longer recognized by the gRNA, and therefore not susceptible to Cas9 cleavage. A second consideration is a need for developing safe and effective mechanisms of delivery. Adenoviral vectors have long been in gene therapy and represent an ideal viral vector for transduction at different tissues. However, the packaging size of adenoviral vectors is a limiting factor, especially for CRISPR/Cas9. Third, HIV has a genome of about 10 kb while a gRNA generally only targets 20 bp of the DNA molecule, which means that there are thousands available targeting sites for the provirus in latently infected cells. To date, there is no platform established solely for gRNA candidate evaluation in HIV provirus eradication. A final consideration is an access to all tissues and cells potentially harboring the HIV provirus, including reservoirs as the central nervous system. In this regard, efforts are being focused in the development of Cas9/gRNA nanoparticle formulations. To overcome these problems, a group in Florida recently developed human transgenic cells that may be used for gene-editing studies and as platform for high-throughput screen of HIV provirus disrupters (Huang et al. Sci Rep 2017;7:5955). Of note, Cas9 protein instead of a Cas9 plasmid was used. Compared to a plasmid introduction, Cas9 protein agents could be easily quantitatively applied and standardized, mimicking better real clinic scenarios. In summary, RNAi-based technologies have widely dominated gene therapy research during the past decade, with overall slow progress. However, the advent of new gene-editing technologies, and especially the CRISPR/Cas9 system, has revolutionized the field. In the HIV context, CRISPR/Cas9 applications might go further than those of RNAi, for example, enabling excision of segments of integrated proviral DNA from latently infected cells and allowing complete provirus elimination, or it may be used to reverse HIV latency. Although important challenges still need to be overcome, a promising pathway to HIV cure seems to have been found.


This introduction serves to foreground current patterns associated with HIV and aging, globally. We highlight key trends by World Health Organization sub-region, and identify gaps in existing knowledge. HIV and aging is insufficiently documented, as prevalence data for those over age 49 have not generally been captured by many countries, or by UNAIDS. Despite limited data and data systems, several dominant trends among adults aged 50 and older are discernible, including: growing HIV risk and prevalence is increasingly evident among maturing adults, worldwide; older individuals at risk of or living with HIV, and their health providers, fail to recognize risk and symptoms, leading to disease progression and delayed treatment. Cross-sectoral strategies will be needed to mount responses; public health campaigns will be essential in educating and informing individuals about HIV risk, prevention and care; and special efforts to tailor interventions to key populations most vulnerable or stigmatized in countries will be critical.


Inflammation occurs after HIV infection and persists, despite highly active antiretroviral therapy (HAART). Diffusion tensor imaging (DTI) measures HIV-associated white matter changes, but can be confounded by inflammation. Currently, the influence of
inflammation on white matter integrity in well-controlled HIV+ patients remains unknown. We used diffusion basis spectral imaging (DBSI)-derived cellularity to isolate restricted water diffusion associated with inflammation separated from the anisotropic diffusion associated with axonal integrity. Ninety-two virologically suppressed HIV+ patients on HAART and 66 HIV uninfected (HIV-) controls underwent neuropsychological performance (NP) testing and neuroimaging. NP tests assessed multiple domains (memory, psychomotor speed, and executive functioning). DTI- and DBSI-derived fractional anisotropy (FA) maps were processed with tract-based spatial statistics for comparison between both groups. Cellularity was assessed regarding age, HIV status, and NP. Within the HIV+ cohort, cellularity was compared with clinical (HAART duration) and laboratory measures of disease (eg, CD4 cell current and nadir). NP was similar for both groups. DTI-derived FA was lower in HIV+ compared with HIV- individuals. By contrast, DBSI-derived FA was similar for both groups. Instead, diffuse increases in cellularity were present in HIV+ individuals. Observed changes in cellularity were significantly associated with age, but not NP, in HIV+ individuals. A trend level association was seen between cellularity and HAART duration. Elevated inflammation, measured by cellularity, persists in virologically well-controlled HIV+ individuals. Widespread cellularity changes occur in younger HIV+ individuals and diminish with aging and duration of HAART.


The lung microbiome plays a significant role in normal lung function and disease. Because microbial colonization is likely influenced by immunodeficiency, one would speculate that infection with human immunodeficiency virus (HIV) alters the lung microbiome. Furthermore, how this alteration might impact pulmonary complications now seen in HIV-infected patients on antiretroviral therapy (ART), which has shifted from opportunistic infections to diseases associated with chronic inflammation, is not known. There have been limited publications on the lung microbiome in HIV infection, many of them emanating from the Lung HIV Microbiome Project. Current evidence suggests that the lung microbiome in healthy HIV-infected individuals with preserved CD4 counts is similar to uninfected individuals. However, in individuals with more advanced disease, there is an altered alveolar microbiome characterized by a loss of richness and evenness (alpha diversity) within individuals. Furthermore, as a group the taxa making up the HIV-infected and uninfected lung microbiome are different (differences in beta diversity), and the HIV-infected population is more spread out (greater dispersion) than the uninfected population. These differences decline with ART, but even after effective therapy the alveolar microbiome in HIV-infected individuals contains increased amounts of signature bacteria, some of which have previously been associated with chronic lung inflammation. Furthermore, more recent investigations into the lung virome in HIV infection suggest that perturbations in lung viral communities also exist in HIV infection, and that these too are associated with evidence of lung inflammation. Thus, it is likely both microbiome and virome alterations in HIV infection contribute to lung inflammation in these individuals, which has important implications on the changing spectrum of pulmonary complications in patients living with HIV.


Persons living with HIV (PLWH) have accentuated risks for age-associated comorbidities. Compared to the general population, PLWH have a 2-fold higher risk of cardiovascular disease, a 3-fold increased risk of fracture, and a risk of kidney disease that is comparable to that in diabetes. Some comorbidities may present at younger ages than among the general population, suggesting the possibility of accelerated aging with HIV infection.


Disruption of mitochondria axonal transport, essential for the maintenance of synaptic and neuronal integrity and function, has been identified in neurodegenerative diseases. Whether HIV-1 viral proteins affect mitochondria axonal transport is unknown, albeit HIV-associated neurocognitive disorders occur in around half of the patients living with HIV. Therefore, we sought to examine the effect of HIV-1 viral protein R (Vpr) on mitochondria axonal transport. Using mice primary neuronal cultures, we demonstrated that 4-day Vpr treatment reduced the ratio of moving mitochondria associated with (i) less energy (ATP) supply, (ii) reduction in Miro-1 and (iii) increase of alpha-synuclein which led to loss of microtubule stability as demonstrated by inconsecutive distribution of acetylated alpha-tubulin along the axons. Interestingly, the effect of Vpr on mitochondria axonal transport was partially restored.
in the presence of bongkrekic acid, a compound that negatively affected the Vpr-adenine nucleotide translocator (ANT) interaction and totally restored the ATP level in neurons. This indicated Vpr impaired mitochondria axonal transport partially related to its interaction with ANT. The above effect of Vpr was similar to the data obtained from hippocampal tissues isolated from 18-month-old aging mice compared to 5-month-old mice. In accord with previous clinical findings that HIV infection prematurely ages the brain and increases the susceptibility to HAND, we found that Vpr induced aging markers in neurons. Thus, we concluded that instead of causing cell death, low concentration of HIV-1 Vpr altered neuronal function related with inhibition of mitochondria axonal transport which might contribute to the accelerated neuronal aging.


After the start of antiretroviral therapy (ART), plasma HIV-RNA levels should fall below the limit of detection (LOD) within 24 weeks. Hence, the prolonged decline of HIV-RNA after ART initiation is defined as persistent viremia (PV). In this retrospective study, we analyzed factors associated with PV. Next-generation sequencing of viral RNA/DNA was performed to study viral evolution and the emergence of drug-resistance mutations in HIV-infected patients with PV (n = 20). In addition, HIV-DNA species, immunological parameters, and clinical data of the patients were analyzed. We found that the possible causes for PV were diverse, and both virologic and host parameters of this particular cohort were heterogeneous. We identified viruses with therapy-associated DRMs in six patients (30%); two of these were detected as minority variants. Five patients had sub-optimal drug levels (25%) and the baseline plasma viral loads were relatively high. Strikingly, we observed that >40% of the PV patients finally reaching HIV levels below the LOD later on showed up with episodes of low-level viremia (LLV). However, the amount of PBMC derived HIV-DNA species was not correlated with the likelihood of LLV after PV. According to our data, we conclude that drug-resistant viruses, sub-optimal drug level, and high baseline viral loads might be probable reasons for the prolonged RNA decline only in a sub-set of patients. In the absence of emerging DRMs and/or compliance issues, the clinical implications of PV remain unclear; however, PV appears to be a risk factor for episodes of LLV.


Women living with HIV may present with high levels of body fat that are associated with altered bioenergetic function. Excess body fat may therefore exacerbate the bioenergetic dysfunction observed with HIV infection. To determine if body fat is associated with bioenergetic function in HIV, we conducted a cross-sectional study of 42 women with HIV who were virologically suppressed on antiretroviral therapy. Body composition was determined via dual-energy x-ray absorptiometry. Oxygen consumption rate (OCR) of monocytes was sorted from peripheral blood mononuclear cells obtained from participants in the fasting state. Differences in bioenergetic function, as measured by OCR, were assessed using Kruskal-Wallis tests and Spearman correlations adjusted for age, race, and smoking status. Participants were 86% Black, 45.5 years old, 48% current smokers, and 57% were obese (body mass index >/=30). Nearly all women (93%) had >30% total fat mass, while 12% had >50% total fat mass. Elevated levels of total fat mass, trunk fat, and leg fat were inversely correlated with measures of bioenergetic health as evidenced by lower maximal and reserve capacity OCR, and Bioenergetic Health Index. Measures of extracellular acidification (ECAR) in the absence (basal) or maximal (with oligomycin) were positively correlated with measures of bioenergetics, except proton leak, and were negatively correlated with fat mass. Despite virological suppression, women with HIV present with extremely high levels of adiposity that correlate with impaired bioenergetic health. Without effective interventions, this syndrome of HIV infection and obesity will likely have devastating consequences for our patients, potentially mediated through altered mitochondrial and glycolytic function.


Impairments in working memory are among the most prevalent features of HIV-associated neurocognitive disorders (HAND), yet their origins are unknown, with some studies arguing that encoding operations are disturbed and others supporting deficits in memory maintenance. The current investigation directly addresses this issue by using a dynamic mapping approach to identify when and where processing in working memory circuits degrades. HIV-infected older adults and a demographically-matched
group of uninfected controls performed a verbal working memory task during magnetoencephalography (MEG). Significant oscillatory neural responses were imaged using a beamforming approach to illuminate the spatiotemporal dynamics of neuronal activity. HIV-infected patients were significantly less accurate on the working memory task and their neuronal dynamics indicated that encoding operations were preserved, while memory maintenance processes were abnormal. Specifically, no group differences were detected during the encoding period, yet dysfunction in occipital, fronto-temporal, hippocampal, and cerebellar cortices emerged during memory maintenance. In addition, task performance in the controls covaried with occipital alpha synchronization and activity in right prefrontal cortices. In conclusion, working memory impairments are common and significantly impact the daily functioning and independence of HIV-infected patients. These impairments likely reflect deficits in the maintenance of memory representations, not failures to adequately encode stimuli.


Background: Anemia in women of reproductive age (WRA) (age range: 15-49 y) remains a public health problem globally, and reducing anemia in women by 50% by 2025 is a goal of the World Health Assembly.

Objective: We assessed the associations between anemia and multiple proximal risk factors (e.g., iron and vitamin A deficiencies, inflammation, malaria, and body mass index) and distal risk factors (e.g., education status, household sanitation and hygiene, and urban or rural residence) in nonpregnant WRA.

Design: Cross-sectional, nationally representative data from 10 surveys (n = 27,018) from the Biomarkers Reflecting Inflammation and Nutritional Determinants of Anemia (BRINDA) project were analyzed individually and pooled by the infection burden and risk in the country. We examined the severity of anemia and measured the bivariate associations between anemia and factors at the country level and by infection burden, which we classified with the use of the national prevalences of malaria, HIV, schistosomiasis, sanitation, and water-quality indicators. Pooled multivariate logistic regression models were constructed for each infection-burden category to identify independent determinants of anemia (hemoglobin concentration <120 g/L).

Results: Anemia prevalence was approximately 40% in countries with a high infection burden and 12% and 7% in countries with moderate and low infection burdens, respectively. Iron deficiency was consistently associated with anemia in multivariate models, but the proportion of anemic women who were iron deficient was considerably lower in the high-infection group (35%) than in the moderate- and low-infection groups (65% and 71%, respectively). In the multivariate analysis, inflammation, vitamin A insufficiency, socioeconomic status, and age were also significantly associated with anemia, but malaria and vitamin B-12 and folate deficiencies were not.

Conclusions: The contribution of iron deficiency to anemia varies according to a country's infection burden. Anemia-reduction programs for WRA can be improved by considering the underlying infection burden of the population and by assessing the overlap of micronutrient deficiencies and anemia.


An age-structured within-host virus infection model with both virus-to-cell and cell-to-cell infection and antiretroviral therapy is investigated. The global stability analysis of the model is carried out in terms of the basic reproduction number $R_0$ by constructing Lyapunov functionals. If $R_0 \leq 1$, the infection-free steady state is globally asymptotically stable; if $R_0 > 1$, the infection steady state is globally asymptotically stable. The influence of drug therapy on cell-to-cell infection is discussed, which shows that cell-to-cell infection is important for the final outcome of the HIV virus infection and blocking cell-to-cell infection can effectively suppress the HIV virus spread. Moreover, numerical simulations are performed to study the dynamical behavior of solutions of the models. The results show that both the viral production rate and the death rate of infected cells play an important role in the viral dynamics of the model. [ABSTRACT FROM AUTHOR]


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/mm(3) (χ² [1] = 19.57, p < .001); hypocalcemia (χ² [1] = 17.55, p < .001); and CKD 4-5 (χ² [2] = 10.12, p = .006). Black and Hispanic participants were more likely to be anemic compared to other races and ethnicities (χ² [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.

**GERIATRICS – FRAILTY – POLYPHARMACY**

(2017). "Grip strength--a health indicator--falls faster in older men with HIV than without HIV." HIV Treatment ALERTS!: 14. The article discusses a study which compares the grip strength to measure the physical ability of older men with HIV-infection with those without infection.


OBJECTIVE: To present the current knowledge on physical function, grip strength and frailty in HIV-infected patients living in sub-Saharan Africa, where the phenomenon is largely underestimated. METHODS: A systematic search was conducted on MEDLINE, Scopus and African Index Medicus. We reviewed articles on sub-Saharan African people living with HIV (PLHIV) >18 years old, published until November 2016. RESULTS: Of 537 articles, 12 were conducted in six African countries and included in this review. Five articles reported information on functional limitation and one on disability. Two of these five articles reported functional limitation (low gait speed) in PLHIV. Disability was observed in 27% and 3% of PLHIV living in rural and urban places, respectively. Two of three studies reporting grip strength reported lower grip strength (nearly 4 kg) in PLHIV in comparison with uninfected patients. One study reported that PLHIV were more likely to be frail than HIV-uninfected individuals (19.4% vs. 13.3%), whereas another reported no statistical difference. CONCLUSION: Decline in physical function, grip strength and frailty are now part of the burden of PLHIV living in SSA countries, but current data are insufficient to characterise the real public health dimension of these impairments. Further studies are needed to depict this major public health challenge. As this is likely to contribute to a significant burden on the African healthcare systems and human resources in the near future, a holistic care approach should be developed to inform guidelines.


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Background and Objectives: HIV patients have seen accelerated ageing. Our objective was to determine the prevalence of frailty, to evaluate factors associated with frailty and to evaluate physical function in older HIV-infected adults. Design: this was a cross-sectional study. Setting: outpatient clinics of two public university hospitals in Madrid (Spain). Methods: frailty was defined according to the criteria of Fried: shrinking, weakness, poor endurance and energy, slowness and low physical activity level, being frail those who met at least three criteria, prefrail one or two criteria and robust when they met no criteria. Physical function was assessed using standardised methods. Results: we evaluated 117 HIV-infected patients. Mean age was 61.3 (standard deviation) 6.87) years. All patients were on antiretroviral therapy. Median current CD4+ T-cell count was 638 (144-1871) cells/mul, and median CD4/CD8 ratio was 0.79 (0.00-3.62). The prevalence of frailty was 15.4%, and that of prefrailty was 52.1%. In the multivariate analyses depressive symptoms (OR [95% CI], 9.20 [2.17-39.05]) and CD4/CD8 ratio (OR 0.11 [0.02-0.61]) were associated with frailty. Even though 100% of the patients were able to walk and perform basic activities of daily life independently, functional impairment was high (20% slow gait and 55% Short Physical Performance Battery</<9). Conclusions: HIV-infected patients aged >/=55 years have a high prevalence of frailty and a high burden of functional impairment. Optimal management of this population requires close collaboration between infectious diseases specialists and geriatricians.


OBJECTIVE: The study aims to assess the association between bone mineral density (BMD) and frailty in a cohort of HIV-infected patients. DESIGN: A cross-sectional study in an HIV outpatient unit where nearly 1000 patients are monitored. METHODS: Study participants undergoing bone densitometry were proposed an evaluation of frailty using criteria of the Cardiovascular Health Study (CHS) and the Study of Osteoporotic Fractures (SOF). Frailty markers were weight-loss, self-reported exhaustion, physical activity, grip strength, chair stands, and slow gait. Patients’ characteristics were collected from an electronic medical record. Associations of frailty with BMD and osteoporosis were tested using multivariate linear and logit regression models, respectively. RESULTS: In total, 175 HIV-infected patients, 121 (69.14%) men, were analyzed. Prevalence of frailty markers, osteopenia, and osteoporosis were comparable among sexes. Despite a younger age, spinal and femoral neck BMD were lower in women (P < 0.05). Linear regression model adjusting by age, duration of HIV follow-up, BMI, smoking status, osteoarthritis, osteoporosis treatment, and the age at menopause showed a negative association of spinal and femoral BMD with frailty according to SOF criteria in women (P < 0.05). In men, SOF-defined frailty was associated with osteoporosis (odds ratio 28.79; 95% confidence interval 2.15-386.4) in a model adjusting for age, duration of HIV follow-up, CD4 nadir, CD4 T-cell count, tobacco consumption, exposure to tenofovir (TDF) and protease inhibitors. No significant associations were found between BMD and CHS-defined frailty. CONCLUSION: Our study shows that frailty according to SOF criteria is associated with low spinal BMD values in female and osteoporosis in male HIV-infected patients.


Adults remain sexually active well into later life, but few report discussing sexual health with a physician after age 50. The authors explored how geriatrics education might better address sexual health in the context of a psychosocial conference for geriatrics fellows, program directors, and faculty comprising an informational plenary, which included a skills-building presentation on taking sexual histories, and a program director/faculty roundtable. Although informed about older adult sexual health, knowledge scores of geriatrics fellows increased following the plenary. Fellows reported inconsistent sexual history taking with older adults and noted patient differences in age and gender as barriers. The roundtable discussion highlighted several barriers to inclusion of sexual health content in geriatrics curricula including competing competencies, lack of educational materials, and discomfort with this topic on the part of faculty. Implications of these findings for geriatrics training and education programs and suggestions for improving this domain of geriatrics education are discussed.

INTRODUCTION: Use of complementary and alternative medicines (CAMs) and over-the-counter (OTC) medications are very common among HIV-infected patients. These products can cause clinically significant drug-drug interactions (DDIs) with antiretroviral (ARV) medications, thereby increasing risk for negative outcomes such as toxicity or loss of virologic control. Areas covered: This article provides an updated review of the different mechanisms by which CAM and OTC products are implicated in DDIs with ARV medications. Expert commentary: Much of the literature published to date involves studies of CAMs interacting with older ARV agents via the cytochrome P450 (CYP450) system. However, the HIV treatment and prevention arsenal is continually evolving. Furthermore, our elucidation of the role of non-CYP450 mediated DDIs with ARV medications is greatly increasing. Therefore, clinicians are well served to understand the various mechanisms and extent by which new ARV therapies may be involved in drug interactions with CAMs and OTC medications.


Background People aging with HIV show variable health trajectories. Our objective was to identify longitudinal predictors of frailty severity and mortality among a group aging with HIV. Methods Exploratory analyses employing a multistate transition model, with data from the prospective Modena HIV Metabolic Clinic Cohort Study, based in Northern Italy, begun in 2004. Participants were followed over four years from their first available visit. We included all 963 participants (mean age 46.8 +/- 7.1; 29% female; 89% undetectable HIV viral load; median current CD4 count 549, IQR 405-720; nadir CD4 count 180, 81-280) with four-year data. Frailty was quantified using a 31-item frailty index. Outcomes were frailty index score or mortality at four-year follow-up. Candidate predictor variables were baseline frailty index score, demographic (age, sex), HIV-disease related (undetectable HIV viral load, current CD4+ T-cell count, nadir CD4 count, duration of HIV infection, and duration of antiretroviral therapy [ARV] exposure), and behavioral factors (smoking, injection drug use [IDU], and hepatitis C virus co-infection). Results Four-year mortality was 3.0% (n = 29). In multivariable analyses, independent predictors of frailty index at follow-up were baseline frailty index (RR 1.06, 95% CI 1.05-1.07), female sex (RR 0.93, 95% CI 0.87-0.98), nadir CD4 cell count (RR 0.96, 95% CI 0.93-0.99), duration of HIV infection (RR 1.06, 95% CI 1.01-1.12), duration of ARV exposure (RR 1.08, 95% CI 1.02-1.14), and smoking pack-years (1.03, 1.01-1.05). Independent predictors of mortality were baseline frailty index (OR 1.19, 1.02-1.38), current CD4 count (0.34, 0.20-0.60), and IDU (2.89, 1.30-6.42). Conclusions Demographic, HIV-disease related, and social and behavioral factors appear to confer risk for changes in frailty severity and mortality among people aging with HIV.


BACKGROUND: People aging with HIV show variable health trajectories. Our objective was to identify longitudinal predictors of frailty severity and mortality among a group aging with HIV. METHODS: Exploratory analyses employing a multistate transition model, with data from the prospective Modena HIV Metabolic Clinic Cohort Study, based in Northern Italy, begun in 2004. Participants were followed over four years from their first available visit. We included all 963 participants (mean age 46.8 +/- 7.1; 29% female; 89% undetectable HIV viral load; median current CD4 count 549, IQR 405-720; nadir CD4 count 180, 81-280) with four-year data. Frailty was quantified using a 31-item frailty index. Outcomes were frailty index score or mortality at four-year follow-up. Candidate predictor variables were baseline frailty index score, demographic (age, sex), HIV-disease related (undetectable HIV viral load, current CD4+ T-cell count, nadir CD4 count, duration of HIV infection, and duration of antiretroviral therapy [ARV] exposure), and behavioral factors (smoking, injection drug use [IDU], and hepatitis C virus co-infection). Results Four-year mortality was 3.0% (n = 29). In multivariable analyses, independent predictors of frailty index at follow-up were baseline frailty index (RR 1.06, 95% CI 1.05-1.07), female sex (RR 0.93, 95% CI 0.87-0.98), nadir CD4 cell count (RR 0.96, 95% CI 0.93-0.99), duration of HIV infection (RR 1.06, 95% CI 1.01-1.12), duration of ARV exposure (RR 1.08, 95% CI 1.02-1.14), and smoking pack-years (1.03, 1.01-1.05). Independent predictors of mortality were baseline frailty index (OR 1.19, 1.02-1.38), current CD4 count (0.34, 0.20-0.60), and IDU (2.89, 1.30-6.42). CONCLUSIONS: Demographic, HIV-disease related, and social and behavioral factors appear to confer risk for changes in frailty severity and mortality among people aging with HIV.

Frailty is a clinical state characterized by a decrease of an individual's homeostatic reserves and is responsible for enhanced vulnerability to endogenous and/or exogenous stressors. Such a condition of extreme vulnerability exposes individuals to an increased risk of negative health-related outcomes. Multiple operational definitions of frailty are available in the literature, but none can be indicated as a gold standard. Frailty should be considered a condition of major interest for public health and become the lever for reshaping the obsolete health care systems currently unable to adequately address the clinical needs of aging populations.


The terms multimorbidity and frailty are increasingly used in the medical literature to measure the risk profile of an older individual in order to support clinical decisions and design ad hoc interventions. The construct of multimorbidity was initially developed and used in nongeriatric settings. It generates a monodimensional nosological risk profile, grounding its roots in the somewhat inadequate framework of disease. On the other hand, frailty is a geriatric concept that implies a more exhaustive and comprehensive assessment of the individual and his/her environment, facilitating the implementation of multidimensional and tailored interventions. This article aims to promote among geriatricians the use of terms that may better enhance their background and provide more value to their unrivaled expertise in caring for biologically aged persons.


BACKGROUND: Exercise, nutrition, and psychological interventions may all have positive impacts on frailty and sarcopenia. However, it is not known whether an integrated care programme with all three components can be beneficial and the intensity of such programme is also not certain. In this study, we aim to determine the effectiveness of two levels of integrated care on frailty and sarcopenia. METHODS: A randomized control trial was conducted at two community hospitals in Taiwan. Older adults (65-79 years of age, N = 289) who scored >/=1 on the Cardiovascular Health Study Phenotypic Classification of Frailty (CHS_PCF) were enrolled in the trial. Low-level care (LLC) participants received a 2 h education course on frailty, sarcopenia, coping strategy, nutrition, and demonstration of study exercise programme. Educational multimedia material was distributed as reference for home practice with bi-monthly telephone follow-ups on adherences. High-level care (HLC) participants, in addition to LLC instructions, received six sessions of on-site problem solving therapy and 48 exercise sessions within 6 months. Brief nutrition consultation was also provided during the exercise sessions. Primary outcome was improvement of the CHS_PCF by at least one category (from pre-frail to robust, or from frail to pre-frail or robust) from baseline. Secondary outcomes included changes of individual frailty, and sarcopenia indicators. Assessments were done at 3, 6, and 12 months by trained research assistants blinded to randomization status. Intention-to-treat analysis was applied. RESULTS: Mean age was 71.6 +/- 4.3 years, with 53% females. For the entire cohort, improvement of primary outcome was 35% at 3 months, increased to 40% at 6 months, and remained stable at 39% at 12 months. Improvement rates were similar in both groups. Compared with the LLC group, HLC participants had greater improvements in the following indices: energy expenditure of walking, 5 m walking time, dominant hand grip strength, timed-up-and-go-test, and one-leg-stand time - mainly at 6 and 12 month assessments. CONCLUSIONS: The 6 month integrated care improved frailty and sarcopenia status among community-dwelling elders, with high-intensity training yielding greater improvements. Low-level care could be promoted as a basic intervention, while HLC could be reserved for those at high risk and with high motivation.


INTRODUCTION: The number of older HIV-infected people is growing due to increasing life expectancies resulting from the use of antiretroviral therapy (ART). Both HIV and aging increase the risk of other comorbidities, such as cardiovascular disease, osteoporosis, and some malignancies, leading to greater challenges in managing HIV with other conditions. This results in complex medication regimens with the potential for significant drug-drug interactions and increased morbidity and mortality. Area covered: We review the metabolic pathways of ART and other medications used to treat medical co-morbidities, highlight potential areas of concern for drug-drug interactions, and where feasible, suggest alternative approaches for treating these conditions as suggested from national guidelines or articles published in the English language. Expert commentary: There is limited evidence-based data on
ART drug interactions, pharmacokinetics and pharmacodynamics in the older HIV-infected population. Choosing and maintaining effective ART regimens for older adults requires consideration of side effect profile, individual comorbidities, interactions with concurrent prescriptions and non-prescription medications and supplements, dietary patterns with respect to dosing, pill burden and ease of dosing, cost and affordability, patient preferences, social situation, and ART resistance history. Practitioners must remain vigilant for potential drug interactions and intervene when there is a potential for harm.


We investigated the prevalence and correlates of prefrailty/frailty, determined on the basis of the Fried criteria, in Chinese patients with and those without human immunodeficiency virus (HIV) infection. HIV-infected patients were more likely to be frail or prefrail than controls, and this association remained significant after adjustment for potential confounders (odds ratio, 3.79). After additional adjustment for neurocognitive impairment and depressive and insomnia symptoms, this association remained significant but attenuated (odds ratio, 2.16). In the HIV-infected group, these 3 variables were independently associated with prefrailty/frailty. These findings suggest that neurocognitive impairment and depressive and/or insomnia symptoms may account for a higher prevalence of prefrailty/frailty in HIV-infected patients but require further longitudinal investigation.


Background: The extent to which inflammation, immune activation/immunosenescence, and hormonal abnormalities are driven by human immunodeficiency virus (HIV) or frailty is not clear. Methods: HIV-infected frail men (n = 155) were matched to nonfrail, HIV-infected (n = 141) and HIV-uninfected (n = 150) men by age, calendar year, and antiretroviral therapy use (HIV-infected men only). Frailty was defined by >/=3 frailty-related phenotype criteria (weight loss, exhaustion, low activity, slowness) at >/=2 visits, or at 1 visit with >/=1 criteria at >/=2 visits. The following measurements were obtained: interleukin 6, high-sensitivity C-reactive protein, soluble receptors for tumor necrosis factor alpha 1 and 2, the percentages of CD4+CD28-, CD8+CD28-, CD4+CD38+HLA-DR+, and CD8+CD38+HLA-DR+ T cells, dehydroepiandrosterone sulfate, free testosterone, homeostatic model assessment of insulin resistance, and insulin-like growth factor 1. Log-linear regressions were adjusted for a priori selected covariates to determine differences by frailty and HIV status. Results: In multivariate analyses adjusted for covariates, frailty was associated among HIV-infected men with higher interleukin 6 and high-sensitivity C-reactive protein and lower free testosterone and dehydroepiandrosterone levels. In contrast, HIV infection but not frailty was associated with significantly greater immune senescence (percentage of CD4+CD28- or CD8+CD28- T cells) and immune activation (percentages of CD4+CD38+HLA-DR+ and CD8+CD38+HLA-DR+ T cells). Conclusions: Frailty among HIV-infected men was associated with increased inflammation and lower hormone levels, independent of comorbid conditions. Interventions targeting these pathways should be evaluated to determine the impact on prevention or reversal of frailty among HIV-infected men.


The impact of antiretroviral therapy (ART) on frailty among human immunodeficiency virus (HIV)-infected adults has not been well described. HIV-infected participants aged >/=40 years with initial ART receipt through a randomized, controlled AIDS Clinical Trials Group trial completed a frailty assessment. Ordinal logistic regression models examined factors associated with frailty. Of 1016 participants, 6% were frail, and 38% were prefrail. Frailty was associated with lower education, older age, Medicare/Medicaid, initial efavirenz, smoking, obesity, and neurocognitive impairment; physical activity and alcohol use were protective. The associations with ART require further investigation, and associations between frailty and modifiable factors provide targets for future interventions.

The increased survival of treated people living with HIV (PLWH) represents a tremendous accomplishment. However, this has not been accompanied by uniform improvements in quality of life. Many PLWH prematurely develop age-related complications and traditional geriatric syndromes, including frailty. This is a potentially reversible state of vulnerability to adverse outcomes. Its operationalization remains challenging. The most commonly used tools, the frailty phenotype and the frailty index, have their advantages and limitations, but predict similar poor outcomes. Yeoh et al applied both metrics, and a simpler construct, the Edmonton Frail Scale, to a population of Australian PLWH. Although the prevalence of frailty was generally similar to that in other settings, distinct differences occurred between the tools. This paper adds to the literature on this serious condition in this already vulnerable population. Further research is needed before consensus is reached on how to reliably and simply to diagnose frailty in PLWH.


OBJECTIVES: Low grip strength is a marker of frailty and a risk factor for mortality among HIV patients and other populations. We investigated factors associated with grip strength in malnourished HIV patients at referral to ART, and at 12 weeks and 2-3 years after starting ART. METHODS: The study involved HIV-infected Zambian and Tanzanian participants recruited to the NUSTART trial when malnourished (body mass index <18.5 kg/m(2)) and requiring ART. The relationship of grip strength to nutritional, infectious and demographic factors was assessed by multivariable linear regression at referral for ART (n = 1742) and after 12 weeks (n = 778) and 2-3 years of ART (n = 273). RESULTS: In analyses controlled only for sex, age and height, most nutrition and infection-related variables were associated with grip strength. However, in multivariable analyses, consistent associations were seen for fat-free mass index, mid-upper arm circumference, haemoglobin and systolic blood pressure, and a variable association with fat mass index in men. C-reactive protein and CD4 count had limited independent effects on grip strength, while receiving tuberculosis treatment was associated with weaker grip strength. CONCLUSIONS: In this population of originally malnourished HIV patients, poor grip strength was more strongly and independently associated with nutritional than with infection and inflammation variables. Programmes to improve health and survival of HIV patients should incorporate nutritional assessment and management and could use grip strength as a functional indicator of improving nutrition.


Physical frailty is often associated with cognitive impairment, possibly because of common underlying pathophysiological mechanisms. To stimulate research in this field, the concept cognitive frailty was proposed, emphasizing the important role of brain aging. Cognitive frailty was defined as the presence of cognitive deficits in physically frail older persons without dementia. This subtype of frailty is deemed important, as it may represent a prodromal phase for neurodegenerative diseases and is potentially a suitable target for early intervention. The aim of this report is to refine the framework for the definition and mechanisms of cognitive frailty and relevant screening tools.


As the number of older adults living with HIV continues to increase, understanding how to incorporate geriatric assessments within HIV care will be critical. Assessment of geriatric syndromes and physical function can be useful tools for HIV clinicians and researchers to help identify the most vulnerable older adults and to better understand the aging process in people living with HIV (PLWH). This review focuses on the assessment of falls, frailty, and physical function, first in the general population of older adults, and includes a specific focus on use of these assessments in older adults living with HIV.


BACKGROUND: We hypothesized that frailty acts as a measure of health outcomes in the context of LT. The aim of this study was to explore frailty index across LT, as a measure of morbidity and mortality. This was a retrospective observational study including all consecutive 47 HIV+patients who received LT in Modena, Italy from 2003 to June 2015. METHODS: frailty index (FI) was constructed from 30 health variables. It was used both as a continuous score and as a categorical variable, defining 'most frail' a FI > 0.45. FI change across transplant (deltaFI, DeltaFI) was calculated as the difference between year 1 FI (FI-Y1) and pre-transplant FI (FI-t0). The outcomes measures were mortality and "optimal LT" (defined as being alive without multi-morbidity). RESULTS: Median value of FI-t0 was 0.48 (IQR 0.42-0.52), FI-Y1 was 0.31 (IQR 0.26-0.41). At year five mortality rate was 45%, "optimal transplant" rate at year 1 was 38%. All the patients who died in the post-LT were most frail in the pre-LT. DeltaFI was a predictor of mortality after correction for age and MELD (HR = 1.10, p = 0.006) and was inversely associated with optimal transplant after correction for age (HR = 1.04, p = 0.01). CONCLUSIONS: We validated FI as a valuable health measure in HIV transplant. In particular, we found a relevant correlation between FI strata at baseline and mortality and a statistically significant correlation between, DeltaFI and survival rate.


OBJECTIVES: Frailty is a predictor of adverse health outcomes and can be measured across the life course, including among people living with HIV. The purpose of this study was to examine two commonly used measures of frailty - the frailty index (FI) and frailty phenotype - to assess common characteristics and to describe associations with multimorbidity, falls, and disability in people aging with HIV. METHODS: This was a cross-sectional observational study including 482 consecutive HIV-infected patients (mean age 53.9 +/- SD 6.9 years; 75% male) attending the multidisciplinary metabolic clinic at the University of Modena, Italy. Frailty was measured with the frailty phenotype and a 37-item FI. RESULTS: The mean FI score was 0.28+/-0.1 and frailty phenotype categories were: 3.1% frail, 51.9% pre-frail, and 45% robust. The duration of antiretroviral therapy was significantly different across levels of frailty as measured by both frailty tools (P < 0.01), but the nadir CD4 count was only significant for the FI (P = 0.01); current CD4 count was not significantly different across frailty levels using either tool. Both frailty measures were associated with multimorbidity; the FI was associated with Instrumental Activities of Daily Living impairment and falls history, whereas the frailty phenotype was not. CONCLUSIONS: The frailty phenotype and the FI demonstrated similar characteristics in patients at a tertiary-level HIV clinic. The FI had a stronger association with age, nadir CD4 count, comorbidities, falls, and disability. Integrating frailty assessments in clinical practice will be crucial for the development of interventions in age-related conditions, including disability and falls, in older persons living with HIV.


OBJECTIVES: To evaluate the relationship between polypharmacy and ART, delivered as conventional multi-tablet three-drug regimens, single-tablet regimens or less-drug regimens (simplified mono or dual regimens). METHODS: We conducted a cross-sectional analysis of electronic data from the prospective Modena HIV Metabolic Clinic Cohort Study. We included the last clinical observation for each patient from January 2006 to December 2015. Polypharmacy was defined as the use of five or more medications (excluding ART). Multi-morbidity was classified as the presence of two or more non-infectious comorbidities. Factors associated with different ART regimens were analysed using multivariable multinomial logistic regression analyses with multi-tablet three-drug regimens as the reference. RESULTS: A total of 2944 patients (33.7% females) were included in the analysis. Multinomial logistic regression analysis identified polypharmacy to be negatively associated with single-tablet regimens [relative risk reduction (RRR) = 0.48, 95% CI = 0.28-0.81] independently from frailty (RRR = 0.68, 95% CI = 0.59-0.78), after correction for age, gender, HIV infection duration, current and nadir CD4 and calendar year. This association was not found comparing multi-tablet three-drug regimens and less-drug regimens. CONCLUSIONS: Single-tablet regimens are less likely to be prescribed in patients with polypharmacy. Single-tablet regimens are perceived to be less flexible in patients with multi-morbidity and at higher risk of drug-drug interaction.
HIV infection, in many circumstances, can now be managed as a chronic disease due to the marked increase in life expectancy since the introduction of combination antiretroviral therapy (ART). As the patients who first had access to combination ART age into their 50s and 60s, the effects of chronic HIV infection on health have become an important research focus in HIV infection. People living with HIV appear to exhibit an earlier occurrence of some aging-related conditions compared to people without HIV, in part due to higher rates of comorbidities, high-risk behaviors (e.g. smoking, substance use), chronic immune activation, inflammation, and ART-specific factors. Some studies have even suggested an earlier-than-expected appearance of the ‘geriatric syndromes,’ which are complex medical syndromes of older adults that are associated with morbidity and mortality. The geriatric syndromes include a wide variety of disease processes ranging from incontinence and dementia to impairments in physical function. This review will focus on one geriatric syndrome, sarcopenia, in older HIV-infected populations, and its relation to other aging syndromes, including frailty and falls. The contribution of HIV itself, ART exposure, and specific comorbidities, and the importance of early recognition and prevention of these aging syndromes will be highlighted.

OBJECTIVE: Although geriatric syndromes have been studied extensively, their interactions with one another and their accumulated effects on life expectancy are less frequently discussed. This study examined whether geriatric syndromes and their cumulative effects are associated with risks of mortality in community-dwelling older adults. METHODS: Data were collected from the Taiwan Longitudinal Study in Aging in 2003, and the participant survival status was followed until December 31, 2007. A total of 2744 participants aged >/=65 years were included in this retrospective cohort study; 634 died during follow-up. Demographic factors, comorbidities, health behaviors, and geriatric syndromes, including underweight, falls, functional impairment, depressive condition, and cognitive impairment, were assessed. Cox proportional hazard regression analysis was used to estimate the hazard ratios (HRs) and 95% confidence intervals (CIs) for the probability of survival according to the cumulative number of geriatric syndromes. RESULTS: The prevalence of geriatric syndromes increased with age. Mortality was significantly associated with age >/=75 years; male sex; </=6 years of education; history of stroke, malignancy; smoking; not drinking alcohol; and not exercising regularly. Geriatric syndromes, such as underweight, functional disability, and depressive condition, contributed to the risk of mortality. The accumulative model of geriatric syndromes also predicted higher risks of mortality (N = 1, HR 1.50, 95% CI 1.19-1.89; N = 2, HR 1.69, 95% CI 1.25-2.29; N >/= 3, HR 2.43, 95% CI 1.62-3.66). CONCLUSIONS: Community-dwelling older adults who were male, illiterate, receiving institutional care, underweight, experiencing a depressive condition, functionally impaired, and engaging in poor health behavior were more likely to have a higher risk of mortality. The identification of geriatric syndromes might help to improve comprehensive care for community-dwelling older adults.


BACKGROUND: As antiretroviral therapy efficacy improves, HIV is gradually being recognized more as a chronic disease within the aging HIV-infected population. While these individuals are surviving into old age, they may, however, be experiencing "accelerated aging" with greater declines in physical function than that observed among comparably matched individuals free of HIV. This decline is not well understood and it remains unclear if physical decline correlates with the degree of immunosuppression based on CD4 lymphocyte nadir. METHODS: In a cross-sectional study of accelerated aging in the older HIV-infected population on antiretroviral therapy (ART), physical performance evaluations were completed on a cohort of 107 HIV-infected subjects, age 50 years or older (with no HIV-1 RNA >200 copies/mL in the prior 12 months), and compared to reference ranges for age- and gender-matched HIV-uninfected persons. Physical performance testing consisted of four validated assessments: the 2.4-meter walk, 30-second chair stand, grip strength and 6-minute walk test. RESULTS: When compared to age- and gender-matched HIV-uninfected reference controls, older HIV-infected persons had diminished physical function. No correlation was found between physical function and degree of immunosuppression as determined by pre-ART CD4 nadir. CONCLUSIONS: Despite improved survival, HIV-infected adults on suppressive ART have diminished physical function compared to HIV-uninfected persons. The degree of HIV-associated immunosuppression does not correlate with the observed degree of physical function decline in older HIV-infected persons, suggesting the decline is mediated by other mechanisms.


BACKGROUND AND AIMS: Frailty and cardiovascular disease share many risk factors. We evaluated whether frailty is independently associated with subclinical coronary atherosclerosis and whether any relationships differ by HIV-serostatus. METHODS: We studied 976 [62% HIV-infected] male participants of the Multicenter AIDS Cohort Study who underwent assessment of frailty and non-contrast cardiac CT scanning; of these, 747 men also underwent coronary CT angiography (CCTA). Frailty was defined as having >/=3 of 5 of the following: weakness, slowness, weight loss, exhaustion, and low physical activity. Coronary artery calcium (CAC) was assessed by non-contrast CT, and total plaque score (TPS), mixed plaque score (MPS), and non-calcified plaque score (NCPS) by CCTA. Multivariable-adjusted regression was used to assess the cross-sectional associations between frailty and subclinical coronary atherosclerosis. RESULTS: Mean (SD) age of participants was 54 (7) years; 31% were black. Frailty existed in 7.5% and 14.3% of HIV-uninfected and HIV-infected men, respectively. After adjustment for demographics, frailty was significantly associated with prevalence of any CAC (CAC>0), any plaque (TPS>0), and mixed plaque (MPS>0) in HIV-uninfected but not in HIV-infected men (p-interactionHIV<0.05 for all). Among HIV-uninfected men, after adjustment for cardiovascular risk factors, frailty was significantly associated only with CAC>0 [Prevalence Ratio 1.27 (95%CI 1.02, 1.59)] and TPS>0 [1.19 (1.06, 1.35)]. No association was found for NCPS. CONCLUSIONS: Frailty was independently associated with subclinical coronary atherosclerosis among HIV-uninfected men, but not among HIV-infected men. Further work is needed to ascertain mechanisms underlying these differences and whether interventions that improve frailty (i.e. strength training) can improve cardiovascular outcomes.


BACKGROUND: Frailty is associated with immune activation and inflammation in the elderly general population, but whether this is true in the younger HIV-infected (HIV+) population is not known. METHODS: We analyzed 24 serologic biomarkers of monocyte, T-cell, or B-cell activation in HIV- (n = 207) and HIV+ (n = 714; 75% virologically suppressed) men who have sex with men in the Multicenter AIDS Cohort Study (MACS) and were classified as frail or nonfrail according to expression or nonexpression of the frailty phenotype at 2 consecutive study visits. RESULTS: After correction for multiple comparisons and adjustment for age, race, study site, and education, frailty in HIV+ men was significantly (P < 0.002) associated with higher levels of sCD14, sIL2Ralpha, sTNF-R2, IL-6, and TNF-alpha; the association with higher levels of C-reactive protein (CRP) approached significance (P = 0.003). After further adjustment for body mass index (BMI), smoking, and comorbidities, only the association with C-reactive protein was
significant at P < 0.002, with levels approximately 50% higher in frail compared with nonfrail men. These conclusions were not altered by restricting the analysis to HIV+ men who were virologically suppressed. Among HIV+ men, none of these markers differed significantly by frailty. CONCLUSIONS: These data suggest that frailty in virologically suppressed HIV+ men was associated with immune activation beyond that due to treated HIV infection. The inflammatory markers associated with frailty were primarily products of activated monocytes/macrophages. Much, but not all, activation was accounted for by harmful behaviors and comorbidities. However, C-reactive protein, which is regulated by IL-6, was elevated in HIV+ frail men independent of these factors.


Background: delivering appropriate care for patients with multimorbidity and polypharmacy is increasingly challenging. Challenges for individual healthcare professions are known, but only little is known about overall healthcare team implementation of best practice for these patients. Objective: to explore current approaches to multimorbidity management, and perceived barriers and enablers to deliver appropriate medications management for community-dwelling patients with multimorbidity and polypharmacy, from a broad range of healthcare professional (HCP) perspectives in Australia. Methods: this qualitative study used semi-structured interviews to gain in-depth understanding of HCPs’ perspectives on the management of multimorbidity and polypharmacy. The interview guide was based on established principles for the management of multimorbidity in older patients. HCPs in rural and metropolitan Victoria and South Australia were purposefully selected to obtain a maximum variation sample. Twenty-six HCPs, from relevant medical, dentistry, nursing, pharmacy and allied health backgrounds, were interviewed between October 2013 and February 2014. Fourteen were prescribers and 12 practiced in primary care. Interviews were digitally audio-taped, transcribed verbatim and analysed using a constant comparison approach. Results: most participants did not routinely use structured approaches to incorporate patients' preferences in clinical decision-making, address conflicting prescriber advice, assess patients' adherence to treatment plans or seek to optimise care plans. Most HCPs were either unaware of medical decision aids and measurements tools to support these processes or disregarded them as not being user-friendly. Challenges with coordination and continuity of care, pressures of workload and poorly defined individual responsibilities for care, all contributed to participants' avoiding ownership of multimorbidity management. Potential facilitators of improved care related to improved culture, implementation of electronic health records, greater engagement of pharmacists, nurses and patients, families in care provision, and the use of care coordinators. Conclusion: extensive shortcomings exist in team-based care for the management of multimorbidity. Delegating coordination and review responsibilities to specified HCPs may support improved overall care.


OBJECTIVE: The goal of this pharmacist-led study was to utilize two validated instruments, Beers Criteria and Screening Tool of Older Persons’ Potentially Inappropriate Prescriptions (STOPP), to assess potentially inappropriate prescribing (PIP) in older patients infected with the human immunodeficiency virus (HIV) and evaluate pharmacist interventions. DESIGN: Prospective randomized interventional trial. SETTING: Large urban clinic providing interdisciplinary primary and HIV care for ~2700 HIV-positive publicly insured patients. DATA SOURCE: A computerized electronic record search was conducted for all patients who met the two search criteria: 50 years and older, and a primary care appointment within the last 12 months. PATIENTS: After identification of 857 patients meeting the search criteria, 324 patients were randomly selected and contacted, resulting in 248 patients assessed. MEASUREMENTS AND MAIN RESULTS: Patients had a mean age of 58 years, 71% male, 44% white, and a mean CD4 count of 536 cells/mm(3). Common comorbidities included hypertension (56%), depression (52%), asthma/chronic obstructive pulmonary disease (48%), dyslipidemia (39%), coronary artery disease (27%), and diabetes (22%). Patients sampled were prescribed a mean of 11.6 +/- 5.7 concomitant medications (excluding antiretrovirals) with 35% receiving at least 16 medications. PIP was identified in 54% and 63% of patients using the STOPP and Beers Criteria, respectively. Twenty-five contraindicated drug interactions were identified in 20 patients. After the pharmacist visit, at least 69% of patients had at least one medication discontinued with almost 10% having six or more medications discontinued. More than 40% of patients had at least one Beers or STOPP criteria that required immediate correction by the pharmacist. CONCLUSIONS: Results suggest that targeting individuals with 11 or more chronic medications would have the highest yield and greatest impact. Pharmacist-led review of medication prescribing using Beers and STOPP criteria revealed a large number of PIP, many amenable to immediate clinical pharmacist intervention.
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.


OBJECTIVE: HIV-positive individuals are at higher risk than healthy persons for aging-related diseases, including myocardial infarction and non-AIDS defining cancers. Recent evidence suggests that HIV infection may modulate changes in the host cell epigenome, and these changes represent a potential mechanism through which HIV infection accelerates aging. We assessed the difference in DNA methylation (DNAm) age, an aging marker involving multiple age-related cytosine-guanine dinucleotide (CpG) sites, among antiretroviral treatment (ART)-naive HIV-positive and HIV-negative individuals in a cohort of veterans from the Veterans Aging Cohort Study. DESIGN: Peripheral blood samples were collected from 19 ART-naive, HIV-positive, and 19 HIV-negative male participants, matched by age and race. Blood samples were collected from HIV-positive participants 7-11 years after ART initiation. METHODS: We compared DNAm age between HIV-positive and HIV-negative groups at baseline and between HIV-positive patients at baseline and follow-up. We also performed an epigenome-wide analysis to identify CpG methylation sites associated with HIV infection. RESULTS: DNAm age in HIV-positive individuals is, on average, 11.2 years higher than HIV study participants at baseline, and two of 10 HIV-positive individuals showed an increase in DNAm age after ART initiation. Epigenome-wide association studies showed an association of HIV infection with one site, in gene VPS37B, which approached statistical significance in our cohort (P = 3.30 x 10, Bonferroni-corrected threshold = 1.22 x 10) and was replicated in a second, larger cohort. CONCLUSION: ART treatment-naive HIV-positive individuals have significantly older DNAm age compared to HIV-negative individuals in the Veterans Aging Cohort Study cohort. Longitudinal changes in DNAm age are highly variable across individuals after initiation of antiretroviral therapy.


Background: Hospitalization events exact a substantial toll across the age spectrum. Frailty is associated with all-cause hospitalization among HIV-uninfected adults aged 65 years and older. Limited data exist on the frailty relationship to hospitalization among HIV-infected persons or those aged less than 65 years. Comparative investigation of the frailty relationship to specific classes of hospitalizations has rarely been reported among adults of any age. This study sought to determine the frailty relationship to three distinct classes of hospitalization events among HIV-infected persons and their uninfected counterparts. Methods: Frailty was
ascertained semiannually among persons with prior injection drug use using the five Fried phenotypic domains. Hospitalization events were categorized using Agency for Healthcare Research and Quality clinical classification software into chronic, infectious, and nonchronic, noninfectious conditions. Cox proportional hazards models were used to examine the frailty relationship to time to first hospitalization event. Results: Among 1,303 subjects, mean age was 48 years; 32% were HIV-infected. Adjusting for sociodemographics, comorbidity, substance use, and HIV disease stage, time-updated frailty status was associated with risk for all hospitalization classes. Baseline frailty was significantly associated with all-cause (hazard ratio [HR] 1.41; 95% confidence interval [CI], 1.06, 1.87), chronic (HR 2.13; 95% CI, 1.46, 3.11), and infectious disease hospitalization (HR 2.51; 95% CI, 1.60, 3.91) but not with nonchronic, noninfectious hospitalization risk (HR 1.09; 95% CI, 0.74, 1.61). Conclusion: The frailty phenotype predicts vulnerability to chronic and infectious disease-related hospitalization. Frailty-targeted interventions may mitigate the substantial burden of infectious and chronic disease-related morbidity and health care utilization in HIV-infected and uninfected populations.


The approach to correlate frailty status with potential biomarkers has been generating increasing interest. However, there is currently no standardised definition or agreed biomarker for frailty. Hence, we conducted a systematic review on biomarkers evaluated in the published literature in relation to existing accepted measurements of frailty. The databases PUBMED, EMBASE, Web of Science and Science Direct were searched systematically for articles published from 2009 until July 2017. We included studies on frailty and associated biomarkers among individuals aged 65 years and older. Articles were reviewed by two reviewers independently. We identified 486 titles with 40 papers retained for final review after removal of duplicates and exclusion after the title, abstract and full-text review stages. Large variations in frailty measures and reported biomarkers were present in the published literature. Twenty-six articles recruited subjects from community-dwelling older individuals and 33 used the Fried's criteria. Of 11 studies, which evaluated Interleukin-6 (IL-6) against the Fried criteria, nine studies showed significant associations. Nearly all studies evaluating tumour necrosis factor-α, fibrinogen and C-reactive protein against Fried and Rockwood phenotypes showed positive associations. A large number of protein, nutritional, endocrine and genetic markers have been found to be associated with frailty defined with Fried, Rockwood and several other criteria, but only in isolated studies. The identification of potential biomarkers should be conducted with detailed knowledge of potential mechanistic pathways. It is likely that concurrent usage of clinical and biomarkers will be the favoured approach to the identification and management of frailty in the near future.


People aging with HIV present a unique challenge for providers. HIV-infected patients experience accentuated aging and multimorbidity, but are typically disconnected from geriatric care, which is limited by a shortage of geriatric providers worldwide. Consequently, HIV providers are tasked with managing multiple age-related illnesses, within service networks that are historically not designed to care for aging patients. While comfortable with the management of antiretroviral therapy, HIV providers may have limited training on how to recognize or manage geriatric syndromes, especially in the context of multimorbidity. The result is an emerging, vulnerable population, and the question is how to best care for them. As part of the answer, we offer examples of how providers can use geriatric principles to improve the care of aging HIV-infected patients. We begin by describing basic geriatric concepts and examples of care models, and subsequently use a patient case to illustrate their applications at the patient level. At the system level, we discuss how HIV service networks can use components of geriatric care models to meet the needs of aging HIV-infected patients. Lastly, we identify aging-specific guidelines and service integration as important areas for future endeavors.


OBJECTIVE: Inflammation is key risk factor for several conditions in the elderly. However, the relationship between inflammation and frailty is still unclear. We investigated whether higher dietary inflammatory index (DII) scores were associated with higher incidence of frailty in a cohort of North Americans. DESIGN: Longitudinal, with a follow-up of 8 years. SETTING: Osteoarthritis Initiative. PARTICIPANTS: A total of 4421 participants with, or at high risk of, knee osteoarthritis. MEASUREMENTS: DII scores were
calculated using the validated Block Brief 2000 Food-Frequency Questionnaire and categorized into sex-specific quartiles. Frailty was defined as 2 out of 3 of the criteria of the Study of Osteoporous Fracture study (ie, weight loss, inability to rise from a chair 5 times, and poor energy). The strength of the association between baseline DII score and incident frailty was assessed through a Cox’s regression analysis, adjusted for potential baseline confounders, and reported as hazard ratios. RESULTS: A total of 4421 community-dwelling participants (2564 female participants; mean age: 61.3 years) without frailty at baseline were identified from the Osteoarthritis Initiative. During 8 years of follow-up, 356 individuals developed frailty (8.2%). Using Cox’s regression analysis, adjusting for 11 potential confounders, participants with the highest DII score (quartile 4) had a significantly higher risk of experiencing frailty (hazard ratio 1.37; 95% confidence interval 1.01-1.89; P = .04) compared with participants with the lowest DII score (quartile 1). The association between DII score and frailty was significant only in men. CONCLUSIONS: Higher DII scores, indicating a more proinflammatory diet, are associated with higher incidence of frailty, particularly in men.


As the global population ages, there is an opportunity to benefit from the increased longevity of a healthy older adult population. Healthy older individuals often contribute financially to younger generations by offering financial assistance, paying more in taxes than benefits received, and providing unpaid childcare and voluntary work. Governments must address the challenges of income insecurity, access to health care, social isolation, and neglect that currently face elderly adults in many countries. A reduction in disparities in these areas can lead to better health outcomes and allow societies to benefit from longer, healthier lives of their citizens.


People aging with HIV have medical and psychosocial needs that require more than the HIV services network can provide. HIV providers may lack experience managing multimorbidity or the functional consequences of aging. Social support services may be unable to provide necessary services for people living with HIV (PLWH) who are becoming increasingly frail or facing cognitive impairment. HIV providers will be caring for aging PLWH whose HIV management may seem simple compared with the significant burdens of stigma, mental health needs, social isolation, multimorbidity, and aging-related syndromes. Although practices can incorporate geriatric expertise and develop facility with the aging services network, a more comprehensive integration would adapt existing geriatric long-term care models for those aging with HIV. The diversity of aging PLWH and the tenuousness of the health safety net will necessitate innovative and flexible collaboration between content experts and social service agencies.


Antiretroviral therapy has enabled people to live long lives with human immunodeficiency virus (HIV). As a result, most HIV-infected adults in the United States are >50 years of age. In light of this changing epidemiology, HIV providers must recognize and manage multiple comorbidities and aging-related syndromes. Geriatric principles can help meet this new challenge, as preservation of function and optimization of social and psychological health are relevant to the care of aging HIV-infected adults, even those who are not yet old. Nonetheless, the field is still in its infancy. Although other subspecialties have started to explore the role of geriatricians, little is known about their role in HIV care, and few clinics have incorporated geriatricians. This article introduces basic geriatric nomenclature and principles, examines several geriatric consultation models from other subspecialties, and describes our HIV and Aging clinical program to encourage investigation of best practices for the care of this population.


It is estimated that by 2030 nearly three-quarters of persons living with HIV will be 50 years and older. The aging HIV population presents a new clinical concern for HIV providers: adverse effects from polypharmacy. An aging population means more
comorbidities and potentially more drug-drug interactions for providers to manage. This review discusses major comorbidities including cardiovascular disease, anticoagulation, hypertension, diabetes mellitus and malignancy and considerations for drug-interactions with antiretrovirals.


This article provides an overview of how integrating quality palliative and end-of-life care into geriatric assessment can be a tremendous benefit to older adult patients and their families. Although the quality of palliative and end-of-life care for older adults has improved greatly, there are still many opportunities to improve the quality of life and function for older adult patients in the last few years of their life. More clinical expertise in comprehensive palliative and end-of-life care must be developed and maintained. There also must be greater focus and more direct reimbursement developed for physicians and health system providers.


OBJECTIVE: Both frailty and falls occur at earlier-than-expected ages among HIV-infected individuals, but the contribution of frailty-to-fall risk in this population is not well understood. We examined this association among participants enrolled in AIDS Clinical Trials Group (ACTG) A5322. DESIGN: A prospective, multicenter cohort study of HIV-infected men and women aged at least 40 years. METHODS: Frailty assessment included a 4-m walk, grip strength, and self-reported weight loss, exhaustion, and low physical activity. Multinomial logistic regression assessed the association between baseline frailty, grip, and 4-m walk, and single and recurrent (2+) falls over the next 12 months; logistic regression assessed effect modification by several factors on association between frailty and any (1+) falls. RESULTS: Of 967 individuals, 6% were frail, 39% prefrail, and 55% nonfrail. Eighteen percent had at least one fall, and 7% had recurrent falls. In multivariable models, recurrent falls were more likely among frail (odds ratio 17.3, 95% confidence interval 7.03-42.6) and prefrail (odds ratio 3.80, 95% CI 1.87-7.72) than nonfrail individuals. Significant associations were also seen with recurrent falls and slow walk and weak grip. The association between frailty and any falls was substantially stronger among individuals with peripheral neuropathy. CONCLUSION: Aging HIV-infected prefrail and frail individuals are at significantly increased risk of falls. Incorporation of frailty assessments or simple evaluations of walk speed or grip strength in clinical care may help identify individuals at greatest risk for falls. Peripheral neuropathy further increases fall risk among frail persons, defining a potential target population for closer fall surveillance, prevention, and treatment.

Tassiopoulos, K., et al. Frailty is strongly associated with increased risk of recurrent falls among older HIV-infected adults.

Objective: Both frailty and falls occur at earlier-than-expected ages among HIV-infected individuals, but the contribution of frailty-to-fall risk in this population is not well understood. We examined this association among participants enrolled in AIDS Clinical Trials Group (ACTG) A5322. Design: A prospective, multicenter cohort study of HIV-infected men and women aged at least 40 years. Methods: Frailty assessment included a 4-m walk, grip strength, and self-reported weight loss, exhaustion, and low physical activity. Multinomial logistic regression assessed the association between baseline frailty, grip, and 4-m walk, and single and recurrent (2+) falls over the next 12 months; logistic regression assessed effect modification by several factors on association between frailty and any (1+) falls. Results: Of 967 individuals, 6% were frail, 39% prefrail, and 55% nonfrail. Eighteen percent had at least one fall, and 7% had recurrent falls. In multivariable models, recurrent falls were more likely among frail (odds ratio 17.3, 95% confidence interval 7.03-42.6) and prefrail (odds ratio 3.80, 95% CI 1.87-7.72) than nonfrail individuals. Significant associations were also seen with recurrent falls and slow walk and weak grip. The association between frailty and any falls was substantially stronger among individuals with peripheral neuropathy. Conclusion: Aging HIV-infected prefrail and frail individuals are at significantly increased risk of falls. Incorporation of frailty assessments or simple evaluations of walk speed or grip strength in clinical care may help identify individuals at greatest risk for falls. Peripheral neuropathy further increases fall risk among frail persons, defining a potential target population for closer fall surveillance, prevention, and treatment. Copyright (C) 2017 Wolters Kluwer Health, Inc. All rights reserved.
Immunosenescence is an age-related reduction of immune system activity that can be associated with frailty. This study aimed to compare cytomegalovirus (CMV) and Epstein-Barr virus (EBV) reactivations (based on viremias) between young and elderly women who had a chronic CMV and/or EBV infection (i.e., an IgG+ serostatus) without an acute infection (i.e., an IgM- serostatus), and among the elderly group categorized according to frailty status. DNA was extracted from plasma using standard protocols and serostatus was determined by enzyme-linked immunosorbent assay. Quantitative real-time polymerase chain reaction analyses for CMV and EBV were carried out and viral loads were determined. Among elderly women (n = 71), 59% were positive for CMV, in contrast to only 8% of young women (n = 73). Elderly women classified as frail, pre-frail, and non-frail presented 82%, 56%, and 48% positivity for CMV, respectively. Frequency and viral load were significantly higher in the elderly group vs. the young group (p < 0.0001 and p = 0.01, respectively) and in elderly with frailty vs. those without frailty (p = 0.007 and p = 0.03, respectively). The frequency of CMV reactivation presented odds ratios of 11.77 for aging and 6.13 for frailty, and relative risks of 5.39 for aging and 1.93 for frailty. EBV was detected in 30% of the elderly women and 15% of the young women (p = 0.04); however, the viral load did not significantly differ between the two age groups. The frequency of EBV reactivation presented odds ratios of 2.36 for aging and 2.90 for frailty, and relative risks of 1.96 for aging and 2.12 for frailty. However, no difference in EBV viral load among the frailty status subgroups was found. In conclusion, the frequency of CMV reactivation was associated with aging and ongoing frailty, whereas the frequency of EBV reactivation was associated only with aging.


PURPOSE OF THE REVIEW: The number of adults who are aging successfully and have HIV infection is increasing. More effective antiretroviral therapy (ART) regimens are preventing individuals infected with HIV from reaching end stages of the HIV infection and developing AIDS (acquired immunodeficiency syndrome). However, even at lower viral loads, chronic HIV infection appears to have consequences on aging processes, including the development of frailty. RECENT FINDINGS: Frailty is a term used to describe vulnerability in aging. Frailty indices such as the Fried Frailty Index (FFI), the Veterans Aging Cohort Study (VACS) Index, and the Center for Epidemiologic Studies Depression scale (CES-D), an index of emotional frailty, associate with or predict clinical outcomes and death. However, even among existing frailty definitions, components require rigorous and consistent standardization. In the Women’s Interagency HIV Study (WIHS), we have shown that frailty does not exist in isolation, even in midlife, and we use frailty to predict death. Frailty indices should be systematically used by health professionals to evaluate health and future risks for adverse events. Frailty prevention efforts, especially among those with HIV infection, appear to be essential for "successful aging" or aging without disability or loss of independence and may prevent HIV transmission. Taking care of elderly people is one of the major challenges of this century, and we must expect and be prepared for an increase in the number of aging adults, some of whom are patients with many co-morbidities and HIV infection.


Because of a growing, aging population and a shortage of geriatricians in the United States, the care of geriatric patients will mostly devolve to primary care providers. This article reviews the different aspects of a multidimensional, multidisciplinary geriatric assessment. Assessment tools and training of office staff to take on larger roles can help primary care providers reduce the burden of work associated with performing a comprehensive geriatric assessment.


Aging with HIV poses unique and complex challenges, including avoidance of neurocognitive disorder. Our objective here is to identify the prevalence and predictors of successful cognitive aging (SCA) in a sample of older adults with HIV. One hundred three HIV-infected individuals aged 50 and older were recruited from the Modena HIV Metabolic Clinic in Italy. Participants were treated with combination antiretroviral therapy for at least 1 year and had suppressed plasma HIV viral load. SCA was defined as the absence of neurocognitive impairment (as defined by deficits in tasks of episodic learning, information processing speed, executive
function, and motor skills) depression, and functional impairment (instrumental activities of daily living). In cross-sectional analyses, odds of SCA were assessed in relation to HIV-related clinical data, HIV-Associated Non-AIDS (HANA) conditions, multimorbidity (>=2HANA conditions), and frailty. A frailty index was calculated as the number of deficits present out of 37 health variables. SCA was identified in 38.8% of participants. Despite no differences in average chronologic age between groups, SCA participants had significantly fewer HANA conditions, a lower frailty index, and were less likely to have hypertension. In addition, hypertension (odds ratio [OR] = 0.40, p = .04), multimorbidity (OR = 0.35, p = .05), and frailty (OR = 0.64, p = .04) were significantly associated with odds of SCA. Frailty is associated with the likelihood of SCA in people living with HIV. This defines an opportunity to apply knowledge from geriatric population research to people aging with HIV to better appreciate the complexity of their health status.


Frailty is recognized as a cornerstone of geriatric medicine. It increases the risk of geriatric syndromes and adverse health outcomes in older and vulnerable populations. Although multiple screening instruments have been developed and validated to improve feasibility in clinical practice, frequent lack of agreement between frailty instruments has slowed broad implementation of these tools. Despite this, interventions to improve frailty-related health outcomes developed to date include exercise, nutrition, multicomponent interventions, and individually tailored geriatric care models. Possible strategies to prevent frailty include lifestyle or behavioral interventions, proper nutrition, and increased activity levels and social engagement.


Although the field of frailty research has expanded rapidly, it is still a nascent concept within the clinical specialties. Frailty, conceptualized as greater vulnerability to stressors because of significant depletion of physiological reserves, predicts poorer outcomes in several medical specialties, including cardiology, human immunodeficiency virus care, and nephrology, and in the behavioral and social sciences. Lack of a consensus definition, proliferation of measurement tools, inadequate understanding of the biology of frailty, and lack of validated clinical algorithms for frail individuals hinders incorporation of frailty assessment and frailty research into the specialties. In 2015, the American Geriatrics Society, the National Institute on Aging (NIA), and the Alliance for Academic Internal Medicine held a conference for awardees of the NIA-sponsored Grants for Early Medical/Surgical Specialists Transition into Aging Research program to review the current state of knowledge regarding frailty in the subspecialties and to highlight examples of integrating frailty research into the medical specialties. Research questions to advance frailty research into specialty medicine are proposed.


Frailty is a common negative consequence of ageing. Sarcopenia, the syndrome of loss of muscle mass, quality and strength, is more common in older adults and has been considered a precursor syndrome or the physical manifestation of frailty. The pathophysiology of both syndromes is incompletely described with multiple causes, inter-relationships and complex pathways proposed. Age-associated changes to the immune system (both immunesenescence, the decline in immune function with ageing, and inflammageing, a state of chronic inflammation) have been suggested as contributors to sarcopenia and frailty but a direct causative role remains to be established. Frailty, sarcopenia and immunesenescence are commonly described in older adults but are not ubiquitous to ageing. There is evidence that all three conditions are reversible and all three appear to share common inflammatory drivers. It is unclear whether frailty, sarcopenia and immunesenescence are separate entities that co-occur due to coincidental or potentially confounding factors, or whether they are more intimately linked by the same underlying cellular mechanisms. This review explores these possibilities focusing on innate immunity, and in particular associations with neutrophil dysfunction, inflammation and known mechanisms described to date. Furthermore, we consider whether the age-related decline in immune cell function (such as neutrophil migration), increased inflammation and the dysregulation of the phosphoinositide 3-kinase (PI3K)-Akt pathway in neutrophils could contribute pathogenically to sarcopenia and frailty.

Chronic immune activation persists despite antiretroviral therapy (ART) in HIV+ individuals and underpins an increased risk of age-related co-morbidities. We assessed the Frailty Index in older HIV+ Australian men on ART. Immunometabolic markers on monocytes and T cells were analyzed using flow cytometry, plasma innate immune activation markers by ELISA, and lipidomic profiling by mass spectrometry. The study population consisted of 80 HIV+ men with a median age of 59 (IQR, 56-65), and most had an undetectable viral load (92%). 24% were frail, and 76% were non-frail. Frailty was associated with elevated Glucose transporter-1 (Glut1) expression on the total monocytes (p = 0.04), increased plasma levels of innate immune activation marker sCD163 (OR, 4.8; CI 1.4-15.9, p = 0.01), phosphatidylethanolamine PE(36:3) (OR, 5.1; CI 1.7-15.5, p = 0.004) and triacylglycerol TG(16:1_18:1_18:1) (OR, 3.4; CI 1.3-9.2, p = 0.02), but decreased expression of GM3 ganglioside, GM3(d18:1:18:0) (OR, 0.1; CI 0.0-0.6, p = 0.01) and monohexosylceramide HexCerd(d18:1/22:0) (OR, 0.1; CI 0.0-0.5, p=0.004). There is a strong inverse correlation between quality of life and the concentration of PE(36:3) (rho=-0.33, p=0.004) and PE(36:4) (rho=-0.37, p=0.001). These data suggest that frailty is associated with increased innate immune activation and abnormal lipidomic profile. These markers should be investigated in larger, longitudinal studies to determine their potential as biomarkers for frailty. (C) 2017 The Authors. Published by Elsevier B.V.


BACKGROUND: Potent antiretroviral treatment has resulted in near normal life expectancy for people living with HIV. Consequently, there is an increased focus on comorbidities, frailty and quality of life. METHODS: We assessed and compared the prevalence of frailty, associated factors and relationship with quality of life in older Australian men living with HIV in a cross-sectional study using three frailty measurements. The Frailty Phenotype, Frailty Index and Edmonton Frail Scale were applied to 93 HIV-infected men aged over 50 years, on antiretroviral therapy. Multivariable ordinal logistic regression was used to analyse the associations of frailty with covariates and quality of life. RESULTS: The prevalence of frailty was 10.8% (n=10) using the Frailty Phenotype; 22.6% (n=21) using the Frailty Index and 15.1% (n=14) using the Edmonton Frail Scale. Frailty Phenotype-defined pre-frailty/frailty was associated with pre-1996 ART initiation (OR, 3.56; CI, 1.23, 10.36; P=0.020) and depression (OR, 3.74; CI, 1.24, 11.27; P=0.019). Osteoporosis, serious non-AIDS events and AIDS were associated with Frailty Index-defined frailty (OR, 4.84, CI, 1.27, 18.43, P=0.021; OR, 4.27, CI, 1.25, 14.58, P=0.020; OR, 4.62, CI, 1.30, 16.45, P=0.018, respectively) and Edmonton Frail Scale-defined frailty (OR, 7.51; CI, 1.55, 36.42; P=0.012; OR, 7.71; CI, 1.62, 36.75; P=0.010; OR, 8.53; CI, 1.70, 42.73; P=0.009, respectively), independent of age and current CD4(+) T-cell count. Frailty, defined by any of the instruments, was significantly associated with poorer quality of life (P<0.001). CONCLUSIONS: Identifying frailty is an increasingly important contemporary consideration of HIV care related to ageing and quality of life.


Chronic immune activation persists despite antiretroviral therapy (ART) in HIV+ individuals and underpins an increased risk of age-related co-morbidities. We assessed the Frailty Index in older HIV+ Australian men on ART. Immunometabolic markers on monocytes and T cells were analyzed using flow cytometry, plasma innate immune activation markers by ELISA, and lipidomic profiling by mass spectrometry. The study population consisted of 80 HIV+ men with a median age of 59 (IQR, 56-65), and most had an undetectable viral load (92%). 24% were frail, and 76% were non-frail. Frailty was associated with elevated Glucose transporter-1 (Glut1) expression on the total monocytes (p=0.04), increased plasma levels of innate immune activation marker sCD163 (OR, 4.8; CI 1.4-15.9, p=0.01), phosphatidylethanolamine PE(36:3) (OR, 5.1; CI 1.7-15.5, p=0.004) and triacylglycerol TG(16:1_18:1_18:1) (OR, 3.4; CI 1.3-9.2, p=0.02), but decreased expression of GM3 ganglioside, GM3(d18:1:18:0) (OR, 0.1; CI 0.0-0.5, p=0.004). There is a strong inverse correlation between quality of life and the concentration of PE(36:3) (rho=-0.33, p=0.004) and PE(36:4) (rho=-0.37, p=0.001). These data suggest that frailty is associated with increased innate immune activation and abnormal lipidomic profile. These markers should be investigated in larger, longitudinal studies to determine their potential as biomarkers for frailty.

In 2014, 17% of newly diagnosed HIV infection cases in the United States were made in people over 50 years of age; actually, it is expected that in the near future this population group will be the most affected. This epidemiological change can be explained by the increased incidence of HIV infection in people over 50 years, but also by its higher prevalence due to treatment advances. As HIV infection has become a chronic one, new challenges have emerged. For instance, early-onset "geriatric syndromes," such as frailty, have been recognized in these patients. Frailty refers to a physiological state of vulnerability that increases the risk of adverse health-related outcomes. Frail individuals have higher risk of cognitive impairment; however, it is not known if early-onset frailty in those infected by HIV could also increase the risk of cognitive impairment in this already vulnerable population. The purpose of this review article is to describe, from an epidemiological point of view, the relationship between the changes promoted by HIV and the syndrome of frailty on cognitive function.

MENTAL HEALTH


The article offers information on the importance of gay resilience for HIV prevention. Topics discussed include the MPowerment Project in San Francisco, California that addresses stigma and mental health issues faced by gay men; citing an article by assistant professor Mark L. Hatzenbuehler, published in the periodical "Pediatrics," chances of LGBT people to commit suicide; and need for medical care cost control and mental health care for gay men.


Despite continued advances in HIV prevention and treatment, gay and bisexual men and other men who have sex with men (MSM) remain the population most impacted by HIV/AIDS in the US and many other Western countries. Additionally, MSM are disproportionately affected by various psychological problems, including depression, distress, trauma and substance use. These challenges frequently co-occur, and are associated with higher rates of behaviours related to HIV acquisition and transmission, HIV infection, and, for those living with HIV/AIDS, lower levels of treatment engagement. Moreover, racial disparities exist among MSM in the US; for example, young African American MSM bear a disproportionate burden of the continuing HIV epidemic, likely related to disparate HIV prevalence in partner pools as well as long-standing structural inequities. In this review, the mental health challenges facing MSM primarily in the US, related to HIV and STI prevention and across the HIV care cascade, including HIV diagnosis, engagement and retention in care, and antiretroviral adherence, are illustrated. Disparities among MSM including racial and ethnic, age-related and structural barriers associated with HIV prevention and treatment, as well as current interventions, are also described. Moving forward towards 2020, resources will be needed to assess and implement scalable intervention strategies to address psychological and social barriers to HIV and STI risk reduction and treatment for MSM, with a particular focus on the most vulnerable subpopulations. As access to prevention and treatment strategies expand, and new breakthroughs continue to emerge, behavioural strategies will continue to be needed to reduce risk and increase uptake and engagement among MSM most at risk through 2020 and beyond. [ABSTRACT FROM AUTHOR]


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.


Adults remain sexually active well into later life, but few report discussing sexual health with a physician after age 50. The authors explored how geriatrics education might better address sexual health in the context of a psychosocial conference for geriatrics fellows, program directors, and faculty comprising an informational plenary, which included a skills-building presentation on taking sexual histories, and a program director/faculty roundtable. Although informed about older adult sexual health, knowledge scores of geriatrics fellows increased following the plenary. Fellows reported inconsistent sexual history taking with older adults and noted patient differences in age and gender as barriers. The roundtable discussion highlighted several barriers to inclusion of sexual health content in geriatrics curricula including competing competencies, lack of educational materials, and
discomfort with this topic on the part of faculty. Implications of these findings for geriatrics training and education programs and suggestions for improving this domain of geriatrics education are discussed.


Background: Limited information suggests that men who have sex with men (MSM) are informally obtaining antiretroviral medication (ARVs) and using them for HIV pre-exposure prophylaxis (PrEP). Methods: Data are drawn from an on-going study examining the use of non-prescribed ARVs for PrEP. To date, 24 qualitative interviews have been conducted with HIV-negative, substance-using MSM living in Miami, Florida, USA. Data are presented from two participants who reported HIV seroconversion while using non-prescribed ARVs for PrEP. Results: Preliminary data indicate that some young MSM: (i) lack awareness of and accurate information about the efficacious use of PrEP; (ii) obtain non-prescribed ARVs from HIV-positive sex partners and use these medications for PrEP in a way that does not provide adequate protection against HIV infection or cohere with established guidelines; and (iii) engage in multiple HIV transmission risk behaviours, including condomless anal sex and injection drug use. Conclusions: The informal, nonprescribed and non-medically supervised use of ARVs for HIV prevention has the potential to undermine the protective benefits of PrEP and leave men unprotected against HIV transmission and at risk for ARV resistance. [ABSTRACT FROM AUTHOR]


Quantitative studies of gay and bisexual men have often reduced relational experiences to single dimensions and explored linkages with sexual risk behaviours. We sought to document the intersection of multiple relationship dimensions among 218 HIV-positive and 556 HIV-negative gay and bisexual men, and estimate associations with love and affection as well as various health and social covariates. We performed latent class analysis of relationships, employing five indicators: relationship status, sexual agreement (monogamous/open), and number of recent sex partners, sex parties, and anonymous sex encounters. We assessed differences in love and affection, and identified covariates using multinomial logistic regression. Two latent classes involved single men: 'single, less sex partners' (45% of sample) and 'single, more sex partners' (17%), differentiated by number of partners (52% vs. 92% of each class had ≥ 5 partners, respectively), party sex (3% vs. 57%), and anonymous sex (2% vs. 58%). Three involved regular partners: 'monogamish' (15%) (78% were monogamous yet 50% reported ≥ 1 recent sex partner); 'open, less sex partners' (15%) (100% open, 43% ≥ 5 partners, 10% party sex, 4% anonymous sex); and 'open, more sex partners' (9%) (96% open, 92% ≥ 5 partners, 47% party sex, 69% anonymous sex). Love and affection were common across classes, although more prevalent among partnered (85-91%) versus single (48-51%) men. Relative to 'single/less partners,' the study demonstrated that higher sexual sensation seeking scores were associated with membership in every class except 'monogamish'; erectile dysfunction drug use was associated with being in the 'more partners' (single and open) classes; anxiety and older age were associated with the 'open/less partners' class; and loneliness was associated with reduced odds of membership in all three partnered classes. We uncovered considerable relational diversity among gay and bisexual men and complex associations with love and wellbeing. Findings are relevant for sex researchers, educators, and therapists. [ABSTRACT FROM AUTHOR]


Participants at a sexual health clinic completed a survey with questions regarding sexual risk behavior and partner characteristics. Of 585 participants eligible for analysis, 124 reported generally having older male partners. These participants were significantly more likely to be HIV-infected (p < 0.001), have four or more sex partners as a "bottom" (p = 0.04), have concurrent partners (p = 0.01), and have partners suspected of having an sexually transmitted infection (p = 0.05) than participants without older partners. With analysis restricted to HIV- individuals, risk behaviors did not differ significantly between the groups. HIV-individuals with older partners may be at increased risk of HIV infection due to increased HIV prevalence among older sexual partners and not due to increased risk behaviors with these partners.

Cigarette smoking and heavy alcohol use is prevalent among HIV-infected men who sex with men (MSM) and have been linked to imperfect antiretroviral therapy (ART) adherence. Our study examined the correlates of smoking and whether smoking was independently associated with imperfect adherence in heavy-drinking HIV-infected MSM. Of the 185 participants, approximately half (n = 91, 49.2%) reported having smoked cigarettes in the past 30 days. Current smokers were more likely to have reported imperfect adherence compared to non-smokers (37.4% vs. 22.3%, p < 0.05). In multivariable regression analyses, only lower education was significantly associated with imperfect adherence. This study demonstrated that the greatest risk factor for smoking and imperfect ART adherence was low socioeconomic status, in which MSM of color were over-represented. As the first study to examine smoking and ART adherence in this population, our study has the potential to inform the clinical care provided to heavy-drinking MSM.


**Background:** To determine factors associated with age-disparate sexual partners among Vancouver gay, bisexual and other men who have sex with men (GBM).<bold>Methods:</bold>Sexually active GBM aged ≥16 years were recruited from February 2012 to February 2014. Participants self-completed a questionnaire on demographics, attitudes and sexual behaviour and substance use at last sexual event with five most recent partners. Two generalised linear mixed models identified factors associated with: (1) 'same-age' (referent), 'younger' or 'much-younger' and (2) 'same-age' (referent), 'older' or 'much-older' partners. Statistical interactions between age and HIV status were tested.<bold>Results:</bold>Participants (n=719) were predominantly gay (85.1%), White (75.0%), HIV-negative/unknown status (72.9%) with median age of 33 years (Q1,Q3: 26,47). A minority of sexual events were reported with much-older/much-younger partners (13.7%). In the multivariable models, GBM reporting older partners were more likely to be Asian or Latino, have greater Escape Motivation scores, report their partner used erectile dysfunction drugs (EDDs) and have received something for sex; compared with condom-protected insertive anal sex, participants with older partners were more likely to report condomless insertive anal sex with a serodiscordant or unknown status partner or no insertive anal sex. GBM reporting older partners were less likely to be bisexual-identified, have given something for sex and report event-level alcohol and EDD use. GBM reporting younger partners were more likely to have annual incomes >$30 000 and have met their partner online. As per significant statistical interactions, age-disparate relations were more common for younger HIV-positive and older HIV-negative GBM.<bold>Conclusions:</bold>Differences among age-disparate partners highlight important targets for health promotion and future research. [ABSTRACT FROM AUTHOR]


**Objective:** To describe the process of manufacturing and validation of an educational booklet for HIV/AIDS prevention in older adults. **Methods:** Methodological study developed in two phases - manufacturing of the booklet and validation of the educational material by judges. The manufacturing process involved a situational diagnosis with older adults, and its result indicated gaps in the knowledge with respect to HIV/AIDS. The validation process was performed by nine judges, selected by convenience. It was considered an agreement index of at least 0.80, analyzed through the content validity index. **Results:** We opted for a dialogue between two older adults divided into three categories: myths and taboos; ignorance; and prevention and importance of diagnosis. The average of the items was 0.90. The suggestions made by the judges were observed and modified for the final version. **Conclusion:** The material had relevant content for the judges, in addition to being able to be used by health professionals in the education and clarification of issues on the subject.


**Objective:** to analyze knowledge produced by research about health literacy for adult with HIV/AIDS. **Method:** an integrative literature review, using six databases, was conducted between January and April of 2014. The descriptors aids and Health Literacy were used, in Portuguese, English and Spanish. A total of 130 articles were found and 14 were selected. Three categories were identified: educational technologies and health literacy for HIV/AIDS; assessment of health literacy of patients with HIV/AIDS;
and health literacy and adherence to antiretroviral therapy. Results:: analysis of health literacy, socioeconomic status and educational level of people living with HIV/AIDS was essential for implementation of educational strategies that increased adherence to health guidance. Conclusion:: this study showed the importance of health literacy for working with people living with HIV/AIDS, especially considering individuals who did not possess the minimum necessary for survival, which makes it relevant and encourages further research on the topic.


We explored the effect of older partner's age and age difference between partners on condomless sex among men who have sex with men (MSM). We analyzed dyads (n = 1720) from participants (n = 969) in the Sexual Acquisition Transmission of HIV Cooperative Agreement Program. We used modified Poisson regression to model the probability of a sexual encounter's being condomless as a function of older partner's age and age difference between partners adjusting for HIV status, substance use, race/ethnicity, and partner type. We found an interaction between older partner's age and age difference (p < 0.05). Condomless sex decreased with increasing age of the older partner when the age difference was 5-9 years (p = 0.004) or >/=10 years (p = 0.04), but not when <5 years. Condomless sex was less likely among older MSM when there was >/=5 years age difference between partners than <5 years difference. Both age and age discordance affect the likelihood of a sexual encounter between MSM being condomless.


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.


IMPORTANCE: Outcomes of treating high-grade squamous intraepithelial lesions (HSIL), a precursor to anal cancer, remain uncertain. Emerging evidence shows that post HSIL treatment adjuvant quadrivalent human papillomavirus (qHPV) vaccination improves the effectiveness of treatment. However, no recommendations exist regarding the use of qHPV vaccine as an adjuvant form of therapy. Our objective was to determine whether post-treatment adjuvant vaccination should be adopted in HIV-infected MSM (individuals at highest risk for anal cancer) on the basis of cost-effectiveness determined using existing evidence or whether future research is needed. METHODS: We developed a Markov (state-transition) cohort model to assess the cost-effectiveness of post-treatment adjuvant HPV vaccination of 27 years or older HIV-infected MSM. We first estimated cost-effectiveness and then performed value-of-information (VOI) analysis to determine whether future research is required by estimating the expected value of perfect information (EVPI). We also estimated expected value of partial perfect information (EVPPI) to determine what new evidences should have highest priority. RESULTS: With the incremental cost-effectiveness ratio (ICER) of $71,937/QALY, "treatment plus vaccination" was the most cost-effective HSIL management strategy using the willingness-to-pay threshold of 100,000/QALY. We found that population-level EVPI for conducting future clinical research evaluating HSIL management approaches was US$12 million (range $6-$20 million). The EVPPI associated with adjuvant qHPV vaccination efficacy estimated in terms of hazards of decreasing HSIL recurrence was $0 implying that additional data from a future study evaluating efficacy of adjuvant qHPV
vaccination will not change our policy conclusion that "treatment plus vaccination" was cost-effective. Both the ICER and EVPI were sensitive to HSIL treatment compliance. CONCLUSION: Post-treatment adjuvant qHPV vaccination in HIV-infected MSM aged 27 or above is likely to be cost-effective. Use of adjuvant qHPV vaccination could be considered as a potential strategy to reduce rising anal cancer burden among these high-risk individuals.


We examined the prevalence of sex with older male partner (SWOMP) and its association with condomless anal intercourse (CAI) with male partners and unrecognized HIV infection among young men who have sex with men (MSM) in Shanghai, China. The analytic sample included 243 MSM who were 18-45 years and HIV negative or of unknown HIV serostatus. Older male partner refers to male sex partner who was at least 10 years older than themselves. Overall, 99 (43.0%) and 50 (20.7%) reported having SWOMP in lifetime and in the last 3 months, respectively. Having any CAI with male partners in the last 3 months was independently associated with SWOMP and sex with stable male partners in the last 3 months. Unrecognized HIV infection was independently associated with being HSV-2 positive and having any CAI with male partners as well as SWOMP in last 3 months. Sex with stable male partner in the last 3 months was also marginally significantly associated with unrecognized infection (p = 0.084). Older partner selection is common among young MSM in China. Prevention programs should incorporate education messages about the HIV risk associated with SWOMP. MSM should be informed that having condomless sex with stable partners may place them at HIV risk.


PURPOSE OF THE STUDY: Adults with HIV infection are living into old age. It is critical we investigate positive constructs such as resilience and mastery to determine factors associated with psychological well-being. We examine HIV-related factors, adverse conditions, and psychosocial characteristics that are associated with resilience (the ability to bounce back) and mastery (sense of self-efficacy). DESIGN AND METHODS: We analyzed 2014 data from the longitudinal study Aging with Pride: National Health, Aging, and Sexuality/Gender Study (NHAS), focusing on a subsample of 335 gay and bisexual older men. Multivariate linear regression was used to identify factors that contributed or detracted from resilience and mastery in the sample recruited from 17 sites from across the United States. RESULTS: Resilience and mastery were independently associated with psychological health-related quality of life. In multivariate analysis, adjusting for demographic characteristics, previous diagnosis of depression was negatively associated with resilience. Time since HIV diagnosis was positively associated with mastery whereas victimization was negatively associated with mastery. Social support and community engagement were positively associated with both resilience and mastery. IMPLICATIONS: Individual and structural-environmental characteristics contributed to resilience and mastery. These findings can be used to develop interventions incorporating an increased understanding of factors that are associated with both resilience and mastery.


This editorial accompanies a series of papers dealing with this watershed period for HIV and sexually transmissible infections (STI) infections in gay, bisexual and other men who have sex with men (GBM). We are delighted to share with you the views of some international opinion leaders on what the future may hold and what challenges lie ahead. In this issue of the Journal, authors describe current HIV and STI incidence among GBM and predict the future. [ABSTRACT FROM AUTHOR]

Sexual minority women (SMW) are at increased risk for substance abuse compared to heterosexual women. Two psychosocial factors that have been implicated in SMW's substance abuse are outness and LGBT community involvement, but findings have been mixed as to whether these are risk or protective factors. One possible explanation is that they may have different consequences for subgroups of SMW (lesbians, bisexual women, and queer women). While being open about one's sexual orientation and involved in the community may be protective for lesbians, discrimination against bisexual women may lead these same factors to contribute to substance abuse for bisexual women. It is unclear how these associations will operate for queer women, given limited research on this subpopulation. The current study examined whether sexual identity modified the associations between outness and community involvement with alcohol and drug abuse. We also examined whether perceived discrimination would help explain why these associations may be different for subgroups of SMW. A sample of 288 self-identified SMW (113 lesbians, 106 bisexual women, and 69 queer women) completed an online survey. Higher outness was associated with higher alcohol and drug abuse for bisexual women, but not for lesbians or queer women. Similarly, higher community involvement was associated with higher drug abuse for bisexual women, but not for lesbians or queer women. Among bisexual women, the association between community involvement and drug abuse was mediated by perceived discrimination. Further, the association between outness and drug abuse was mediated by both community involvement and perceived discrimination. Findings demonstrate that outness and community involvement function as risk factors for substance abuse for bisexual women, in part due to their associations with discrimination.


OBJECTIVES: To examine disparities in chronic conditions and health indicators among lesbian, gay, and bisexual (LGB) adults aged 50 years or older in the United States. METHODS: We used data from the 2013 and 2014 National Health Interview Survey to compare disparities in chronic conditions, health outcomes and behaviors, health care access, and preventive health care by sexual orientation and gender. RESULTS: LGB older adults were significantly more likely than heterosexual older adults to have a weakened immune system and low back or neck pain. In addition, sexual minority older women were more likely than their heterosexual counterparts to report having arthritis, asthma, a heart attack, a stroke, a higher number of chronic conditions, and poor general health. Sexual minority older men were more likely to report having angina pectoris or cancer. Rates of disability and mental distress were higher among LGB older adults. CONCLUSIONS: At substantial cost to society, many disparities in chronic conditions, disability, and mental distress observed in younger LGB adults persist, whereas others, such as cardiovascular disease risks, present in later life. Interventions are needed to maximize LGB health.


INTRODUCTION: We examined the stability of smoking behaviors, and factors associated with persistent smoking in a longitudinal study of HIV-positive gay and bisexual men in primary relationships. METHODS: A sample of 377 HIV-positive men on antiretroviral therapy and their same-sex partners completed five assessments over two years. Participants completed semi-structured interviews which assessed smoking status, sociodemographic factors, relationship dynamics, and HIV-related disease characteristics. Latent transition analysis estimated the amount of transition in smoking over time. Latent class analysis examined factors associated with smoking status across the study period. RESULTS: At baseline, 28.1% (n=106) of participants reported current smoking. Over 90% of the HIV-positive men remained in the same smoking category over time (68.4% persistent non-smokers; 24.1% persistent smokers). Men whose partners smoked and men with lower income had higher odds of being persistent smokers, whereas older men and men who identified as Latino race/ethnicity had lower odds of being persistent smokers compared to non-smokers. CONCLUSIONS: Despite efforts to reduce smoking among people living with HIV (PLWH), a substantial subset of men continued to smoke during their two years in the study. Findings suggest that primary partners who also smoke and low income were the strongest predictors of sustained smoking behaviors among HIV-positive men. Additional research is needed to better understand how to increase motivation and support for smoking cessation among PLWH and their primary partners, while attending to how socioeconomic status may inhibit access to and the sustained impact of existing smoking cessation programs.

Gay and bisexual men (GBM) in the USA experience a disproportionate burden of new HIV infections. Previous studies demonstrate that gay self-identification and outness are associated with GBM’s sexual risk-taking behaviors. However, little is known about the extent to which GBM make sexual decisions based on the level of HIV risk they associate with a male partner's sexual identity. Using qualitative interviews with 13 GBM, we examine how a partner’s gay identification, outness, and sex with women influence perceptions of HIV risk and decisions about condoms. Participants discussed a reduced HIV risk perception for partners who were not gay-identified, not out, or having sex with women, based on the belief that they were not having sex with other men. Some participants stated that this could lead to condomless sex. Participants perceived lower risk despite stating that these partners had reduced exposure to HIV prevention interventions and increased substance use during intercourse. These findings indicate a potential discrepancy between how GBM perceive HIV risk and the behavioral factors associated with risk. HIV prevention messages and policies should focus on tackling the myth that a non-gay identity is protective of HIV and decentralize messages and policies from being only about gay men. [ABSTRACT FROM AUTHOR]


Older adults are the fastest growing segment of people living with HIV, and unfortunately many are unaware of their HIV status. Many providers are reluctant to ask older adults about their sexual histories, evaluate their risk factors, and test for HIV, and older adults have low perception of HIV risk. Using data from the 2013 to 2014 National Health and Nutrition Examination Survey, this study assessed the prevalence of recent HIV testing among older adults in the United States (n = 1,056) and identified predictors and barriers to recent HIV testing. The prevalence of recent HIV testing was 28%. Recent HIV testing was associated positively with male gender, education level, having public insurance, having same sex sexual behavior, African, and Hispanic ethnicity, whereas age, income-to-poverty ratio, and Asian ethnicity were associated negatively with recent HIV testing. Public health social workers are advised that targeted HIV testing for Asian, economically disadvantaged, female older adults is needed to increase HIV awareness and detection and to decrease late diagnosis of HIV. Provided public insurance was identified as a predictor of recent HIV testing, facilitating economically disadvantaged older adults' eligibility for public insurance that will likely improve access to HIV testing services and increase HIV testing rates.


PURPOSE: Neighborhood characteristics shape sexual risk in HIV-uninfected adults in the United States (US). We assess relationships between census tract characteristics and sexual risk behaviors in a predominantly HIV-infected cohort of women living in the Southern US. METHODS: This cross-sectional multilevel analysis included data from 737 HIV-infected and HIV-uninfected women enrolled in the Women’s Interagency HIV Study. Administrative data captured characteristics of census tracts where women lived; participant-level data were gathered via survey. We used principal components analysis to condense tract-level variables into components: social disorder (e.g., violent crime rate), and social disadvantage (e.g., alcohol outlet density). We used hierarchical generalized linear models to assess relationships between tract-level characteristics and condomless vaginal intercourse, anal intercourse, and condomless anal intercourse. RESULTS: Greater social disorder was associated with less anal intercourse (OR = 0.63, 95% CI = 0.43-0.94) and condomless anal intercourse (OR = 0.49, 95% CI = 0.30-0.80), regardless of HIV status. There were no statistically significant additive or multiplicative interactions between tract characteristics and HIV status. CONCLUSIONS: Neighborhood characteristics are associated with sexual risk behaviors among women living in the Southern US, these relationships do not vary by HIV status. Future studies should establish temporality and explore the causal pathways through which neighborhoods influence sexual risk.

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: Sexuality is a significant component in human experience and has an important impact on the individual's general well-being. Life course events and the social construction of sexuality lead older widows to reflect upon their sexuality. PURPOSE: To explore and describe the ways in which older widows construct and perceive their sexuality along the life course. METHOD: A phenomenological-qualitative approach was conducted. Data collection was performed through in-depth, semi-structured interviews with 17 widows, between the ages of 62-91, followed by content analysis. RESULTS: Three major themes emerged: (a) Approaching sexuality: Conservative vs. progressive attitudes; (b) Multiple ways of perceiving sexuality: Constructing a sexual identity along the life course; and (c) Sexual self-perception: Integrating late life and widowhood. CONCLUSION: Sexuality among widows in later life includes continuity and change processes. In the context of social construction, sexuality is a subject that should be examined in greater depth.


Sexual debut experience may influence HIV/sexual risks among men who have sex with men (MSM). We assessed associations between age of sexual debut and sex of debut partner with recent (past-3-month) sexual/HIV/syphilis risks among 3588 community-based Chinese MSM. Sexual debut with women was associated with more recent (condomless) insertive anal sex with men, more recent (condomless) vaginal sex, and more lifetime female partners. Sexual debut with men was associated with more recent (condomless) receptive anal sex with men and more lifetime male partners. All associations were strongest among those having first sex </=18 years in both groups. Earlier sexual debut was associated with higher HIV/syphilis risk; HIV risk was higher with first sex with a man, but syphilis was higher with first sex with a woman. Earlier age of sexual debut is associated with greater HIV/syphilis and sexual risks, but MSM risk differs with first sex with women versus men.


INTRODUCTION: Hispanics/Latinos (henceforth, Latinos) are the largest minority group in the U.S. With growing health disparities among this group, the highest burden remains among sexual and gender minority Latinos. Differences regarding sexual orientation have not been fully explored within this group using national representative samples. This study analyzed sexual and behavioral health disparities associated with sexual minority status among Latinos in the U.S. METHODS: The study included data from 5,598 Latino adults who participated in the 2001-2014 waves of the National Health and Nutrition Examination Survey. Data analysis was conducted in 2016. Bivariate and multivariable logistic regression analyses examined the prevalence of HIV, sexually
transmitted infections, mental health problems, cigarette smoking, and alcohol/illicit drug use among sexual minorities and heterosexual Latino adults. Sexual minorities were defined as "gay, lesbian, and bisexual" (GLB) and "other" non-heterosexual groups. RESULTS: GLB Latinos reported higher prevalence of mental health problems and cigarette smoking compared with heterosexuals. After adjusting for covariates, GLB Latinos had greater odds of testing positive for HIV, lifetime diagnosis of sexually transmitted infections, poor mental health outcomes, cigarette smoking (including lifetime and current smoking status), and illicit drug use than heterosexuals. CONCLUSIONS: The disproportionate impact of health disparities among Latinos varies significantly by sexual orientation, with GLB individuals facing elevated prevalence. In particular, elevated odds for HIV/sexually transmitted infections, mental health problems, smoking, and illicit substance use were found. Further research, including longitudinal studies to understand the trajectories of risks, is needed to identify intervention opportunities in this population.


OBJECTIVE: To compare the 2016 United Nations Programme on HIV/AIDS (UNAIDS) modelled estimates of adult mortality in sub-Saharan Africa to empirical estimates. DESIGN: Age-specific mortality rates were obtained from nationally representative sibling survival data, recent household deaths and vital registration, and directly compared with UNAIDS estimates. Orphanhood prevalence derived from UNAIDS mortality estimates was compared with survey and census reports on the survival of children's parents. METHODS: Age-specific mortality rates for adults aged 15-59 years were calculated from Demographic and Health Surveys and deaths reported in censuses or vital registration, adjusted for underreporting, whenever possible. Proportions of orphans were extracted from censuses and surveys for children aged 5-9 years. RESULTS: UNAIDS estimates were significantly higher than sibling mortality estimates, except among men in countries with very high HIV prevalence. There was a better agreement between rates based on household deaths or vital registration and model outputs. Sex ratios (M/F) of adult mortality were lower in UNAIDS estimates. The modelled orphan prevalence was significantly higher than in surveys and censuses, again with the exception of paternal orphans in countries with very high HIV prevalence. Ratios of paternal-to-maternal orphans were lower in the UNAIDS model than surveys and censuses. Among women, increases in mortality due to AIDS were more concentrated in the age range 25-50 years in model outputs, as compared with empirical estimates. CONCLUSION: Discrepancies in levels, sex ratios and age patterns of adult mortality between empirical and UNAIDS estimates call for additional data quality assessments and improvements in estimation methods.


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It is recognised that those diagnosed with HIV infection over the age of 50 have higher rates of morbidity and mortality. Little is known about how clinical presentation at diagnosis of HIV varies within this group. We sought to compare clinical presentation and markers of outcome among those diagnosed with HIV aged 60 and over vs. those diagnosed aged 50-59, over a ten-year period. The results showed that 84/111 were diagnosed with HIV aged 50-59 and 27/111 aged >/=60. Ethnicity and HIV risk factors were similar between groups, and most infections were sexually acquired with 7.4% of those aged >/=60 suspected to have a recent infection. Median CD4 cell count at presentation was significantly lower in the >/=60 age group (111 vs. 249; p < 0.001), and the proportion with a CD4 cell count <50 was also significantly lower in this population (33% vs. 15%; p = 0.04). In keeping with this, the frequency of AIDS-defining illness at diagnosis was higher in the >/=60 group (38% vs. 4%; p < 0.001). Co-morbidities were found in both groups, and 38% of those aged >/=60 at diagnosis were known to have since died compared to 4% of those aged 50-59 at diagnosis (p < 0.01). Those aged >/=60 had lower CD4 cell counts at diagnosis and more AIDS-defining illnesses, highlighting the
increased risk of poor outcomes in this group. The majority of infections were sexually acquired. More work is needed to understand survival in adults diagnosed with HIV at an older age and to consider those over 60 as a specific population worthy of further research.


Men who have sex with men (MSM) who attend group-sex events often engage in risky sexual behaviors that contribute to the high human immunodeficiency virus (HIV) incidence among this population. We conducted an online survey with 211 New York City MSM who attended sex parties in the prior year and asked them to describe their behaviors and perceptions of risk. We compared responses from HIV-positive-undetectable men (n = 36), HIV-negative men on pre-exposure prophylaxis (PrEP; n = 62), and HIV-negative men never on PrEP (n = 113). In bivariate analyses, undetectable and on-PrEP men had been to more sex parties in the prior six months, had more anal sex partners there, and had higher rates of sexually transmitted infection (STI) diagnoses than men never on PrEP. Although less than the other groups, 43% of the presumably HIV-negative men never on PrEP reported condomless anal sex at a party in the prior six months. About half of participants agreed that, at sex parties, they made assumptions about others' HIV status, that they sometimes took more risks than intended, and that the atmosphere of these events was conducive to risk taking. Most disagreed that there was discussion of HIV status at sex parties. Implications for sexual health interventions are discussed.


Black and Latino men who have sex with men (BLMSM) are disproportionately infected with HIV; they comprised 66% of HIV diagnoses among men who have sex with men (MSM) in the United States in 2015. Risk factors for HIV infection among BLMSM include a high community prevalence of diagnosed and undiagnosed HIV/STDs, and dense sex partner networks. Perceptions of HIV risk among BLMSM were explored to inform HIV prevention efforts. During 2011-2012, semistructured interviews were conducted with BLMSM in New York City. Using computer-assisted thematic analyses (NVivo), transcribed interview responses to questions regarding HIV risk for main themes were examined. Interview data were available for 108 BLMSM: 86% Black, 13% Latino, 26% aged 18-24 years, 59% self-identified as "gay," and 33% self-identified as "bisexual." The main emergent theme was stigma. Subthemes related to stigma included: (a) homophobia in the Black and Latino community, (b) fear of losing support from family and friends, and (c) lack of support leading to low self-esteem. Addressing the stigma felt by BLMSM may be an important strategy to facilitate improved HIV prevention efforts, HIV care and treatment, and to decrease HIV-related disparities.


Background: Controlled drug use has been described by previous researchers however few such studies explored the clubbing or gay/bisexual populations. Research into gay/bisexual men's drug-taking fails to acknowledge the possibilities of controlled drug use. This study takes a qualitative approach to the data in an attempt to explore the phenomenon as it exists.

Method: Eight men who identified as gay/bisexual and took drugs on a controlled basis participated in semi-structured interviews. Interpretative phenomenological analysis (IPA) was used to analyse the data, indicating themes emerging from the participants' communicated experiences. Results: nalysis revealed a significant theme related to control and organisation, depicting how participants maintained a sense of control over their drug use and what helped this sense of control in use. Results show that not all gay/bisexual men's drug use follows a usage-addiction pattern and that controlled drug use is possible. Participants indicated that they were able to control their drug use through an interaction of personality traits, social factors and self-knowledge. Conclusion: The research enhances the understanding of controlled drug use, especially within the gay/ bisexual clubbing sub-culture. Furthermore, it clarifies strategies that could be useful for other drug-taking populations who wish to control their drug use. The cycle of and reasons for the drug-taking behaviour are possible routes for further research. [ABSTRACT FROM AUTHOR]

BACKGROUND: We assess trends in HIV and hepatitis C virus (HCV) risk behaviors and prevalent infection among people who inject drugs (PWID) in New York City (NYC). METHODS: PWID in NYC were sampled using respondent-driven sampling in 2005, 2009, and 2012 (serial cross sections) for the Centers for Disease Control and Prevention-sponsored National HIV Behavioral Surveillance study. Participants were interviewed about their current (<12 months) risk behaviors and tested for HIV and HCV. The crude and adjusted risk ratio (RR) and 95% confidence interval (95% CI) for linear time trends were estimated using generalized estimating equations regression with a modified Poisson model. RESULTS: The sample comprised 500, 514, and 525 participants in 2005, 2009, and 2012, respectively. Significant (P < 0.05) linear trends in risk behaviors included a decline in unsafe syringe sources (60.8%, 31.3%, 46.7%; RR = 0.86, 95% CI: 0.81 to 0.92), an increase in all syringes from syringe exchanges or pharmacies (35.4%, 67.5%, 50.3%; RR = 1.15, 95% CI: 1.09 to 1.22), and an increase in condomless vaginal or anal sex (53.6%, 71.2%, 70.3%; RR = 1.14, 95% CI: 1.09 to 1.19). Receptive syringe sharing (21.4%, 27.0%, 25.1%), sharing drug preparation equipment (45.4%, 43.4%, 46.7%), and having >/=2 sex partners (51.2%, 44.0%, 50.7%) were stable. Although HIV seroprevalence declined (18.1%, 12.5%, 12.2%), HCV seroprevalence was high (68.2%, 75.8%, 67.1%). In multivariate analysis, adjusting for sample characteristics significantly associated with time, linear time trends remained significant, and the decline in HIV seroprevalence gained significance (adjusted RR = 0.76, 95% CI: 0.64 to 0.91, P = 0.003). CONCLUSIONS: This trend analysis suggests declining HIV prevalence among NYC PWID. However, HCV seroprevalence was high and risk behaviors were considerable. Longitudinal surveillance of HIV and HCV risk behaviors and infections is needed to monitor trends and for ongoing data-informed prevention among PWID.


We describe changes in sexual behaviors among men who have sex with men (MSM) following initiation of pre-exposure prophylaxis (PrEP) in a clinic-based sample of MSM initiating PrEP in Providence, Rhode Island. Data were collected at baseline, 3, and 6 months following PrEP initiation including total number of anal sex partners and condom use. A longitudinal mixed effects model assessed changes in number of partners and condom use over time, adjusting for age, race, and education. There was no statistically significant difference in total number of partners over time. There was a significant increase in number of condomless anal sex partners at the 6-month visit compared to baseline (mean change +1.31 partners, 95% confidence interval 0.09-2.53, P = 0.035). As condomless anal sex may increase following PrEP uptake, adherence counseling and efforts to retain patients in PrEP care, especially during periods of non-condom use, are important as PrEP is more widely implemented.


BACKGROUND: Hepatitis C virus (HCV) screening has taken on new importance as a result of updated guidelines and new curative therapies. Relatively few studies have assessed HCV infection in homeless populations, and a minority include women. We assessed prevalence and correlates of HCV exposure in a cohort of homeless and unstably housed women in San Francisco, and estimated the proportion undiagnosed. METHODS: A probability sample of 246 women were recruited at free meal programs, homeless shelters, and low-cost single room occupancy hotels in San Francisco; women with HIV were oversampled. At baseline, anti-HCV status was assessed using an enzyme immunoassay, and results compared in both HIV-positive and negative women. Exposures were assessed by self-report. Logistic regression was used to assess factors independently associated with HCV exposure. RESULTS: Among 246 women 45.9% were anti-HCV positive, of whom 61.1% were HIV coinfected; 27.4% of positives reported no prior screening. Most (72%) women were in the 'baby-boomer' birth cohort; 19% reported recent injection drug use (IDU). Factors independently associated with anti-HCV positivity were: being born in 1965 or earlier (AOR 3.94; 95%CI: 1.88, 8.26), IDU history (AOR 4.0; 95%CI: 1.68, 9.55), and number of psychiatric diagnoses (AOR 1.16; 95%CI: 1.08, 1.25). CONCLUSIONS: Results fill an important gap in information regarding HCV among homeless women, and confirm the need for enhanced screening in this population where a high proportion are baby-boomers and have a history of drug use and psychiatric problems. Due to their age and risk profile, there is a high probability that women in this study have been infected for decades, and thus have significant liver disease. The association with mental illness and HCV suggests that in addition increased screening, augmenting mental health care and support may enhance treatment success.
Living with HIV can be both a precipitant and a consequence of partner abuse (PA) across populations, including male–male partnerships. However, overlapping experiences of living with HIV and experiencing PA are not well characterized. We conducted 24 qualitative interviews with urban HIV-positive sexual minority men (SMM) recruited from a public hospital HIV clinic in Seattle, Washington, who reported lifetime PA histories, and analyzed them using content analysis. Participants reported psychological, physical, and sexual victimization from partners, varying in severity. Themes included (a) how HIV and minority stress (e.g., through self-stigma, serosorting) and (b) familial and repeated exposure to violence (e.g., through normalization or acceptance of PA, partnering as strategy for increasing one’s own safety, esteem, or social status), independently and in combination, provided a context for the men’s victimization. Our findings suggest that PA-related interventions might focus on coping with stigma, expanding social networks, and educating SMM about dysfunctional relationship dynamics. [ABSTRACT FROM AUTHOR]

Sexuality is an important component of overall health and quality of life, yet evidence suggests many aging adults are not discussing sexual health with their physician. The objective of this study was to understand practices of primary care physicians in discussing sexual health with aging patients. An electronic survey was distributed to primary care physicians and family medicine residents at an urban academic hospital in Ontario, Canada. The survey captured the self-reported prevalence of discussions of sexual health with patients aged 50 and above as well as patient, physician and contextual factors influencing the likelihood of discussion. Descriptive statistics were used to summarize the results. Among the 37 physicians who responded to the survey (response rate of 24%), physicians were more likely to discuss sexual health with patients aged 50-75 years than with patients >75 years with both males (p < 0.0001) and females (p < 0.0001). Most frequently discussed issues with males were erectile dysfunction and sexually transmitted infection, while atrophic vaginitis, bleeding, and pain during intercourse were most often discussed with females. Factors limiting discussion include lack of time, multiple patient comorbidities and a perceived disinterest in sexual activity. 54% of respondents report having adequate knowledge to discuss and manage later life sexual health issues. Proactively discussing sexuality with aging adults may reveal underlying illness and facilitate future help-seeking behaviours. We suggest that primary care physicians have a responsibility to routinely initiate such discussions in clinical practice. [ABSTRACT FROM AUTHOR]

BACKGROUND: HIV and sexually transmitted infections (STIs) disproportionately affect women who experience intimate partner violence (IPV). OBJECTIVE: The current study (1) applied a syndemic framework to study the collective effects of problematic drug use, hazardous drinking, depression, and posttraumatic stress disorder (PTSD) on fear of condom negotiation, condom negotiation, and condom use and (2) evaluated condom negotiation (controlling for fear of condom negotiation) as a mediator of the association between syndemic severity and condom use among low-income IPV-exposed women. METHODS: Participants were 158 women living in the community and experiencing ongoing IPV who completed face-to-face, computer-assisted interviews. RESULTS: Almost three-fourths of the participants reported problematic drug use, hazardous drinking, depression, and/or PTSD; many of these factors were correlated, indicating a syndemic. Multivariate logistic and linear regression analyses revealed associations between syndemic severity and fear of condom negotiation (OR = 1.57, p = .02), condom negotiation (beta = -8.51, p = .001), and condom use (beta = -8.26, p = .01). Meditation analyses identified condom negotiation as a mediator of the association between syndemic severity and condom use (effect = -6.57, SE = 2.01, [95% CI: -10.66, -2.77]). CONCLUSIONS: Results fill a critical gap in previous research by identifying condom negotiation as a mechanism through which this syndemic affects condom use. Prevention and intervention programs should consider addressing condom negotiation to reduce sexual risk among this high-risk population. Further, because IPV-exposed women may experience fear related to condom negotiation, it is critical that prevention and intervention efforts for this population offer skills to safely negotiate condom use, increase condom use, and reduce STI and HIV risk.

**w w w . H I V - A G . o r g**

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.


OBJECTIVES: To evaluate the HOLA en Grupos intervention, a Spanish-language small-group behavioral HIV prevention intervention designed to increase condom use and HIV testing among Hispanic/Latino gay, bisexual, and other men who have sex with men. METHODS: In 2012 to 2015, we recruited and randomized 304 Hispanic/Latino men who have sex with men, aged 18 to 55 years in North Carolina, to the 4-session HOLA en Grupos intervention or an attention-equivalent general health education comparison intervention. Participants completed structured assessments at baseline and 6-month follow-up. Follow-up retention was 100%. RESULTS: At follow-up, relative to comparison participants, HOLA en Grupos participants reported increased consistent condom use during the past 3 months (adjusted odds ratio [AOR] = 4.1; 95% confidence interval [CI] = 2.2, 7.9; P < .001) and HIV testing during the past 6 months (AOR = 13.8; 95% CI = 7.6, 25.3; P < .001). HOLA en Grupos participants also reported increased knowledge of HIV (P < .001) and sexually transmitted infections (P < .001); condom use skills (P < .001), self-efficacy (P < .001), expectancies (P < .001), and intentions (P < .001); sexual communication skills (P < .01); and decreased fatalism (P < .001). CONCLUSIONS: The HOLA en Grupos intervention is efficacious for reducing HIV risk behaviors among Hispanic/Latino men who have sex with men.


OBJECTIVE: To identify the unmet needs for HIV prevention among older adults in rural South Africa. METHODS: We analyzed data from a population-based sample of 5059 men and women aged 40 years and older from the study Health and Aging in Africa: Longitudinal Studies of INDEPTH Communities (HAALSI), which was carried out in the Agincourt health and sociodemographic surveillance system in the Mpumalanga province of South Africa. We estimated the prevalence of HIV (laboratory-confirmed and self-reported) and key sexual behaviors by age and sex. We compared sexual behavior profiles across HIV status categories with and without age-sex standardization. RESULTS: HIV prevalence was very high among HAALSI participants (23%, 95% confidence interval [CI]: 21 to 24), with no sex differences. Recent sexual activity was common (56%, 95% CI: 55 to 58) across all HIV status categories.
Condom use was low among HIV-negative adults (15%, 95% CI: 14 to 17), higher among HIV-positive adults who were unaware of their HIV status (27%, 95% CI: 22 to 33), and dramatically higher among HIV-positive adults who were aware of their status (75%, 95% CI: 70 to 80). Casual sex and multiple partnerships were reported at moderate levels, with slightly higher estimates among HIV-positive compared to HIV-negative adults. Differences by HIV status remained after age-sex standardization. CONCLUSIONS: Older HIV-positive adults in an HIV hyperendemic community of rural South Africa report sexual behaviors consistent with high HIV transmission risk. Older HIV-negative adults report sexual behaviors consistent with high HIV acquisition risk. Prevention initiatives tailored to the particular prevention needs of older adults are urgently needed to reduce HIV risk in this and similar communities in sub-Saharan Africa.


Youth represent a large proportion of new HIV infections worldwide, yet their utilization of HIV testing and counseling (HTC) remains low. Using the post-intervention, cross-sectional, population-based household survey done in 2011 as part of HPTN 043/NIMH Project Accept, a cluster-randomized trial of community mobilization and mobile HTC in South Africa (Soweto and KwaZulu Natal), Zimbabwe, Tanzania and Thailand, we evaluated age-related differences among socio-demographic and behavioral determinants of HTC in study participants by study arm, site, and gender. A multivariate logistic regression model was developed using complete individual data from 13,755 participants with recent HIV testing (prior 12 months) as the outcome. Youth (18-24 years) was not predictive of recent HTC, except for high-risk youth with multiple concurrent partners, who were less likely (aOR 0.75; 95% CI 0.61-0.92) to have recently been tested than youth reporting a single partner. Importantly, the intervention was successful in reaching men with site specific success ranging from aOR 1.27 (95% CI 1.05-1.53) in South Africa to aOR 2.30 in Thailand (95% CI 1.85-2.84). Finally, across a diverse range of settings, higher education (aOR 1.67; 95% CI 1.42, 1.96), higher socio-economic status (aOR 1.21; 95% CI 1.08-1.36), and marriage (aOR 1.55; 95% CI 1.37-1.75) were all predictive of recent HTC, which did not significantly vary across study arm, site, gender or age category (18-24 vs. 25-32 years).


INTRODUCTION: Two-thirds of people living with HIV (PLWH) show sub-optimal adherence to antiretroviral therapy (ART) and one-third engages in risky sex. Both non-adherence and risky sex have been associated with emotional distress and impulsivity. To allay distress and lessen impulsivity, mindfulness training (MT) can be helpful. In this trial, we will investigate the utility of phone-delivered MT for PLWH. The primary outcomes comprise feasibility and acceptability of phone-delivery; secondary outcomes are estimates of efficacy of MT on adherence to ART and safer sexual practices as well as on their hypothesized antecedents.

METHODS/DESIGN: Fifty participants will be enrolled in this parallel-group randomized clinical trial (RCT). Outpatients recruited from an HIV treatment clinic will be randomized (1:1 ratio) to either MT or to an attention-control intervention; both interventions will be administered during 8 weekly phone calls. ART adherence (self-reported measure and unannounced phone pill counts), sexual behavior (self-reports and biomarkers), mindfulness, depression, stress, and impulsivity will be measured at baseline, post-intervention, and 3 months post-intervention. CONCLUSIONS: MT has great potential to help PLWH to manage stress, depressive symptoms, and impulsivity. Positive changes in these antecedents are expected to improve safer sex practices and ART adherence. If results from this exploratory trial support our hypotheses, we will conduct a large RCT to test (a) the efficacy of MT on ART adherence and safer sex practices and (b) the hypothesis that improved ART adherence and safer sex will reduce viral load, and decrease the incidence of sexually transmitted infections, respectively.


HIV positive Black men who have sex with men (MSM) are retained in HIV medical care at suboptimal rates. Interventions targeted to Black MSM are needed to help to improve their retention in care. The purposes of this study were to investigate the use of mobile technology among HIV+ Black MSM and to explore participants' thoughts about the use of mobile technology for HIV retention in care interventions. Twenty-two HIV+ Black MSM completed a technology use survey and participated in a qualitative interview regarding technology-based interventions. The majority of participants (95%) had access to a cell phone, and used their phones frequently (median 3 hours/day). Men preferred interventions that would allow for anonymous participation and that would provide individually tailored support. Mobile technology is a promising approach to intervention delivery for both younger and older HIV+ Black MSM. These interventions should incorporate features that are desirable to men (i.e., anonymous participation and individual tailoring).


BACKGROUND: Recreational drug use and associated harms continue to be of significant concern in men who have sex with men (MSM) particularly in the context of HIV and STI transmission. METHODS: Data from 1484 HIV-negative or undiagnosed MSM included in the AURAH study, a cross-sectional, self-completed questionnaire study of 2630 individuals from 20 sexual health clinics in the United Kingdom in 2013-2014, was analysed. Two measures of recreational drug use in the previous three months were defined; (i) polydrug use (use of 3 or more recreational drugs) and (ii) chemsex drug use (use of mephedrone, crystal methamphetamine or GHB/GBL). Associations of socio-demographic, health and lifestyle factors with drug use, and associations of drug use with sexual behaviour, were investigated. RESULTS: Of the 1484 MSM, 350 (23.6%) reported polydrug use and 324 (21.8%) reported chemsex drug use in the past three months. Overall 852 (57.5%) men reported condomless sex in the past three months; 430 (29.0%) had CLS with >/=2 partners, 474 (31.9%) had CLS with unknown/HIV+ partner(s); 187 (12.6%) had receptive CLS with an unknown status partner. For polydrug use, prevalence ratios (95% confidence interval) for association with CLS measures, adjusted for socio-demographic factors were: 1.38 (1.26, 1.51) for CLS; 2.11 (1.80, 2.47) for CLS with >/=2 partners; 1.89 (1.63, 2.19) for CLS with unknown/HIV+ partner(s); 1.36 (1.00, 1.83) for receptive CLS with an unknown status partner. Corresponding adjusted prevalence ratios for chemsex drug use were: 1.38 (1.26, 1.52); 2.07 (1.76, 2.43); 1.88 (1.62, 2.19); 1.49 (1.10, 2.02). Polydrug and chemsex drug use were also strongly associated with previous STI, PEP use, group sex and high number of new sexual partners. Associations remained with little attenuation after further adjustment for depressive symptoms and alcohol intake. CONCLUSION: There was a high prevalence of polydrug use and chemsex drug use among HIV negative MSM attending UK sexual health clinics. Drug use was strongly associated with sexual behaviours linked to risk of acquisition of STIs and HIV.


This paper explores the prevalence and correlates of HIV seropositive status disclosure to sexual partners by people living with HIV (PLHIV) in South Africa. Secondary analysis of the 2012 South African National HIV Prevalence, Incidence and Behaviour Survey was conducted on data obtained from 934 sexually active PLHIV aged 15 years and older who responded to the question about HIV seropositive status disclosure. Overall, a large majority of respondents (77.1 %) reported disclosing their HIV-positive status to all their current sex partners. Multiple regression analysis, after adjustments for sex, marital status and locality type, revealed that those who were living together, going steady, and those who were single were all 60 % [adjusted odds ratio (AOR) = 0.4, 95 % CIs 0.20-0.78; AOR = 0.4, 95 % CIs 0.24-0.77; and AOR = 0.4, 95 % CIs 0.19-1.00, all ps < 0.05] less likely to disclose their HIV positive status to their partners compared to those who were married. Those who lived in rural formal areas were 70 % less likely to disclose their HIV status to their partners compared to those who stayed in urban formal areas (AOR = 0.3, 95 % CI 0.17-0.69, p < 0.001). Those who had correct HIV knowledge and rejection of myths were 2.0 times more likely to disclose their HIV status to their partners compared to those who did not have correct HIV knowledge and rejection of myths (AOR = 2.0, 95 % CI 1.04-3.68, p < 0.05). In conclusion, intervention programmes which help improve HIV seropositive status disclosure are needed by PLHIV who are not married, live in rural formal areas, and have incorrect HIV knowledge and rejection of myths.


Project PRIDE (Promoting Resilience In Discriminatory Environments) is an 8-session small group intervention aimed at reducing negative mental and behavioral health outcomes resulting from minority stress. This study reports the results of a one-armed pilot test of Project PRIDE, which aimed to examine the feasibility and potential for efficacy of the intervention in a sample of 33 gay and bisexual men aged 18 to 25. The intervention appeared feasible to administer in two different sites and all participants who completed posttreatment (n = 22) or follow-up (n = 19) assessments reported high satisfaction with the intervention. Small to large effect sizes were observed for increases in self-esteem; small effect sizes were found for decreases in loneliness and decreases in minority stress variables; and small and medium effect sizes were found for reductions in alcohol use and number of sex partners, respectively. Overall, Project PRIDE appears to be a feasible intervention with promise of efficacy.


The goal to effectively prevent new HIV infections among gay, bisexual, and other men who have sex with men (MSM) is more challenging now than ever before. Despite declines in the late 1990s and early 2000s, HIV incidence among MSM is now increasing in many low- and high-income settings including the US, with young, adolescent, and racial/ethnic minority MSM being among those at highest risk. Potentiating HIV risks across all settings are individual-, network-, and structural-level factors such as stigma and lack of access to pre-exposure prophylaxis (PrEP) and antiretroviral treatment as prevention. To make a sustained impact on the epidemic, a concerted effort must integrate all evidence-based interventions that will most proximally decrease HIV acquisition and transmission risks, together with structural interventions that will support improved coverage and retention in care. Universal HIV treatment, increased access to HIV testing, and daily oral PrEP have emerged as integral to the prevention of HIV transmission, and such efforts should be immediately expanded for MSM and other populations disproportionately affected by HIV. Respect for human rights and efforts to combat stigma and improve access to prevention services are needed to change the trajectory of the HIV pandemic among MSM. [ABSTRACT FROM AUTHOR]


Although rates of crystal methamphetamine use in the United States have fallen from their peak in the mid-2000s, use remains a major public health concern, which disproportionately affects gay and bisexual men (GBM). It poses a particular challenge for HIV-positive men, for whom it has been linked to medication adherence problems as well as compromised immune function. Although the information, motivation, and behavioral skills (IMB) model has been widely used to conceptualize health behavior, little is known about GBM's initial levels of information, motivation, and behavioral self-efficacy to improve HIV medication adherence and to reduce crystal methamphetamine use at the outset of treatment. The present study identified profiles of IMB factors related to HIV medication adherence and crystal methamphetamine use in a sample of 210 HIV-positive GBM who consented to participate in an intervention study. Results indicated three distinct patterns of IMB factors. The largest group was ready to change both adherence and methamphetamine use (n = 104). This group also had depression scores that were significantly lower than other groups. A second group appeared ready to change medication adherence, but was ambivalent about changing methamphetamine use (n = 60). This group reported significantly more symptoms of methamphetamine dependence than the other groups. A third group was characterized by global IMB barriers to change (n = 46). Results are discussed in the context of tailoring psychoeducation, motivational interviewing, and cognitive behavioral interventions to match these preintervention patterns of IMB factors.
Intimate partner violence (IPV) rates are disproportionately high among sexual minority populations, with increasing evidence that gay men experience IPV at the same rates as heterosexual women. This study examines the relationship between self-reported condomless anal intercourse (CAI) and IPV among a sample of 750 gay and bisexual men. Participants answered questions regarding recent receipt and perpetration of IPV using the IPV-GBM Scale (Cronbach Alpha 0.90). Of the sample, 46.1% reported recent receipt of any type of IPV and 33.6% reported recent perpetration of any type of IPV. Overall, 55.1% of participants reported CAI at last sex. Significant associations were determined between several forms of IPV and increased odds of reporting CAI at last sex. These findings suggest that IPV may be a risk factor for CAI among men who have sex with men, and highlight the need to understand the IPV prevention and care needs of this population.


OBJECTIVES: Despite the wide accessibility to free human immunodeficiency virus (HIV) testing and combined antiretroviral therapy (cART), late HIV diagnosis remains common with severe consequences at individual and population level. This study aimed to describe trends of late HIV testing and to identify their determinants in the late cART era in Italy. STUDY DESIGN: We conducted a population-based, nationwide analysis of the Italian National AIDS Registry data (AIDS - acquired immune deficiency syndrome) for the years 1999-2013. METHODS: Late testers (LTs) were defined as people with AIDS (PWA) whose first HIV-positive test preceded AIDS diagnosis by 3 months or less. Odds ratios (ORs) with the corresponding 95% confidence intervals (CIs) were estimated to examine factors associated with being LTs. Joinpoint analysis was used to estimate annual percent changes (APCs) of LTs' proportion over time. RESULTS: Among 20,753 adult PWA, 50.8% were LTs. Italian PWA showed a lower proportion of LTs than non-Italian PWA (46.5% vs 68.2%). Among Italian PWA, the odds of being LTs was higher in men than in women (OR = 2.62, 95% CI: 2.38-2.90); in the age groups below 35 years and over 49 years at diagnosis (OR = 1.24, 95% CI: 1.12-1.37 and OR = 1.51, 95% CI: 1.38-1.67, respectively) vs PWA aged 35-49 years; and in those infected through sexual contact as compared with injecting drug use (OR = 13.34, 95% CI: 12.06-14.76 for heterosexual contact and OR = 8.13, 95% CI: 7.30-9.06 for male-to-male sexual contact). The proportion of LTs increased over time among Italians, especially in the latest period (APC2006-2013 = 5.3, 95% CI: 3.8-6.9). The LTs' proportion resulted higher, though stable, among PWA aged >/=50 years. Conversely, an increasing trend was observed among PWA aged 18-34 years (APC = 5.3, 95% CI: 4.5-6.1). The LTs' proportion was persistently higher among PWA who acquired HIV infection through sexual contact, even if a marked increase among injecting drug users was observed after 2005 (APC = 11.4, 95% CI: 5.7-17.5). CONCLUSIONS: The increasing trend of LTs' proportion in the late cART era highlights the need of new strategies tailored to groups who may not consider themselves to be at a high risk of infection. Active promotion of early testing and continuous education of infection, especially among young people, need to be implemented.


Individualization of drug therapy requires that the right drug be administered at the correct dose to patients who are likely to achieve the highest benefit and lowest risk. Female sex and age comprise two important risk factors for altered drug exposure and response. This review summarizes the current state of science for considering age and sex-related factors along the drug development pipeline, from cell culture and animal research through all phases of clinical trials in humans. A set of recommendations is provided to improve standards for integrating age and sex into the study design, analysis, and reporting of preclinical and clinical assessment of new molecular entities and biologics in adults.


BACKGROUND: The HIV burden is increasing in older adults in the European Union (EU) and European Economic Area (EEA). We investigated factors associated with HIV diagnosis in older adults in the 31 EU/EEA countries during a 12 year period. METHODS: In this analysis of surveillance data, we compared data from older people (aged >/=50 years) with those from younger people (aged
15-49 years). We extracted new HIV diagnoses reported to the European Surveillance System between Jan 1, 2004, and Dec 31, 2015, and stratified them by age, sex, migration status, transmission route, and CD4 cell count. We defined late diagnosis as CD4 count of less than 350 cells per μL at diagnosis and diagnosis with advanced HIV disease as less than 200 cells per μL. We compared the two age groups with the chi(2) test for difference, and used linear regression analysis to assess temporal trends.

**FINDINGS:** During the study period 54 102 new HIV diagnoses were reported in older adults. The average notification rate of new diagnoses was 2.6 per 100 000 population across the whole 12 year period, which significantly increased over time (annual average change [AAC] 2.1%, 95% CI 1.1-3.1; p=0.0009). Notification rates for new HIV diagnoses in older adults increased significantly in 16 countries in 2004-15, clustering in central and eastern EU/EEA countries. In 2015, compared with younger adults, older individuals were more likely to originate from the reporting country, to have acquired HIV via heterosexual contact, and to present late (p<0.0001 for all comparisons). HIV diagnoses increased significantly over time among older men (AAC 2.2%, 95% CI 1.2-3.3; p=0.0006), women (1.3%, 0.2-2.4; p=0.025), men who have sex with men (5.8%, 4.3-7.5; p<0.0001), and injecting drug users (7.4%, 4.8-10.2; p<0.0001). **INTERPRETATION:** Our findings suggest that there is a compelling need to deliver more targeted testing interventions for older adults and the general adult population, such as by increasing awareness among health-care workers and expanding opportunities for provider-initiated and indicator-condition-guided testing programmes. **FUNDING:** European Centre for Disease Prevention and Control.


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.


Sexual health is a key public health issue. The older woman faces a number of changes to her sexual health, wellbeing and sexuality. These changes result in many older women having to adapt to a series of complex transitions that can be challenging. This article aims to identify and explore some of these changes and how they can have a significant impact on women's quality of life. Nurses play an important role in assessing and helping women to manage normal and pathological age-related changes in order to improve the sexual health of older women and ensure they receive the advice and support needed at this stage of their life.


Black young gay, bisexual, and other men who have sex with men (YGBMSM) are at high risk for negative health outcomes, though this population is underrepresented in the health literature. An extensive literature review and content analysis of health-related peer-reviewed articles (1988-2013) was conducted that targeted Black YGBMSM, examining five content areas: sexual
health, health care, substance use, psychosocial functioning, and sociostructural factors. A coding sheet was created to collect information on all content areas and related subtopics and computed descriptive statistics. Out of 54 articles, most were published after 2004 (N = 49; 90.7%) and addressed some aspect of sexual health (N = 50; 92.6%). Few articles included content on psychosocial functioning, including bullying/harassment, suicide, and racial/ethnic identity. Data on health care delivery/receipt and health insurance were underrepresented; tobacco use and substance abuse were seldom addressed. Important sociostructural factors, including sexual networks and race-based discrimination, were poorly represented. Last, there was a noteworthy deficit of qualitative studies and research exploring intersectional identity and health. This review concludes that studies on Black YGBMSM health places sex at the forefront to the neglect of other critical health domains. More research is needed on the diverse health issues of a vulnerable and underexamined population. [ABSTRACT FROM AUTHOR]


Approximately 13% of people living with HIV in the UK are unaware of their infection. New diagnoses among people >/=50 years is increasing. Unique factors may be associated with testing in this group. This systematic review aims to identify patient and clinician-related barriers/facilitators to HIV testing in people aged >/=50 years. A systematic electronic search was conducted. Papers were assessed for eligibility and data from eligible studies were extracted. Barriers/facilitators were grouped, and the number of times they were reported was noted. Because of considerable heterogeneity, a narrative approach has been undertaken to synthesise data. In total, 17 studies were included. Main barriers to testing were low perceived risk and clinicians' preconceptions about older people. Main facilitators were regular use of healthcare services or being offered/encouraged to test by a healthcare provider. Although being encouraged to test was a common facilitator, clinicians' preconceptions about older people was the biggest barrier. This shows a divide between clinicians' preconceptions and patients' expectations, which may impact on testing rates. This review is an important first step in identifying potential barriers/facilitators for further study or to be addressed in the design of future interventions.

PREVENTION


The article offers information on the importance of gay resilience for HIV prevention. Topics discussed include the MPowerment Project in San Francisco, California that addresses stigma and mental health issues faced by gay men; citing an article by assistant professor Mark L. Hatzenbuehler, published in the periodical "Pediatrics," chances of LGBT people to commit suicide; and need for medical care cost control and mental health care for gay men.


Despite continued advances in HIV prevention and treatment, gay and bisexual men and other men who have sex with men (MSM) remain the population most impacted by HIV/AIDS in the US and many other Western countries. Additionally, MSM are disproportionately affected by various psychological problems, including depression, distress, trauma and substance use. These challenges frequently co-occur, and are associated with higher rates of behaviours related to HIV acquisition and transmission, HIV infection, and, for those living with HIV/AIDS, lower levels of treatment engagement. Moreover, racial disparities exist among MSM in the US; for example, young African American MSM bear a disproportionate burden of the continuing HIV epidemic, likely related to disparate HIV prevalence in partner pools as well as long-standing structural inequities. In this review, the mental health challenges facing MSM primarily in the US, related to HIV and STI prevention and across the HIV care cascade, including HIV diagnosis, engagement and retention in care, and antiretroviral adherence, are illustrated. Disparities among MSM including racial
and ethnic, age-related and structural barriers associated with HIV prevention and treatment, as well as current interventions, are also described. Moving forward towards 2020, resources will be needed to assess and implement scalable intervention strategies to address psychological and social barriers to HIV and STI risk reduction and treatment for MSM, with a particular focus on the most vulnerable subpopulations. As access to prevention and treatment strategies expand, and new breakthroughs continue to emerge, behavioural strategies will continue to be needed to reduce risk and increase uptake and engagement among MSM most at risk through 2020 and beyond. [ABSTRACT FROM AUTHOR]


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.


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; adjusted OR [aOR] 0.77, 95% CI 0.60, 0.99) and among women, older individuals 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 (adjusted hazard ratio [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. Age >/=50 is associated with poorer immunological response and higher mortality but this effect is less pronounced in women than in men.


Adults remain sexually active well into later life, but few report discussing sexual health with a physician after age 50. The authors explored how geriatrics education might better address sexual health in the context of a psychosocial conference for geriatrics fellows, program directors, and faculty comprising an informational plenary, which included a skills-building presentation on taking sexual histories, and a program director/faculty roundtable. Although informed about older adult sexual health, knowledge scores of geriatrics fellows increased following the plenary. Fellows reported inconsistent sexual history taking with older adults and noted patient differences in age and gender as barriers. The roundtable discussion highlighted several barriers to inclusion of sexual health content in geriatrics curricula including competing competencies, lack of educational materials, and discomfort with this topic on the part of faculty. Implications of these findings for geriatrics training and education programs and suggestions for improving this domain of geriatrics education are discussed.


Background: Limited information suggests that men who have sex with men (MSM) are informally obtaining antiretroviral medication (ARVs) and using them for HIV pre-exposure prophylaxis (PrEP). Methods: Data are drawn from an on-going study examining the use of non-prescribed ARVs for PrEP. To date, 24 qualitative interviews have been conducted with HIV-negative, substance-using MSM living in Miami, Florida, USA. Data are presented from two participants who reported HIV seroconversion while using non-prescribed ARVs for PrEP. Results: Preliminary data indicate that some young MSM: (i) lack awareness of and accurate information about the efficacious use of PrEP; (ii) obtain non-prescribed ARVs from HIV-positive sex partners and use these medications for PrEP in a way that does not provide adequate protection against HIV infection or cohere with established guidelines; and (iii) engage in multiple HIV transmission risk behaviours, including condomless anal sex and injection drug use. Conclusions: The informal, nonprescribed and non-medically supervised use of ARVs for HIV prevention has the potential to undermine the protective benefits of PrEP and leave men unprotected against HIV transmission and at risk for ARV resistance. [ABSTRACT FROM AUTHOR]


Quantitative studies of gay and bisexual men have often reduced relational experiences to single dimensions and explored linkages with sexual risk behaviours. We sought to document the intersection of multiple relationship dimensions among 218 HIV-positive and 556 HIV-negative gay and bisexual men, and estimate associations with love and affection as well as various health and social covariates. We performed latent class analysis of relationships, employing five indicators: relationship status, sexual agreement (monogamous/open), and number of recent sex partners, sex parties, and anonymous sex encounters. We assessed differences in love and affection, and identified covariates using multinomial logistic regression. Two latent classes involved single men: 'single, less sex partners' (45% of sample) and 'single, more sex partners' (17%), differentiated by number of partners (52% vs. 92% of each class had ≥ 5 partners, respectively), party sex (3% vs. 57%), and anonymous sex (2% vs. 58%). Three involved regular partners: 'monogamish' (15%) (78% were monogamous yet 50% reported ≥ 1 recent sex partner); 'open, less sex partners' (15%) (100% open, 43% ≥ 5 partners, 10% party sex, 4% anonymous sex); and 'open, more sex partners' (9%) (96% open, 92% ≥ 5 partners, 47% party sex, 69% anonymous sex). Love and affection were common across classes, although more prevalent among partnered (85-91%) versus single (48-51%) men. Relative to 'single/less partners,' the study demonstrated that higher sexual sensation seeking scores were associated with membership in every class except 'monogamish'; erectile dysfunction drug use was associated with being in the 'more partners' (single and open) classes; anxiety and older age were associated with the 'open/less partners' class; and loneliness was associated with reduced odds of membership in all three partnered classes. We uncovered considerable relational diversity among gay and bisexual men and complex associations with love and wellbeing. Findings are relevant for sex researchers, educators, and therapists. [ABSTRACT FROM AUTHOR]

Participants at a sexual health clinic completed a survey with questions regarding sexual risk behavior and partner characteristics. Of 585 participants eligible for analysis, 124 reported generally having older male partners. These participants were significantly more likely to be HIV-infected (p < 0.001), have four or more sex partners as a "bottom" (p = 0.04), have concurrent partners (p = 0.01), and have partners suspected of having an sexually transmitted infection (p = 0.05) than participants without older partners. With analysis restricted to HIV- individuals, risk behaviors did not differ significantly between the groups. HIV-individuals with older partners may be at increased risk of HIV infection due to increased HIV prevalence among older sexual partners and not due to increased risk behaviors with these partners.


Cigarette smoking and heavy alcohol use is prevalent among HIV-infected men who sex with men (MSM) and have been linked to imperfect antiretroviral therapy (ART) adherence. Our study examined the correlates of smoking and whether smoking was independently associated with imperfect adherence in heavy-drinking HIV-infected MSM. Of the 185 participants, approximately half (n = 91, 49.2 %) reported having smoked cigarettes in the past 30 days. Current smokers were more likely to have reported imperfect adherence compared to non-smokers (37.4.2 vs. 22.3 %, p < 0.05). In multivariable regression analyses, only lower education was significantly associated with imperfect adherence. This study demonstrated that the greatest risk factor for smoking and imperfect ART adherence was low socioeconomic status, in which MSM of color were over-represented. As the first study to examine smoking and ART adherence in this population, our study has the potential to inform the clinical care provided to heavy-drinking MSM.


Background: To determine factors associated with age-disparate sexual partners among Vancouver gay, bisexual and other men who have sex with men (GBM). Methods: Sexually active GBM aged ≥16 years were recruited from February 2012 to February 2014. Participants self-completed a questionnaire on demographics, attitudes and sexual behaviour and substance use at last sexual event with five most recent partners. Two generalised linear mixed models identified factors associated with: (1) 'same-age' (referent), 'younger' or 'much-younger' and (2) 'same-age' (referent), 'older' or 'much-older' partners. Statistical interactions between age and HIV status were tested. Results: Participants (n=719) were predominantly gay (85.1%), White (75.0%), HIV-negative/unknown status (72.9%) with median age of 33 years (Q1,Q3: 26,47). A minority of sexual events were reported with much-older/much-younger partners (13.7%). In the multivariable models, GBM reporting older partners were more likely to be Asian or Latino, have greater Escape Motivation scores, report their partner used erectile dysfunction drugs (EDDs) and have received something for sex; compared with condom-protected insertive anal sex, participants with older partners were more likely to report condomless insertive anal sex with a serodiscordant or unknown status partner or no insertive anal sex. GBM reporting older partners were less likely to be bisexual-identified, have given something for sex and report event-level alcohol and EDD use. GBM reporting younger partners were more likely to have annual incomes >$30 000 and have met their partner online. As per significant statistical interactions, age-disparate relations were more common for younger HIV-positive and older HIV-negative GBM. Conclusions: Differences among age-disparate partners highlight important targets for health promotion and future research. [ABSTRACT FROM AUTHOR]


Objective:: To describe the process of manufacturing and validation of an educational booklet for HIV/AIDS prevention in older adults. Methods:: Methodological study developed in two phases - manufacturing of the booklet and validation of the educational material by judges. The manufacturing process involved a situational diagnosis with older adults, and its result indicated...
gaps in the knowledge with respect to HIV/Aids. The validation process was performed by nine judges, selected by convenience. It was considered an agreement index of at least 0.80, analyzed through the content validity index. Results: We opted for a dialogue between two older adults divided into three categories: myths and taboos; ignorance; and prevention and importance of diagnosis. The average of the items was 0.90. The suggestions made by the judges were observed and modified for the final version.

Conclusion: The material had relevant content for the judges, in addition to being able to be used by health professionals in the education and clarification of issues on the subject. Objetivo: Descrever o processo de construção e validação de cartilha educativa para prevenção de HIV/Aids em idosos. Método: Estudo metodológico desenvolvido em duas etapas - construção da cartilha e validação do material educativo por juízes. O processo de construção envolveu um diagnóstico situacional com idosos, cujo resultado apontou lacunas no conhecimento com relacao ao HIV/Aids. Já o processo de validação foi realizado por nove juízes, selecionados por conveniencia. Considerou-se uma concordancia de no minimo 0,80, analisado pelo indice de validade de conteúdo. Resultados: Optou-se por um dialogo entre dois idosos dividido em tres categorias: mitos e tabus; desconhecimento; e prevencao e importância do diagnostico. A media dos itens foi de 0,90. As sugestoes realizadas pelos juizes foram acatadas e modificadas para a versao final. Conclusão: O material apresentou conteudo relevante para os juizes, alem de poder ser utilizado pelos profissionais de saude no ensino e esclarecimento de questoes sobre a tematica.


Objective: to analyze knowledge produced by research about health literacy for adult with HIV/Aids. Method: an integrative literature review, using six databases, was conducted between January and April of 2014. The descriptors aids and Health Literacy were used, in Portuguese, English and Spanish. A total of 130 articles were found and 14 were selected. Three categories were identified: educational technologies and health literacy for HIV/Aids; assessment of health literacy of patients with HIV/Aids; and health literacy and adherence to antiretroviral therapy. Results: analysis of health literacy, socioeconomic status and educational level of people living with HIV/Aids was essential for implementation of educational strategies that increased adherence to health guidance. Conclusion: this study showed the importance of health literacy for working with people living with HIV/Aids, especially considering individuals who did not possess the minimum necessary for survival, which makes it relevant and encourages further research on the topic.


We explored the effect of older partner's age and age difference between partners on condomless sex among men who have sex with men (MSM). We analyzed dyads (n = 1720) from participants (n = 969) in the Sexual Acquisition Transmission of HIV Cooperative Agreement Program. We used modified Poisson regression to model the probability of a sexual encounter's being condomless as a function of older partner's age and age difference between partners adjusting for HIV status, substance use, race/ethnicity, and partner type. We found an interaction between older partner's age and age difference (p < 0.05). Condomless sex decreased with increasing age of the older partner when the age difference was 5-9 years (p = 0.004) or >/=10 years (p = 0.04), but not when <5 years. Condomless sex was less likely among older MSM when there was >/=5 years age difference between partners than <5 years difference. Both age and age discordance affect the likelihood of a sexual encounter between MSM being condomless.


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

**IMPORTANCE:** Outcomes of treating high-grade squamous intraepithelial lesions (HSIL), a precursor to anal cancer, remain uncertain. Emerging evidence shows that post HSIL treatment adjuvant quadrivalent human papillomavirus (qHPV) vaccination improves the effectiveness of treatment. However, no recommendations exist regarding the use of qHPV vaccine as an adjuvant form of therapy. Our objective was to determine whether post-treatment adjuvant vaccination should be adopted in HIV-infected MSM (individuals at highest risk for anal cancer) on the basis of cost-effectiveness determined using existing evidence or whether future research is needed. **METHODOLOGY:** We developed a Markov (state-transition) cohort model to assess the cost-effectiveness of post-treatment adjuvant HPV vaccination of 27 years or older HIV-infected MSM. We first estimated cost-effectiveness and then performed value-of-information (VOI) analysis to determine whether future research is required by estimating the expected value of perfect information (EVPI). We also estimated expected value of partial perfect information (EVPPi) to determine what new evidence would have highest priority. **RESULTS:** With the incremental cost-effectiveness ratio (ICER) of $71,937/QALY, "treatment plus vaccination" was the most cost-effective HSIL management strategy using the willingness-to-pay threshold of 100,000/QALY. We found that population-level EVPI for conducting future clinical research evaluating HSIL management approaches was US$12 million (range $6-$20 million). The EVPI associated with adjuvant qHPV vaccination efficacy estimated in terms of hazards of decreasing HSIL recurrence was $0 implying that additional data from a future study evaluating efficacy of adjuvant qHPV vaccination will not change our policy conclusion that "treatment plus vaccination" was cost-effective. Both the ICER and EVPI were sensitive to HSIL treatment compliance. **CONCLUSION:** Post-treatment adjuvant qHPV vaccination in HIV-infected MSM aged 27 or above is likely to be cost-effective. Use of adjuvant qHPV vaccination could be considered as a potential strategy to reduce rising anal cancer burden among these high-risk individuals.


We examined the prevalence of sex with older male partner (SWOMP) and its association with condomless anal intercourse (CAI) with male partners and unrecognized HIV infection among young men who have sex with men (MSM) in Shanghai, China. The analytic sample included 243 MSM who were 18-45 years and HIV negative or of unknown HIV serostatus. Older male partner refers to male sex partner who was at least 10 years older than themselves. Overall, 99 (43.0%) and 50 (20.7%) reported having SWOMP in lifetime and in the last 3 months, respectively. Having any CAI with male partners in the last 3 months was independently associated with SWOMP and sex with stable male partners in the last 3 months. Unrecognized HIV infection was independently associated with being HSV-2 positive and having any CAI with male partners as well as SWOMP in last 3 months. Sex with stable male partner in the last 3 months was also marginally significantly associated with unrecognized infection (p = 0.084). Older partner selection is common among young MSM in China. Prevention programs should incorporate education messages about the HIV risk associated with SWOMP. MSM should be informed that having condomless sex with stable partners may place them at HIV risk.


**PURPOSE OF THE STUDY:** Adults with HIV infection are living into old age. It is critical we investigate positive constructs such as resilience and mastery to determine factors associated with psychological well-being. We examine HIV-related factors, adverse conditions, and psychosocial characteristics that are associated with resilience (the ability to bounce back) and mastery (sense of...
self-efficacy). DESIGN AND METHODS: We analyzed 2014 data from the longitudinal study Aging with Pride: National Health, Aging, and Sexuality/Gender Study (NHAS), focusing on a subsample of 335 gay and bisexual older men. Multivariate linear regression was used to identify factors that contributed or detracted from resilience and mastery in the sample recruited from 17 sites from across the United States. RESULTS: Resilience and mastery were independently associated with psychological health-related quality of life. In multivariate analysis, adjusting for demographic characteristics, previous diagnosis of depression was negatively associated with resilience. Time since HIV diagnosis was positively associated with mastery whereas victimization was negatively associated with mastery. Social support and community engagement were positively associated with both resilience and mastery. IMPLICATIONS: Individual and structural-environmental characteristics contributed to resilience and mastery. These findings can be used to develop interventions incorporating an increased understanding of factors that are associated with both resilience and mastery.


This editorial accompanies a series of papers dealing with this watershed period for HIV and sexually transmissible infections (STI) infections in gay, bisexual and other men who have sex with men (GBM). We are delighted to share with you the views of some international opinion leaders on what the future may hold and what challenges lie ahead. In this issue of the Journal, authors describe current HIV and STI incidence among GBM and predict the future. [ABSTRACT FROM AUTHOR]


Sexual minority women (SMW) are at increased risk for substance abuse compared to heterosexual women. Two psychosocial factors that have been implicated in SMW's substance abuse are outness and LGBT community involvement, but findings have been mixed as to whether these are risk or protective factors. One possible explanation is that they may have different consequences for subgroups of SMW (lesbians, bisexual women, and queer women). While being open about one's sexual orientation and involved in the community may be protective for lesbians, discrimination against bisexual women may lead these same factors to contribute to substance abuse for bisexual women. It is unclear how these associations will operate for queer women, given limited research on this subpopulation. The current study examined whether sexual identity moderated the associations between outness and community involvement with alcohol and drug abuse. We also examined whether perceived discrimination would help explain why these associations may be different for subgroups of SMW. A sample of 288 self-identified SMW (113 lesbians, 106 bisexual women, and 69 queer women) completed an online survey. Higher outness was associated with higher alcohol and drug abuse for bisexual women, but not for lesbians or queer women. Similarly, higher community involvement was associated with higher drug abuse for bisexual women, but not for lesbians or queer women. Among bisexual women, the association between community involvement and drug abuse was mediated by perceived discrimination. Further, the association between outness and drug abuse was mediated by both community involvement and perceived discrimination. Findings demonstrate that outness and community involvement function as risk factors for substance abuse for bisexual women, in part due to their associations with discrimination.


OBJECTIVES: To examine disparities in chronic conditions and health indicators among lesbian, gay, and bisexual (LGB) adults aged 50 years or older in the United States. METHODS: We used data from the 2013 and 2014 National Health Interview Survey to compare disparities in chronic conditions, health outcomes and behaviors, health care access, and preventive health care by sexual orientation and gender. RESULTS: LGB older adults were significantly more likely than heterosexual older adults to have a weakened immune system and low back or neck pain. In addition, sexual minority older women were more likely than their heterosexual counterparts to report having arthritis, asthma, a heart attack, a stroke, a higher number of chronic conditions, and poor general health. Sexual minority older men were more likely to report having angina pectoris or cancer. Rates of disability and mental distress were higher among LGB older adults. CONCLUSIONS: At substantial cost to society, many disparities in chronic
conditions, disability, and mental distress observed in younger LGB adults persist, whereas others, such as cardiovascular disease risks, present in later life. Interventions are needed to maximize LGB health.


INTRODUCTION: We examined the stability of smoking behaviors, and factors associated with persistent smoking in a longitudinal study of HIV-positive gay and bisexual men in primary relationships. METHODS: A sample of 377 HIV-positive men on antiretroviral therapy and their same-sex partners completed five assessments over two years. Participants completed semi-structured interviews which assessed smoking status, sociodemographic factors, relationship dynamics, and HIV-related disease characteristics. Latent transition analysis estimated the amount of transition in smoking over time. Latent class analysis examined factors associated with smoking status across the study period. RESULTS: At baseline, 28.1% (n=106) of participants reported current smoking. Over 90% of the HIV-positive men remained in the same smoking category over time (68.4% persistent non-smokers; 24.1% persistent smokers). Men whose partners smoked and men with lower income had higher odds of being persistent smokers, whereas older men and men who identified as Latino race/ethnicity had lower odds of being persistent smokers compared to non-smokers. CONCLUSIONS: Despite efforts to reduce smoking among people living with HIV (PLWH), a substantial subset of men continued to smoke during their two years in the study. Findings suggest that primary partners who also smoke and low income were the strongest predictors of sustained smoking behaviors among HIV-positive men. Additional research is needed to better understand how to increase motivation and support for smoking cessation among PLWH and their primary partners, while attending to how socioeconomic status may inhibit access to and the sustained impact of existing smoking cessation programs.


Gay and bisexual men (GBM) in the USA experience a disproportionate burden of new HIV infections. Previous studies demonstrate that gay self-identification and outness are associated with GBM’s sexual risk-taking behaviors. However, little is known about the extent to which GBM make sexual decisions based on the level of HIV risk they associate with a male partner’s sexual identity. Using qualitative interviews with 13 GBM, we examine how a partner’s gay identification, outness, and sex with women influence perceptions of HIV risk and decisions about condoms. Participants discussed a reduced HIV risk perception for partners who were not gay-identified, not out, or having sex with women, based on the belief that they were not having sex with other men. Some participants stated that this could lead to condomless sex. Participants perceived lower risk despite stating that these partners had reduced exposure to HIV prevention interventions and increased substance use during intercourse. These findings indicate a potential discrepancy between how GBM perceive HIV risk and the behavioral factors associated with risk. HIV prevention messages and policies should focus on tackling the myth that a non-gay identity is protective of HIV and decentralize messages and policies from being only about gay men. [ABSTRACT FROM AUTHOR]


Older adults are the fastest growing segment of people living with HIV, and unfortunately many are unaware of their HIV status. Many providers are reluctant to ask older adults about their sexual histories, evaluate their risk factors, and test for HIV, and older adults have low perception of HIV risk. Using data from the 2013 to 2014 National Health and Nutrition Examination Survey, this study assessed the prevalence of recent HIV testing among older adults in the United States (n = 1,056) and identified predictors and barriers to recent HIV testing. The prevalence of recent HIV testing was 28%. Recent HIV testing was associated positively with male gender, education level, having public insurance, having same sex sexual behavior, African, and Hispanic ethnicity, whereas age, income-to-poverty ratio, and Asian ethnicity were associated negatively with recent HIV testing. Public health social workers are advised that targeted HIV testing for Asian, economically disadvantaged, female older adults is needed to increase HIV awareness and detection and to decrease late diagnosis of HIV. Provided public insurance was identified as a predictor of recent HIV testing, facilitating economically disadvantaged older adults’ eligibility for public insurance that will likely improve access to HIV testing services and increase HIV testing rates.

PURPOSE: Neighborhood characteristics shape sexual risk in HIV-uninfected adults in the United States (US). We assess relationships between census tract characteristics and sexual risk behaviors in a predominantly HIV-infected cohort of women living in the Southern US. METHODS: This cross-sectional multilevel analysis included data from 737 HIV-infected and HIV-uninfected women enrolled in the Women's Interagency HIV Study. Administrative data captured characteristics of census tracts where women lived; participant-level data were gathered via survey. We used principal components analysis to condense tract-level variables into components: social disorder (e.g., violent crime rate), and social disadvantage (e.g., alcohol outlet density). We used hierarchical generalized linear models to assess relationships between tract-level characteristics and condomless vaginal intercourse, anal intercourse, and condomless anal intercourse. RESULTS: Greater social disorder was associated with less anal intercourse (OR = 0.63, 95% CI = 0.43-0.94) and condomless anal intercourse (OR = 0.49, 95% CI = 0.30-0.80), regardless of HIV status. There were no statistically significant additive or multiplicative interactions between tract characteristics and HIV status. CONCLUSIONS: Neighborhood characteristics are associated with sexual risk behaviors among women living in the Southern US, these relationships do not vary by HIV status. Future studies should establish temporality and explore the causal pathways through which neighborhoods influence sexual risk.


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: Sexuality is a significant component in human experience and has an important impact on the individual's general well-being. Life course events and the social construction of sexuality lead older widows to reflect upon their sexuality. PURPOSE: To explore and describe the ways in which older widows construct and perceive their sexuality along the life course. METHOD: A phenomenological-qualitative approach was conducted. Data collection was performed through in-depth, semi-structured interviews with 17 widows, between the ages of 62-91, followed by content analysis. RESULTS: Three major themes emerged: (a) Approaching sexuality: Conservative vs. progressive attitudes; (b) Multiple ways of perceiving sexuality: Constructing a sexual identity along the life course; and (c) Sexual self-perception: Integrating late life and widowhood. CONCLUSION: Sexuality among widows in later life includes continuity and change processes. In the context of social construction, sexuality is a subject that should be examined in greater depth.

Sexual debut experience may influence HIV/sexual risks among men who have sex with men (MSM). We assessed associations between age of sexual debut and sex of debut partner with recent (past-3-month) sexual/HIV/syphilis risks among 3588 community-based Chinese MSM. Sexual debut with women was associated with more recent (condomless) insertive anal sex with men, more recent (condomless) vaginal sex, and more lifetime female partners. Sexual debut with men was associated with more recent (condomless) receptive anal sex with men and more lifetime male partners. All associations were strongest among those having first sex <=18 years in both groups. Earlier sexual debut was associated with higher HIV/syphilis risk; HIV risk was higher with first sex with a man, but syphilis was higher with first sex with a woman. Earlier age of sexual debut is associated with greater HIV/syphilis and sexual risks, but MSM risk differs with first sex with women versus men.


INTRODUCTION: Hispanics/Latinos (henceforth, Latinos) are the largest minority group in the U.S. With growing health disparities among this group, the highest burden remains among sexual and gender minority Latinos. Differences regarding sexual orientation have not been fully explored within this group using national representative samples. This study analyzed sexual and behavioral health disparities associated with sexual minority status among Latinos in the U.S. METHODS: The study included data from 5,598 Latino adults who participated in the 2001-2014 waves of the National Health and Nutrition Examination Survey. Data analysis was conducted in 2016. Bivariate and multivariable logistic regression analyses examined the prevalence of HIV, sexually transmitted infections, mental health problems, cigarette smoking, and alcohol/illicit drug use among sexual minorities and heterosexual Latino adults. Sexual minorities were defined as "gay, lesbian, and bisexual" (GLB) and "other" non-heterosexual groups. RESULTS: GLB Latinos reported higher prevalence of mental health problems and cigarette smoking compared with heterosexuals. After adjusting for covariates, GLB Latinos had greater odds of testing positive for HIV, lifetime diagnosis of sexually transmitted infections, poor mental health outcomes, cigarette smoking (including lifetime and current smoking status), and illicit drug use than heterosexuals. CONCLUSIONS: The disproportionate impact of health disparities among Latinos varies significantly by sexual orientation, with GLB individuals facing elevated prevalence. In particular, elevated odds for HIV/sexually transmitted infections, mental health problems, smoking, and illicit substance use were found. Further research, including longitudinal studies to understand the trajectories of risks, is needed to identify intervention opportunities in this population.


OBJECTIVE: To compare the 2016 United Nations Programme on HIV/AIDS (UNAIDS) modelled estimates of adult mortality in sub-Saharan Africa to empirical estimates. DESIGN: Age-specific mortality rates were obtained from nationally representative sibling survival data, recent household deaths and vital registration, and directly compared with UNAIDS estimates. Orphanhood prevalence derived from UNAIDS mortality estimates was compared with survey and census reports on the survival of children's parents. METHODS: Age-specific mortality rates for adults aged 15-59 years were calculated from Demographic and Health Surveys and deaths reported in censuses or vital registration, adjusted for underreporting, whenever possible. Proportions of orphans were extracted from censuses and surveys for children aged 5-9 years. RESULTS: UNAIDS estimates were significantly higher than sibling mortality estimates, except among men in countries with very high HIV prevalence. There was a better agreement between rates based on household deaths or vital registration and model outputs. Sex ratios (M/F) of adult mortality were lower in UNAIDS estimates. The modelled orphan prevalence was significantly higher than in surveys and censuses, again with the exception of paternal orphans in countries with very high HIV prevalence. Ratios of paternal-to-maternal orphans were lower in the UNAIDS model than surveys and censuses. Among women, increases in mortality due to AIDS were more concentrated in the age range 25-50 years in model outputs, as compared with empirical estimates. CONCLUSION: Discrepancies in levels, sex ratios and age patterns of adult mortality between empirical and UNAIDS estimates call for additional data quality assessments and improvements in estimation methods.


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It is recognised that those diagnosed with HIV infection over the age of 50 have higher rates of morbidity and mortality. Little is known about how clinical presentation at diagnosis of HIV varies within this group. We sought to compare clinical presentation and markers of outcome among those diagnosed with HIV aged 60 and over vs. those diagnosed aged 50-59, over a ten-year period. The results showed that 84/111 were diagnosed with HIV aged 50-59 and 27/111 aged >/=60. Ethnicity and HIV risk factors were similar between groups, and most infections were sexually acquired with 7.4% of those aged >/=60 suspected to have a recent infection. Median CD4 cell count at presentation was significantly lower in the >/=60 age group (111 vs. 249; p < 0.001), and the proportion with a CD4 cell count <50 was also significantly lower in this population (33% vs. 15%; p = 0.04). In keeping with this, the frequency of AIDS-defining illness was higher in the >/=60 group (38% vs. 4%; p < 0.001). Co-morbidities were found in both groups, and 38% of those aged >/=60 at diagnosis were known to have since died compared to 4% of those aged 50-59 at diagnosis (p </= 0.01). Those aged >/=60 had lower CD4 cell counts at diagnosis and more AIDS-defining illnesses, highlighting the increased risk of poor outcomes in this group. The majority of infections were sexually acquired. More work is needed to understand survival in adults diagnosed with HIV at an older age and to consider those over 60 as a specific population worthy of further research.


Men who have sex with men (MSM) who attend group-sex events often engage in risky sexual behaviors that contribute to the high human immunodeficiency virus (HIV) incidence among this population. We conducted an online survey with 211 New York City MSM who attended sex parties in the prior year and asked them to describe their behaviors and perceptions of risk. We compared responses from HIV-positive-undetectable men (n = 36), HIV-negative men on pre-exposure prophylaxis (PrEP; n = 62), and HIV-negative men never on PrEP (n = 113). In bivariate analyses, undetectable and on-PrEP men had been to more sex parties in the prior six months, had more anal sex partners there, and had higher rates of sexually transmitted infection (STI) diagnoses than men never on PrEP. Although less than the other groups, 43% of the presumably HIV-negative men never on PrEP reported condomless anal sex at a party in the prior six months. About half of participants agreed that, at sex parties, they made assumptions about others' HIV status, that they sometimes took more risks than intended, and that the atmosphere of these events was conducive to risk taking. Most disagreed that there was discussion of HIV status at sex parties. Implications for sexual health interventions are discussed.


Black and Latino men who have sex with men (BLMSM) are disproportionately infected with HIV; they comprised 66% of HIV diagnoses among men who have sex with men (MSM) in the United States in 2015. Risk factors for HIV infection among BLMSM include a high community prevalence of diagnosed and undiagnosed HIV/STDs, and dense sex partner networks. Perceptions of HIV risk among BLMSM were explored to inform HIV prevention efforts. During 2011-2012, semistructured interviews were conducted with BLMSM in New York City. Using computer-assisted thematic analyses (NVivo), transcribed interview responses to questions regarding HIV risk for main themes were examined. Interview data were available for 108 BLMSM: 86% Black, 13% Latino, 26% aged 18-24 years, 59% self-identified as "gay," and 33% self-identified as "bisexual." The main emergent theme was stigma. Subthemes related to stigma included: (a) homophobia in the Black and Latino community, (b) fear of losing support from family and friends, and (c) lack of support leading to low self-esteem. Addressing the stigma felt by BLMSM may be an important strategy to facilitate improved HIV prevention efforts, HIV care and treatment, and to decrease HIV-related disparities.

Background: Controlled drug use has been described by previous researchers however few such studies explored the clubbing or gay/bisexual populations. Research into gay/bisexual men’s drug-taking fails to acknowledge the possibilities of controlled drug use. This study takes a qualitative approach to the data in an attempt to explore the phenomenon as it exists.

Method: Eight men who identified as gay/bisexual and took drugs on a controlled basis participated in semi-structured interviews. Interpretative phenomenological analysis (IPA) was used to analyse the data, indicating themes emerging from the participants’ communicated experiences. Results: nalysis revealed a significant theme related to control and organisation, depicting how participants maintained a sense of control over their drug use and what helped this sense of control in use. Results show that not all gay/bisexual men’s drug use follows a usage-addiction pattern and that controlled drug use is possible. Participants indicated that they were able to control their drug use through an interaction of personality traits, social factors and self-knowledge. Conclusion: The research enhances the understanding of controlled drug use, especially within the gay/bisexual clubbing sub-culture. Furthermore, it clarifies strategies that could be useful for other drug-taking populations who wish to control their drug use. The cycle of and reasons for the drug-taking behaviour are possible routes for further research. [ABSTRACT FROM AUTHOR]


BACKGROUND: We assess trends in HIV and hepatitis C virus (HCV) risk behaviors and prevalent infection among people who inject drugs (PWID) in New York City (NYC). METHODS: PWID in NYC were sampled using respondent-driven sampling in 2005, 2009, and 2012 (serial cross sections) for the Centers for Disease Control and Prevention-sponsored National HIV Behavioral Surveillance study. Participants were interviewed about their current (<=12 months) risk behaviors and tested for HIV and HCV. The crude and adjusted risk ratio (RR) and 95% confidence interval (95% CI) for linear time trends were estimated using generalized estimating equations regression with a modified Poisson model. RESULTS: The sample comprised 500, 514, and 525 participants in 2005, 2009, and 2012, respectively. Significant (P < 0.05) linear trends in risk behaviors included a decline in unsafe syringe sources (60.8%, 31.3%, 46.7%; RR = 0.86, 95% CI: 0.81 to 0.92), an increase in all syringes from syringe exchanges or pharmacies (35.4%, 67.5%, 50.3%; RR = 1.15, 95% CI: 1.09 to 1.22), and an increase in condomless vaginal or anal sex (53.6%, 71.2%, 70.3%; RR = 1.14, 95% CI: 1.09 to 1.19). Receptive syringe sharing (21.4%, 27.0%, 25.1%), sharing drug preparation equipment (45.4%, 43.4%, 46.7%), and having >=2 sex partners (51.2%, 44.0%, 50.7%) were stable. Although HIV seroprevalence declined (18.1%, 12.5%, 12.2%), HCV seroprevalence was high (68.2%, 75.8%, 67.1%). In multivariate analysis, adjusting for sample characteristics significantly associated with time, linear time trends remained significant, and the decline in HIV seroprevalence gained significance (adjusted RR = 0.76, 95% CI: 0.64 to 0.91, P = 0.003). CONCLUSIONS: This trend analysis suggests declining HIV prevalence among NYC PWID. However, HCV seroprevalence was high and risk behaviors were considerable. Longitudinal surveillance of HIV and HCV risk behaviors and infections is needed to monitor trends and for ongoing data-informed prevention among PWID.


We describe changes in sexual behaviors among men who have sex with men (MSM) following initiation of pre-exposure prophylaxis (PrEP) in a clinic-based sample of MSM initiating PrEP in Providence, Rhode Island. Data were collected at baseline, 3, and 6 months following PrEP initiation including total number of anal sex partners and condom use. A longitudinal mixed effects model assessed changes in number of partners and condom use over time, adjusting for age, race, and education. There was no statistically significant difference in total number of partners over time. There was a significant increase in number of condomless anal sex partners at the 6-month visit compared to baseline (mean change +1.31 partners, 95% confidence interval 0.09-2.53, P = 0.035). As condomless anal sex may increase following PrEP uptake, adherence counseling and efforts to retain patients in PrEP care, especially during periods of non-condom use, are important as PrEP is more widely implemented.
BACKGROUND: Hepatitis C virus (HCV) screening has taken on new importance as a result of updated guidelines and new curative therapies. Relatively few studies have assessed HCV infection in homeless populations, and a minority include women. We assessed prevalence and correlates of HCV exposure in a cohort of homeless and unstably housed women in San Francisco, and estimated the proportion undiagnosed. METHODS: A probability sample of 246 women were recruited at free meal programs, homeless shelters, and low-cost single room occupancy hotels in San Francisco; women with HIV were oversampled. At baseline, anti-HCV status was assessed using an enzyme immunoassay, and results compared in both HIV-positive and negative women. Exposures were assessed by self-report. Logistic regression was used to assess factors independently associated with HCV exposure. RESULTS: Among 246 women 45.9% were anti-HCV positive, of whom 61.1% were HIV coinfected; 27.4% of positives reported no prior screening. Most (72%) women were in the 'baby-boomer' birth cohort; 19% reported recent injection drug use (IDU). Factors independently associated with anti-HCV positivity were: being born in 1965 or earlier (AOR 3.94; 95%CI: 1.88, 8.26), IDU history (AOR 4.0; 95%CI: 1.68, 9.55), and number of psychiatric diagnoses (AOR 1.16; 95%CI: 1.08, 1.25). CONCLUSIONS: Results fill an important gap in information regarding HCV among homeless women, and confirm the need for enhanced screening in this population where a high proportion are baby-boomers and have a history of drug use and psychiatric problems. Due to their age and risk profile, there is a high probability that women in this study have been infected for decades, and thus have significant liver disease. The association with mental illness and HCV suggests that in addition increased screening, augmenting mental health care and support may enhance treatment success.


Living with HIV can be both a precipitant and a consequence of partner abuse (PA) across populations, including male–male partnerships. However, overlapping experiences of living with HIV and experiencing PA are not well characterized. We conducted 24 qualitative interviews with urban HIV-positive sexual minority men (SMM) recruited from a public hospital HIV clinic in Seattle, Washington, who reported lifetime PA histories, and analyzed them using content analysis. Participants reported psychological, physical, and sexual victimization from partners, varying in severity. Themes included (a) how HIV and minority stress (e.g., through self-stigma, serosorting) and (b) familial and repeated exposure to violence (e.g., through normalization or acceptance of PA, partnering as strategy for increasing one’s own safety, esteem, or social status), independently and in combination, provided a context for the men’s victimization. Our findings suggest that PA-related interventions might focus on coping with stigma, expanding social networks, and educating SMM about dysfunctional relationship dynamics. [ABSTRACT FROM AUTHOR]


Sexuality is an important component of overall health and quality of life, yet evidence suggests many aging adults are not discussing sexual health with their physician. The objective of this study was to understand practices of primary care physicians in discussing sexual health with aging patients. An electronic survey was distributed to primary care physicians and family medicine residents at an urban academic hospital in Ontario, Canada. The survey captured the self-reported prevalence of discussions of sexual health with patients aged 50 and above as well as patient, physician and contextual factors influencing the likelihood of discussion. Descriptive statistics were used to summarize the results. Among the 37 physicians who responded to the survey (response rate of 24%), physicians were more likely to discuss sexual health with patients aged 50-75 years than with patients s >75 years with both males (p < 0.0001) and females (p < 0.0001). Most frequently discussed issues with males were erectile dysfunction and sexually transmitted infection, while atrophic vaginitis, bleeding, and pain during intercourse were most often discussed with females. Factors limiting discussion include lack of time, multiple patient comorbidities and a perceived disinterest in sexual activity. 54% of respondents report having adequate knowledge to discuss and manage later life sexual health issues. Proactively discussing sexuality with aging adults may reveal underlying illness and facilitate future help-seeking behaviours. We suggest that primary care physicians have a responsibility to routinely initiate such discussions in clinical practice. [ABSTRACT FROM AUTHOR]

BACKGROUND: HIV and sexually transmitted infections (STIs) disproportionately affect women who experience intimate partner violence (IPV). OBJECTIVE: The current study (1) applied a syndemic framework to study the collective effects of problematic drug use, hazardous drinking, depression, and posttraumatic stress disorder (PTSD) on fear of condom negotiation, condom negotiation, and condom use and (2) evaluated condom negotiation (controlling for fear of condom negotiation) as a mediator of the association between syndemic severity and condom use among low-income IPV-exposed women. METHODS: Participants were 158 women living in the community and experiencing ongoing IPV who completed face-to-face, computer-assisted interviews. RESULTS: Almost three-fourths of the participants reported problematic drug use, hazardous drinking, depression, and/or PTSD; many of these factors were correlated, indicating a syndemic. Multivariate logistic and linear regression analyses revealed associations between syndemic severity and fear of condom negotiation (OR = 1.57, p = .02), condom negotiation (beta = -8.51, p = .001), and condom use (beta = -8.26, p = .01). Meditation analyses identified condom negotiation as a mediator of the association between syndemic severity and condom use (effect = -6.57, SE = 2.01, [95% CI: -10.66, -2.77]). CONCLUSIONS: Results fill a critical gap in previous research by identifying condom negotiation as a mechanism through which this syndemic affects condom use. Prevention and intervention programs should consider addressing condom negotiation to reduce sexual risk among this high-risk population. Further, because IPV-exposed women may experience fear related to condom negotiation, it is critical that prevention and intervention efforts for this population offer skills to safely negotiate condom use, increase condom use, and reduce STI and HIV risk.


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.


OBJECTIVES: To evaluate the HOLA en Grupos intervention, a Spanish-language small-group behavioral HIV prevention intervention designed to increase condom use and HIV testing among Hispanic/Latino gay, bisexual, and other men who have sex with men. METHODS: In 2012 to 2015, we recruited and randomized 304 Hispanic/Latino men who have sex with men, aged 18 to 55 years in North Carolina, to the 4-session HOLA en Grupos intervention or an attention-equivalent general health education comparison intervention. Participants completed structured assessments at baseline and 6-month follow-up. Follow-up retention was 100%. RESULTS: At follow-up, relative to comparison participants, HOLA en Grupos participants reported increased consistent condom use during the past 3 months (adjusted odds ratio [AOR] = 4.1; 95% confidence interval [CI] = 2.2, 7.9; P < .001) and HIV testing during the past 6 months (AOR = 13.8; 95% CI = 7.6, 25.3; P < .001). HOLA en Grupos participants also reported increased
CONCLUSIONS: The HOLA en Grupos intervention is efficacious for reducing HIV risk behaviors among Hispanic/Latino men who have sex with men.


OBJECTIVE: To identify the unmet needs for HIV prevention among older adults in rural South Africa. METHODS: We analyzed data from a population-based sample of 5059 men and women aged 40 years and older from the study Health and Aging in Africa: Longitudinal Studies of INDEPTH Communities (HAALSI), which was carried out in the Agincourt health and sociodemographic surveillance system in the Mpumalanga province of South Africa. We estimated the prevalence of HIV (laboratory-confirmed and self-reported) and key sexual behaviors by age and sex. We compared sexual behavior profiles across HIV status categories with and without age-sex standardization. RESULTS: HIV prevalence was very high among HAALSI participants (23%, 95% confidence interval [CI]: 21 to 24), with no sex differences. Recent sexual activity was common (56%, 95% CI: 55 to 58) across all HIV status categories. Condom use was low among HIV-negative adults (15%, 95% CI: 14 to 17), higher among HIV-positive adults who were unaware of their HIV status (27%, 95% CI: 22 to 33), and dramatically higher among HIV-positive adults who were aware of their status (75%, 95% CI: 70 to 80). Casual sex and multiple partnerships were reported at moderate levels, with slightly higher estimates among HIV-positive compared to HIV-negative adults. Differences by HIV status remained after age-sex standardization. CONCLUSIONS: Older HIV-positive adults in an HIV hyperendemic community of rural South Africa report sexual behaviors consistent with high HIV transmission risk. Older HIV-negative adults report sexual behaviors consistent with high HIV acquisition risk. Prevention initiatives tailored to the particular prevention needs of older adults are urgently needed to reduce HIV risk in this and similar communities in sub-Saharan Africa.


Youth represent a large proportion of new HIV infections worldwide, yet their utilization of HIV testing and counseling (HTC) remains low. Using the post-intervention, cross-sectional, population-based household survey done in 2011 as part of HPTN 043/NIMH Project Accept, a cluster-randomized trial of community mobilization and mobile HTC in South Africa (Soweto and KwaZulu Natal), Zimbabwe, Tanzania and Thailand, we evaluated age-related differences among socio-demographic and behavioral determinants of HTC in study participants by study arm, site, and gender. A multivariate logistic regression model was developed using complete individual data from 13,755 participants with recent HIV testing (prior 12 months) as the outcome. Youth (18-24 years) was not predictive of recent HTC, except for high-risk youth with multiple concurrent partners, who were less likely (aOR 0.75; 95% CI 0.61-0.92) to have recently been tested than youth reporting a single partner. Importantly, the intervention was successful in reaching men with site specific success ranging from aOR 1.27 (95% CI 1.05-1.53) in South Africa to aOR 2.30 in Thailand (95% CI 1.85-2.84). Finally, across a diverse range of settings, higher education (aOR 1.67; 95% CI 1.42, 1.96), higher socio-economic status (aOR 1.21; 95% CI 1.08-1.36), and marriage (aOR 1.55; 95% CI 1.37-1.75) were all predictive of recent HTC, which did not significantly vary across study arm, site, gender or age category (18-24 vs. 25-32 years).


INTRODUCTION: Two-thirds of people living with HIV (PLWH) show sub-optimal adherence to antiretroviral therapy (ART) and one-third engages in risky sex. Both non-adherence and risky sex have been associated with emotional distress and impulsivity. To allay distress and lessen impulsivity, mindfulness training (MT) can be helpful. In this trial, we will investigate the utility of phone-delivered MT for PWLH. The primary outcomes comprise feasibility and acceptability of phone-delivery; secondary outcomes are

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estimates of efficacy of MT on adherence to ART and safer sexual practices as well as on their hypothesized antecedents.

METHODS/DESIGN: Fifty participants will be enrolled in this parallel-group randomized clinical trial (RCT). Outpatients recruited from an HIV treatment clinic will be randomized (1:1 ratio) to either MT or to an attention-control intervention; both interventions will be administered during 8 weekly phone calls. ART adherence (self-reported measure and unannounced phone pill counts), sexual behavior (self-reports and biomarkers), mindfulness, depression, stress, and impulsivity will be measured at baseline, post-intervention, and 3 months post-intervention. CONCLUSIONS: MT has great potential to help PLWH to manage stress, depressive symptoms, and impulsivity. Positive changes in these antecedents are expected to improve safer sex practices and ART adherence. If results from this exploratory trial support our hypotheses, we will conduct a large RCT to test (a) the efficacy of MT on ART adherence and safer sex practices and (b) the hypothesis that improved ART adherence and safer sex will reduce viral load, and decrease the incidence of sexually transmitted infections, respectively.


HIV positive Black men who have sex with men (MSM) are retained in HIV medical care at suboptimal rates. Interventions targeted to Black MSM are needed to help to improve their retention in care. The purposes of this study were to investigate the use of mobile technology among HIV+ Black MSM and to explore participants' thoughts about the use of mobile technology for HIV retention in care interventions. Twenty-two HIV+ Black MSM completed a technology use survey and participated in a qualitative interview regarding technology-based interventions. The majority of participants (95%) had access to a cell phone, and used their phones frequently (median 3 hours/day). Men preferred interventions that would allow for anonymous participation and that would provide individually tailored support. Mobile technology is a promising approach to intervention delivery for both younger and older HIV+ Black MSM. These interventions should incorporate features that are desirable to men (i.e., anonymous participation and individual tailoring).


BACKGROUND: Recreational drug use and associated harms continue to be of significant concern in men who have sex with men (MSM) particularly in the context of HIV and STI transmission. METHODS: Data from 1484 HIV-negative or undiagnosed MSM included in the AURAH study, a cross-sectional, self-completed questionnaire study of 2630 individuals from 20 sexual health clinics in the United Kingdom in 2013-2014, was analysed. Two measures of recreational drug use in the previous three months were defined; (i) polydrug use (use of 3 or more recreational drugs) and (ii) chemsex drug use (use of mephedrone, crystal methamphetamine or GHB/GBL). Associations of socio-demographic, health and lifestyle factors with drug use, and associations of drug use with sexual behaviour, were investigated. RESULTS: Of the 1484 MSM, 350 (23.6%) reported polydrug use and 324 (21.8%) reported chemsex drug use in the past three months. Overall 852 (57.5%) men reported condomless sex in the past three months; 430 (29.0%) had CLS with >/=2 partners, 474 (31.9%) had CLS with unknown/HIV+ partner(s); 187 (12.6%) had receptive CLS with an unknown status partner. For polydrug use, prevalence ratios (95% confidence interval) for association with CLS measures, adjusted for socio-demographic factors were: 1.38 (1.26, 1.51) for CLS; 2.11 (1.80, 2.47) for CLS with >/=2 partners; 1.89 (1.63, 2.19) for receptive CLS with an unknown status partner. Corresponding adjusted prevalence ratios for chemsex drug use were: 1.38 (1.26, 1.52); 2.07 (1.76, 2.43); 1.88 (1.62, 2.19); 1.49 (1.10, 2.02). Polydrug and chemsex drug use were also strongly associated with previous STI, PEP use, group sex and high number of new sexual partners. Associations remained with little attenuation after further adjustment for depressive symptoms and alcohol intake. CONCLUSION: There was a high prevalence of polydrug use and chemsex drug use among HIV negative MSM attending UK sexual health clinics. Drug use was strongly associated with sexual behaviours linked to risk of acquisition of STIs and HIV.

This paper explores the prevalence and correlates of HIV seropositive status disclosure to sexual partners by people living with HIV (PLHIV) in South Africa. Secondary analysis of the 2012 South African National HIV Prevalence, Incidence and Behaviour Survey was conducted on data obtained from 934 sexually active PLHIV aged 15 years and older who responded to the question about HIV seropositive status disclosure. Overall, a large majority of respondents (77.1 %) reported disclosing their HIV-positive status to all their current sex partners. Multiple regression analysis, after adjustments for sex, marital status and locality type, revealed that those who were living together, going steady, and those who were single were all 60 % [adjusted odds ratio (AOR) = 0.4, 95 % CIs 0.20-0.78; AOR = 0.4, 95 % CIs 0.24-0.77; and AOR = 0.4, 95 % CIs 0.19-1.00, all ps < 0.05] less likely to disclose their HIV positive status to their partners compared to those who were married. Those who lived in rural formal areas were 70 % less likely to disclose their HIV status to their partners compared to those who stayed in urban formal areas (AOR = 0.3, 95 % CI 0.17-0.69, p < 0.001). Those who had correct HIV knowledge and rejection of myths were 2.0 times more likely to disclose their HIV status to their partners compared to those who did not have correct HIV knowledge and rejection of myths (AOR = 2.0, 95 % CI 1.04-3.68, p < 0.05).
In conclusion, intervention programmes which help improve HIV seropositive status disclosure are needed by PLHIV who are not married, live in rural formal areas, and have incorrect HIV knowledge and rejection of myths.


Project PRIDE (Promoting Resilience In Discriminatory Environments) is an 8-session small group intervention aimed at reducing negative mental and behavioral health outcomes resulting from minority stress. This study reports the results of a one-armed pilot test of Project PRIDE, which aimed to examine the feasibility and potential for efficacy of the intervention in a sample of 33 gay and bisexual men aged 18 to 25. The intervention appeared feasible to administer in two different sites and all participants who completed posttreatment (n = 22) or follow-up (n = 19) assessments reported high satisfaction with the intervention. Small to large effect sizes were observed for increases in self-esteem; small effect sizes were found for decreases in loneliness and decreases in minority stress variables; and small and medium effect sizes were found for reductions in alcohol use and number of sex partners, respectively. Overall, Project PRIDE appears to be a feasible intervention with promise of efficacy.


The goal to effectively prevent new HIV infections among gay, bisexual, and other men who have sex with men (MSM) is more challenging now than ever before. Despite declines in the late 1990s and early 2000s, HIV incidence among MSM is now increasing in many low- and high-income settings including the US, with young, adolescent, and racial/ethnic minority MSM being among those at highest risk. Potentiating HIV risks across all settings are individual-, network-, and structural-level factors such as stigma and lack of access to pre-exposure prophylaxis (PrEP) and antiretroviral treatment as prevention. To make a sustained impact on the epidemic, a concerted effort must integrate all evidence-based interventions that will most proximally decrease HIV acquisition and transmission risks, together with structural interventions that will support improved coverage and retention in care. Universal HIV treatment, increased access to HIV testing, and daily oral PrEP have emerged as integral to the prevention of HIV transmission, and such efforts should be immediately expanded for MSM and other populations disproportionately affected by HIV. Respect for human rights and efforts to combat stigma and improve access to prevention services are needed to change the trajectory of the HIV pandemic among MSM. [ABSTRACT FROM AUTHOR]

Although rates of crystal methamphetamine use in the United States have fallen from their peak in the mid-2000s, use remains a major public health concern, which disproportionately affects gay and bisexual men (GBM). It poses a particular challenge for HIV-positive men, for whom it has been linked to medication adherence problems as well as compromised immune function. Although the information, motivation, and behavioral skills (IMB) model has been widely used to conceptualize health behavior, little is known about GBM's initial levels of information, motivation, and behavioral self-efficacy to improve HIV medication adherence and to reduce crystal methamphetamine use at the outset of treatment. The present study identified profiles of IMB factors related to HIV medication adherence and crystal methamphetamine use in a sample of 210 HIV-positive GBM who consented to participate in an intervention study. Results indicated three distinct patterns of IMB factors. The largest group was ready to change both adherence and methamphetamine use (n = 104). This group also had depression scores that were significantly lower than other groups. A second group appeared ready to change medication adherence, but was ambivalent about changing methamphetamine use (n = 60). This group reported significantly more symptoms of methamphetamine dependence than the other groups. A third group was characterized by global IMB barriers to change (n = 46). Results are discussed in the context of tailoring psychoeducation, motivational interviewing, and cognitive behavioral interventions to match these preintervention patterns of IMB factors.


OBJECTIVES: Despite the wide accessibility to free human immunodeficiency virus (HIV) testing and combined antiretroviral therapy (cART), late HIV diagnosis remains common with severe consequences at individual and population level. This study aimed to describe trends of late HIV testing and to identify their determinants in the late cART era in Italy. STUDY DESIGN: We conducted a population-based, nationwide analysis of the Italian National AIDS Registry data (AIDS - acquired immune deficiency syndrome) for the years 1999-2013. METHODS: Late testers (LTs) were defined as people with AIDS (PWA) whose first HIV-positive test preceded AIDS diagnosis by 3 months or less. Odds ratios (ORs) with the corresponding 95% confidence intervals (CIs) were estimated to examine factors associated with being LTs. Joinpoint analysis was used to estimate annual percent changes (APCs) of LTs' proportion over time. RESULTS: Among 20,753 adult PWA, 50.8% were LTs. Italian PWA showed a lower proportion of LTs than non-Italian PWA (46.5% vs 68.2%). Among Italian PWA, the odds of being LTs was higher in men than in women (OR = 2.62, 95% CI: 2.38-2.90); in the age groups below 35 years and over 49 years; and in those infected through sexual contact as compared with injecting drug use (OR = 13.34, 95% CI: 12.06-14.76 for heterosexual contact and OR = 8.13, 95% CI: 7.30-9.06 for male-to-male sexual contact). The proportion of LTs increased over time among Italians, especially in the latest period (APC2006-2013 = 5.3, 95% CI: 3.8-6.9). The LTs' proportion resulted higher, though stable, among PWA aged >/=50 years. Conversely, an increasing trend was observed among PWA aged 18-34 years (APC = 5.3, 95% CI: 4.5-6.1). The LTs' proportion was persistently higher among PWA who acquired HIV infection through sexual contact, even if a marked increase among injecting drug users was observed after 2005 (APC = 11.4, 95% CI: 5.7-17.5). CONCLUSIONS: The increasing trend of LTs' proportion in the late cART era highlights the need of new strategies tailored to

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groups who may not consider themselves to be at a high risk of infection. Active promotion of early testing and continuous education of infection, especially among young people, need to be implemented.


Individualization of drug therapy requires that the right drug be administered at the correct dose to patients who are likely to achieve the highest benefit and lowest risk. Female sex and age comprise two important risk factors for altered drug exposure and response. This review summarizes the current state of science for considering age and sex-related factors along the drug development pipeline, from cell culture and animal research through all phases of clinical trials in humans. A set of recommendations is provided to improve standards for integrating age and sex into the study design, analysis, and reporting of pre-clinical and clinical assessment of new molecular entities and biologics in adults.


BACKGROUND: The HIV burden is increasing in older adults in the European Union (EU) and European Economic Area (EEA). We investigated factors associated with HIV diagnosis in older adults in the 31 EU/EEA countries during a 12 year period. METHODS: In this analysis of surveillance data, we compared data from older people (aged >/=50 years) with those from younger people (aged 15-49 years). We extracted new HIV diagnoses reported to the European Surveillance System between Jan 1, 2004, and Dec 31, 2015, and stratified them by age, sex, migration status, transmission route, and CD4 cell count. We defined late diagnosis as CD4 count of less than 350 cells per μL at diagnosis and diagnosis with advanced HIV disease as less than 200 cells per μL. We compared the two age groups with the chi(2) test for difference, and used linear regression analysis to assess temporal trends. FINDINGS: During the study period 54 102 new HIV diagnoses were reported in older adults. The average notification rate of new diagnoses was 2.6 per 100 000 population across the whole 12 year period, which significantly increased over time (annual average change [AAC] 2.1%, 95% CI 1.1-3.1; p=0.0009). Notification rates for new HIV diagnoses in older adults increased significantly in 16 countries in 2004-15, clustering in central and eastern EU/EEA countries. In 2015, compared with younger adults, older individuals were more likely to originate from the reporting country, to have acquired HIV via heterosexual contact, and to present late (p<0.0001 for all comparisons). HIV diagnoses increased significantly over time among older men (AAC 2.2%, 95% CI 1.2-3.3; p=0.0006), women (1.3%, 0.2-2.4; p=0.025), men who have sex with men (5.8%, 4.3-7.5; p<0.0001), and injecting drug users (7.4%, 4.8-10.2; p<0.0001). INTERPRETATION: Our findings suggest that there is a compelling need to deliver more targeted testing interventions for older adults and the general adult population, such as by increasing awareness among health-care workers and expanding opportunities for provider-initiated and indicator-condition-guided testing programmes. FUNDING: European Centre for Disease Prevention and Control.


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

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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.


Sexual health is a key public health issue. The older woman faces a number of changes to her sexual health, wellbeing and sexuality. These changes result in many older women having to adapt to a series of complex transitions that can be challenging. This article aims to identify and explore some of these changes and how they can have a significant impact on women's quality of life. Nurses play an important role in assessing and helping women to manage normal and pathological age-related changes in order to improve the sexual health of older women and ensure they receive the advice and support needed at this stage of their life.


Black young gay, bisexual, and other men who have sex with men (YGBMSM) are at high risk for negative health outcomes, though this population is underrepresented in the health literature. An extensive literature review and content analysis of health-related peer-reviewed articles (1988-2013) was conducted that targeted Black YGBMSM, examining five content areas: sexual health, health care, substance use, psychosocial functioning, and sociostructural factors. A coding sheet was created to collect information on all content areas and related subtopics and computed descriptive statistics. Out of 54 articles, most were published after 2004 (N = 49; 90.7%) and addressed some aspect of sexual health (N = 50; 92.6%). Few articles included content on psychosocial functioning, including bullying/harassment, suicide, and racial/ethnic identity. Data on health care delivery/receipt and health insurance were underrepresented; tobacco use and substance abuse were seldom addressed. Important sociostructural factors, including sexual networks and race-based discrimination, were poorly represented. Last, there was a noteworthy deficit of qualitative studies and research exploring intersectional identity and health. This review concludes that studies on Black YGBMSM health places sex at the forefront to the neglect of other critical health domains. More research is needed on the diverse health issues of a vulnerable and underexamined population. [ABSTRACT FROM AUTHOR]


Approximately 13% of people living with HIV in the UK are unaware of their infection. New diagnoses among people >/=50 years is increasing. Unique factors may be associated with testing in this group. This systematic review aims to identify patient and clinician-related barriers/facilitators to HIV testing in people aged >/=50 years. A systematic electronic search was conducted. Papers were assessed for eligibility and data from eligible studies were extracted. Barriers/facilitators were grouped, and the number of times they were reported was noted. Because of considerable heterogeneity, a narrative approach has been undertaken to synthesise data. In total, 17 studies were included. Main barriers to testing were low perceived risk and clinicians' preconceptions about older people. Main facilitators were regular use of healthcare services or being offered/encouraged to test by a healthcare provider. Although being encouraged to test was a common facilitator, clinicians' preconceptions about older people was the biggest barrier. This shows a divide between clinicians' preconceptions and patients' expectations, which may impact on testing rates. This review is an important first step in identifying potential barriers/facilitators for further study or to be addressed in the design of future interventions.

PSYCHOSOCIAL ISSUES

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.

Arnold, E. A., et al. (2017). "Identifying social and economic barriers to regular care and treatment for Black men who have sex with men and women (BMSMW) and who are living with HIV: a qualitative study from the Bruthas cohort." BMC Health Serv Res 17(1): 90.

BACKGROUND: There is little research regarding the ability of Black men who have sex with men and women (BMSMW) to access and maintain HIV-related health care and treatment adherence. This population, who often insist on secrecy about their same-sex desire, may experience unique barriers to seeking regular care and treatment. METHODS: From March 2011-April 2014, we recruited 396 BMSMW in the San Francisco Bay Area to be enrolled in our randomized controlled trial. At baseline we administered a behavioral survey assessing: demographics, homelessness, employment, history of incarceration, HIV status and disclosure practices, care and treatment adherence. 64 men reported living with HIV at intake. To learn more about their experiences, we recruited N = 25 to participate in qualitative interviews, which were conducted April-December 2014. Topics included: current living situation, diagnosis story, disclosure practices, experiences of accessing and maintaining care and treatment, and HIV-related stigma. Recordings were transcribed and coded for major themes. RESULTS: Despite being located in an area where treatment is plentiful, men faced social and economic barriers to maintaining regular care and treatment adherence. Several findings emerged to shed light on this quandary: (1) Competing needs particularly around attaining stable housing, food security, and money created barriers to treatment and care; (2) Side effects of HIV medications discouraged men from adhering to treatment; (3) Provider and Institutional level characteristics influenced care engagement; (4) Disclosure and social support made a difference in care and treatment behaviors; and (5) Participants expressed a desire for group-based intervention activities to support treatment and care among HIV+ BMSMW. Inadequate engagement in the continuum of care for HIV was born out in the quantitative data where 28% of participants did not know their Viral Load. CONCLUSIONS: A holistic approach to HIV health for BMSMW would appear to translate to better outcomes for men living with HIV, where a goal of viral suppression must also include attending to their basic social and economic support needs.


Although the rate of HIV infection among US prison inmates is considerably higher than that of the general population, little is known about age-related changes in HIV-infected inmates over the last decade. This study of the nation's largest state prison system examined (1) whether the mean age of the HIV-infected inmate increased over the last decade, and (2) whether the prevalence of HIV and associated comorbidities varied according to age. The study population included all 230,103 inmates incarcerated in the Texas prison system for any duration during 2014. A separate analysis was conducted on all HIV-infected inmates incarcerated between 2004 and 2014. Information on medical conditions and demographic factors was obtained from an institution-wide electronic medical record system. From 2004 to 2014, the mean age of HIV-infected inmates in the prison system increased from 39.3 to 42.5 years, compared to an increase of 36.1-37.9 for all Texas prison inmates. Multivariable logistic regression was used to assess the independent contributions of multiple demographic and clinical covariates in predicting the binary outcome, HIV
infection. The model showed that, in 2014, HIV infection was elevated in inmates who were aged 40-49 years (OR=3.1; 95% CI 2.7-3.3), aged 50-59 years (OR=2.4; 95% CI 2.1-2.7), African American (OR=3.0; 95% CI 2.8-3.3), and in those with several chronic diseases, including chronic obstructive pulmonary disease (OR=1.7; 95% CI 1.5-1.9), hepatitis C (OR=2.7; 95% CI 2.5-3.1), major depressive disorder (OR=1.7; 95% CI 1.5-2.1), bipolar disorder (OR=2.3; 95% CI 1.8-2.8), and schizophrenia (OR=1.5; 95% CI 1.3-1.8). Among HIV-infected inmates (n=2960), the percentage with comorbid disease increased in a linear fashion according to age (p<.01). Correctional health systems must adapt to address the evolving epidemiology of HIV among inmate populations.


HIV-infected U.S. adults have reported internalized HIV-related stigma; however, the national prevalence of stigma is unknown. We sought to determine HIV-related stigma prevalence among adults in care, describe which socio-demographic groups bear the greatest stigma burden, and assess the association between stigma and sustained HIV viral suppression. The Medical Monitoring Project measures characteristics of U.S. HIV-infected adults receiving care using a national probability sample. We used weighted data collected from June 2011 to May 2014 and assessed self-reported internalized stigma based on agreement with six statements. Overall, 79.1% endorsed >/=1 HIV-related stigma statements (n = 13,841). The average stigma score was 2.4 (out of a possible high score of six). White males had the lowest stigma scores while Hispanic/Latina females and transgender persons who were multiracial or other race had the highest. Although stigma was associated with viral suppression, it was no longer associated after adjusting for age. Stigma was common among HIV-infected adults in care. Results suggest individual and community stigma interventions may be needed, particularly among those who are <50 years old or Hispanic/Latino. Stigma was not independently associated with viral suppression; however, this sample was limited to adults in care. Examining HIV-infected persons not in care may elucidate stigma's association with viral suppression.


Many women living with HIV experience a range of physical, social, and psychological challenges linked to their HIV status. Psychosocial support interventions may help women cope with these challenges and may allow women to make better decisions around their sexual and reproductive health (SRH), yet no reviews have summarized the evidence for the impact of such interventions on well-being and SRH decision-making among women living with HIV. We systematically reviewed the evidence for non-specialist delivered psychosocial support interventions for women living with HIV, which are particularly relevant in low-resource settings. Outcomes of interest included mental, emotional, social well-being and/or quality of life, common mental health disorders, and SRH decision-making. Searching was conducted through four electronic databases and secondary reference screening. Systematic methods were used for screening and data abstraction. Nine articles met the inclusion criteria, showing positive or mixed results for well-being and depressive symptoms indicators. No studies reported on SRH decision-making outcomes. The available evidence suggests that psychosocial support interventions may improve self-esteem, coping and social support, and reduce depression, stress, and perceived stigma. However, evidence is mixed. Most studies placed greater emphasis on instrumental health outcomes to prevent HIV transmission than on the intrinsic well-being and SRH of women living with HIV. Many interventions included women living with HIV in their design and implementation. More research is required to understand the most effective interventions, and their effect on sexual and reproductive health and rights.


Societal prejudice against people living with HIV infection is a formidable public health challenge that can negatively impact health and well-being. We recruited a multiethnic sample of 129 gay and bisexual men living with HIV who completed a brief survey; a subset of participants completed semi-structured qualitative interviews to contextualize the data. In bivariate analyses, stigma was positively and significantly correlated with depression (r = .402, p < .001) and negatively correlated with social support (r = -.482, p < .001). Qualitative interview results captured the mental suffering caused by stigma and coping strategies the men had developed. Although some of the coping strategies reduced the likelihood of experiencing acts of stigmatization, they also exacerbated the
psychological stress of living with a stigmatized disease and limited the potential for social support. Our results highlight the need to scale up stigma-reduction programs, particularly those that can bolster social support networks.


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.


Women who are structurally vulnerable are at heightened risk for HIV/STIs. Identifying typologies of structural vulnerability that drive HIV/STI risk behavior is critical to understanding the nature of women's risk. Latent class analysis (LCA) was used to classify exotic dancers (n = 117) into subgroups based on response patterns of four vulnerability indicators. Latent class regression models tested whether sex- and drug-related risk behavior differed by vulnerability subgroup. Prevalence of vulnerability indicators varied across housing instability (39%), financial insecurity (39%), limited education (67%), and arrest history (36%). LCA yielded a two-class model solution, with 32% of participants expected to belong to a "high vulnerability" subgroup. Dancers in the high vulnerability subgroup were more likely to report sex exchange (OR = 8.1, 95% CI, 1.9-34.4), multiple sex partnerships (OR = 6.4, 95% CI, 1.9-21.5), and illicit drug use (OR = 17.4, 95% CI, 2.5-123.1). Findings underscore the importance of addressing inter-related structural factors contributing to HIV/STI risk.


Social networks of older adults with HIV have been characterized as fragile, with a greater reliance on friends as compared to family. However, we know little about the subgroup differences in the social network constellations of this population, how such characteristics are related to social support resources, and their relationship with psychosocial well-being. We developed a typology of social networks of older HIV-positive adults and examined if they would be related to receipt of informal assistance, perceptions of support sufficiency, and psychosocial well-being. Data were obtained from Research on Older Adults with HIV (n = 914). Participants were 50 years and older, HIV positive, and diverse in terms of race/ethnicity, gender, and sexual orientation. Cluster analysis identified Isolated, Friend-centered, and Integrated social network types. The Isolated reported significantly lower levels of assistance, lower perceptions of support availability and adequacy, greater stigma and psychological distress, and lower well-being compared to their peers. While friends dominate many social networks in this population, a more nuanced interpretation is needed; many have no friends and a substantial proportion receive significant family support. Those with Isolated network types will likely need to access a high volume of community-based services as they age as they lack informal support resources.


Improvements in biomedical technologies, combined with changing social attitudes to sexual minorities, provide new opportunities for HIV prevention among gay and other men who have sex with men (GMSM). The potential of these new biomedical technologies (biotechnologies) to reduce HIV transmission and the impact of HIV among GMSM will depend, in part, on the degree to which they challenge prejudicial attitudes, practices and stigma directed against gay men and people living with HIV (PLHIV). At the structural level, stigma regarding gay men and HIV can influence the scale-up of new biotechnologies and negatively affect GMSM’s access to and use of these technologies. At the personal level, stigma can affect individual gay men’s sense of value and confidence as they negotiate serodiscordant relationships or access services. This paper argues that maximising the benefits of new biomedical technologies depends on reducing stigma directed at sexual minorities and people living with HIV and promoting positive social changes towards and within GMSM communities. HIV research, policy and programs will need to invest in: (1) responding to structural and institutional stigma; (2) health promotion and health services that recognise and work to address the impact of stigma on GMSM’s incorporation of new HIV prevention biotechnologies; (3) enhanced mobilisation and participation of GMSM and PLHIV in new approaches to HIV prevention; and (4) expanded approaches to research and evaluation in stigma reduction and its relationship with HIV prevention. The HIV response must become bolder in resourcing, designing and evaluating programs that interact with and influence stigma at multiple levels, including structural-level stigma.


Background: Co-occurrence of social conditions and infections may affect HIV/HCV disease risk and progression. We examined the changes in relationship of these social conditions and infections on HIV and hepatitis C virus (HCV) infections over time in British Columbia during 1990–2013. Methods: The BC Hepatitis Testers Cohort (BC-HTC) includes ~1.5 million individuals tested for HIV or HCV, or reported as a case of HCV, HIV, HBV, or tuberculosis linked to administrative healthcare databases. We classified HCV and HIV infection status into five combinations: HIV-/HCV-, HIV+monoinfected, HIV-/HCV+seroconverters, HIV-/HCV+prevalent, and HIV+/HCV+. Results: Of 1.37 million eligible individuals, 4.1% were HIV-/HCV+prevalent, 0.5% HIV+monoinfected, 0.3% HIV+/HCV+co-infected and 0.5% HIV-/HCV+seroconverters. Overall, HIV+monoinfected individuals lived in urban areas (92%), had low injection drug use (IDU) (4%), problematic alcohol use (4%) and were materially more privileged than other groups. HIV+/HCV+ co-infected and HIV-/HCV+seroconverters were materially most deprived (37%, 32%), had higher IDU (28%, 49%), problematic alcohol use (14%, 17%) and major mental illnesses (12%, 21%). IDU, opioid substitution therapy, and material deprivation increased in HIV-/HCV+seroconverters over time. In multivariable multinomial regression models, over time, the odds of IDU declined among HIV-/HCV+prevalent and HIV+monoinfected individuals but not in HIV-/HCV+seroconverters. Declines in odds of problematic alcohol use were observed in HIV-/HCV+seroconverters and coinfected individuals over time. Conclusions: These results highlight need for designing prevention, care and support services for HIV and HCV infected populations based on the evolving syndemics of infections and social conditions which vary across groups. [ABSTRACT FROM AUTHOR]


BACKGROUND: Spirituality and religiosity may serve as both a resource and a barrier to HIV prevention with young black men who have sex with men (YBMSM). We examined indices of spirituality/religiosity as correlates of binge drinking, stimulant use, and recent HIV testing in a sample of YBMSM. METHODS: From 2011-2013, annual venue-based surveys of sexually active YBMSM ages 18-29 were conducted in Dallas and Houston, Texas. Binge drinking and stimulant use were assessed in the past two months. Participants recently tested for HIV (i.e., within the past six months) were compared to those without recent HIV testing (i.e., never tested or tested more than six months ago). RESULTS: Among the 1565 HIV-negative or HIV-unknown YBMSM enrolled, more engagement in spiritual and religious activities was associated with greater odds of reporting stimulant use (Adjusted Odds Ratio [AOR]=1.20; 95% CI=1.04-1.40) while higher spiritual coping was associated with lower odds of reporting stimulant use (AOR=0.66; 95% CI=0.56-0.78). Binge drinking was independently associated with 29% lower odds of recent HIV testing (AOR=0.71; 95% CI=0.55-0.92), but lower odds of binge drinking did not mediate the association of engagement in spiritual and religious activities with 27% greater odds of recent HIV testing (AOR=1.27; 95% CI=1.11-1.46). CONCLUSIONS: Among YBMSM, culturally tailored approaches addressing spirituality/religiosity could support prevention of stimulant use and increase HIV testing. In particular, expanded efforts are needed to promote HIV testing in binge drinkers.


BACKGROUND: People with HIV with access to treatment are growing older and living healthier lives than in the past, and while health improvements and increased survival rates are welcome, the psychological and social consequences and quality of life of ageing are complex for this group. Understanding how ageing, HIV and quality of life intersect is key to developing effective interventions to improve QoL. METHODS: One hundred people with HIV over the age of 50 (range 50-87, mean 58), were recruited through HIV community organizations, and clinics, and included men who have sex with men (MSM), and Black African and White heterosexual men and women. The WHOQOL-HIV BREF was used, as well as the Every Day Memory Questionnaire, and additional questions on anxiety and depression to supplement the WHOQOL. RESULTS: While most rated their quality of life (QoL) positively, bivariate analysis showed that better QoL (total score and most domains) was strongly associated with being a man; in a relationship; in paid employment; having higher level of income; not on benefits, and to a lesser degree with being MSM, having higher level of education, and diagnosed after the age of 40. Multivariate analysis showed that not being on benefits was the variable most consistently associated with better quality of life, as was being partnered. Concerns about everyday memory difficulties, and anxiety and depression scores were strong predictors of poorer quality of life. CONCLUSION: While the cross-sectional nature of the investigation could not establish that the associations were causal, the findings indicate that concerns about memory difficulties, anxiety and depression, as well as gender, ethnicity, financial factors, and relationship status, are important contributors to QoL in this group. These findings point towards the need for further research to clarify the mechanisms through which the factors identified here affect QoL, and to identify possible interventions to improve the QoL of older people living with HIV.


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.
HIV/AIDS is one of the most urgent and challenging public health issues, especially since it is now considered a chronic disease. In this project, we used text mining techniques to extract meaningful words and word patterns from 45 transcribed in-depth interviews of people living with HIV/AIDS (PLWHA) conducted in Taipei, Beijing, Shanghai, and San Francisco from 2006 to 2013. Text mining analysis can predict whether an emerging field will become a long-lasting source of academic interest or whether it is simply a passing source of interest that will soon disappear. The data were analyzed by age group (45 and older vs. 44 and younger). The highest ranking fragments in the order of frequency were: "care", "daughter", "disease", "family", "HIV", "hospital", "husband", "medicines", "money", "people", "son", "tell/disclosure", "thought", "want", and "years". Participants in the 44-year-old and younger group were focused mainly on disease disclosure, their families, and their financial condition. In older PLWHA, social supports were one of the main concerns. In this study, we learned that different age groups perceive the disease differently. Therefore, when designing intervention, researchers should consider to tailor an intervention to a specific population and to help PLWHA achieve a better quality of life. Promoting self-management can be an effective strategy for every encounter with HIV-positive individuals.


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) and hypothesized correlates (e.g. visual acuity test, Functional Vision Screening Questionnaire, ratings of attachment to house and neighborhood, environmental modifications in home). 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.


It has nearly been more than three decades; yet, the research on aging seropositive African American men who have sex with men (MSM) is scarce. Exploring issues for an aging population of seropositive MSM is critical given that earlier epidemiological data suggested that by 2015, half of the AIDS cases will be in adults aged 50 years and older. A qualitative approach with the aim to examine perspectives about HIV risk from a group of seropositive African American MSM 50 years of age and older was conducted. Two separate focus groups with a total N = 30 were conducted. Four themes emerged: feeling left out, no place to call home, not a priority, and no one to grow older with.

Objective:: To describe the process of manufacturing and validation of an educational booklet for HIV/AIDS prevention in older adults. Methods:: Methodological study developed in two phases - manufacturing of the booklet and validation of the educational material by judges. The manufacturing process involved a situational diagnosis with older adults, and its result indicated gaps in the knowledge with respect to HIV/AIDS. The validation process was performed by nine judges, selected by convenience. It was considered an agreement index of at least 0.80, analyzed through the content validity index. Results:: We opted for a dialogue between two older adults divided into three categories: myths and taboos; ignorance; and prevention and importance of diagnosis. The average of the items was 0.90. The suggestions made by the judges were observed and modified for the final version. Conclusion:: The material had relevant content for the judges, in addition to being able to be used by health professionals in the education and clarification of issues on the subject.

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.


Sexting, defined as the sending and receiving of sexually suggestive or sexually explicit text or photos, has been growing in prevalence. Recent studies have demonstrated that over half of individuals sampled over 17 and regardless of gender participate in some type of sexting behavior. Most studies on sexting behaviors, including those looking at men who have sex with men (MSM) focus on emerging adult or university-based populations. The goal of the current study was to sample a nonuniversity-based MSM adult population to determine the prevalence of sexting behavior and the odds that a person engages in sexting behaviors based on certain sexual behaviors. The sample consisted of 213 MSM (mean age = 34.8 years, standard deviation [STD] = 12.1) who reside in Oklahoma. The majority of participants (133, 62.4 percent) participated in sexting behaviors. Logistic regression indicated that individuals had 10 times higher odds to engage in sexting if they had participated in a hookup (odds ratio [OR] = 10.44, 95% CI = [4.16-26.25]) and individuals who are married or in a committed relationship had 71 percent lower odds that they had sent a sext message (OR = 0.29, 95% CI = [0.12-0.71]). Sexting behaviors were not associated with condom use. Implications, including using third-party geolocation mobile application (such as Grindr) to deliver sexual health information, are discussed.


An older woman with HIV says staff in her care home wore double gloves when examining her, and swiftly wiped down any items she had touched. In Wales, a man with HIV was refused a place by three care homes. These examples of poor knowledge and stigmatisation from health and social care staff feature in a report into the experiences of older people with HIV.


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.


Links between HIV and substance use were identified early in the U.S. HIV epidemic. People who use drugs are at risk of HIV infection through shared injection equipment and risky sexual behaviors. In addition, substance use has negative health consequences for people living with HIV. The prescription opioid misuse epidemic, linked to injection drug use, hepatitis C infection, and HIV, poses a new threat to declining HIV rates. We reviewed evidence-based interventions that decrease HIV risk in people who use drugs (needle/syringe programs, medication-assisted treatment, engagement in HIV care, and preexposure prophylaxis/postexposure prophylaxis). The critical roles of nurses in HIV prevention/care for this population are described, including applying the principles of harm reduction, screening for substance use, and undertaking implementation and research efforts. As the nation’s largest health care profession, nurses are positioned to contribute to the quality of HIV-related prevention/care for people who use drugs and to lead practice initiatives.


BACKGROUND AND AIMS: HIV has reached high prevalence in many non-injecting drug user (NIDU) populations. The aims of this study were to (1) examine the trend in HIV prevalence among non-injecting cocaine and heroin NIDUs in New York City, (2) identify factors potentially associated with the trend and (3) estimate HIV incidence among NIDUs. DESIGN: Serial-cross sectional surveys of people entering drug treatment programs. People were permitted to participate only once per year, but could participate in multiple years. SETTING: Mount Sinai Beth Israel drug treatment programs in New York City, USA. PARTICIPANTS: We recruited 3298 non-injecting cocaine and heroin users from 2005 to 2014. Participants were 78.7% male, 6.1% white, 25.7% Hispanic and 65.8% African American. Smoking crack cocaine was the most common non-injecting drug practice. MEASURES: Trend tests were used to examine HIV prevalence, demographics, drug use, sexual behavior and use of antiretroviral treatment (ART) by calendar year; chi(2) and multivariable logistic regression were used to compare 2005-10 versus 2011-14. FINDINGS: HIV prevalence declined approximately 1% per year (P < 0.001), with a decline from 16% in 2005-10 to 8% in 2011-14 (P < 0.001). The percentages of participants smoking crack and having multiple sexual partners declined and the percentage of HIV-positive people on ART increased. HIV incidence among repeat participants was 1.2 per 1000 person-years (95% confidence interval = 0.03/1000-7/1000). CONCLUSIONS: HIV prevalence has declined and a high percentage of HIV-positive non-injecting drug users (NIDUs) are receiving antiretroviral treatment, suggesting an end to the HIV epidemic among NIDUs in New York City. These results can be considered a proof of concept that it is possible to control non-injecting drug use related sexual transmission HIV epidemics.


OBJECTIVES: To examine whether racial/ethnic disparities persist at the "end of the HIV epidemic" (prevalence of untreated HIV infection < 5%; HIV incidence < 0.5 per 100 person-years) among persons who inject drugs (PWID) in New York City. METHODS: We recruited 2404 PWID entering New York City substance use treatment in 2001 to 2005 and 2011 to 2015. We conducted a structured interview, and testing for HIV and herpes simplex virus 2 (HSV-2; a biomarker for high sexual risk). We estimated incidence by using newly diagnosed cases of HIV. Disparity analyses compared HIV, untreated HIV, HIV-HSV-2 coinfection, HIV monoinfection, and estimated HIV incidence among Whites, African Americans, and Latinos. RESULTS: By 2011 to 2015, Whites,
African Americans, and Latino/as met both criteria of our operational "end-of-the-epidemic" definition. All comparisons that included HIV-HSV-2-coinfected persons had statistically significant higher rates of HIV among racial/ethnic minorities. No comparisons limited to HIV monoinfected persons were significant. CONCLUSIONS: "End-of-the-epidemic" criteria were met among White, African American, and Latino/a PWID in New York City, but elimination of disparities may require a greater focus on PWID with high sexual risk.


Cognitive impairment is a significant health concern for people aging with HIV/AIDS. Using a community-based participatory research (CBPR) framework, we surveyed (n = 108) and interviewed (n = 20) people living with HIV who were over age 50 about their cognitive concerns and recommendations for social work intervention development. Quantitative findings indicate that our sample was greatly engaged in their HIV care, yet participants had many cognitive concerns. Qualitative findings highlighted fear, shame, and uncertainty concerning HIV and aging alongside a need for increased social work support. This paper provides practical engagement strategies for social workers to support clients concerning HIV, aging, and cognition.


This study investigates how internalized sexual minority stigma and enacted sexual minority stigma in health care settings are associated with sexual health risk behaviors (SRBs) and the mediating role of infrequent routine health care and perceived stress among older gay and bisexual (G/B) men living with HIV disease. Survey responses from 135 sexually active older G/B men living with HIV were analyzed using hierarchical linear regression models. Results indicate that one fifth of G/B older adult men living with HIV are engaged in multiple SRBs. Internalized sexual minority stigma and enacted sexual minority stigma in health care settings are significantly associated with SRBs. The relationship between internalized sexual minority stigma and SRBs are mediated by infrequent routine health care and elevated levels of perceived stress. Improved primary and secondary prevention strategies are needed for the growing number of sexually active older G/B men. ABSTRACT FROM AUTHOR


Worldwide approximately 3.6 million people aged 50 and older are living and ageing with the human immunodeficiency virus (HIV). Few studies have explored successful ageing from the insider perspective of those living well and ageing with HIV. This study draws upon the lived experience and wisdom of older, HIV-positive adults living in Ontario, Canada in order to understand their views and strategies for successful ageing. This qualitative study involved semi-structured interviews with 30 individuals age 50 years and older who are HIV-positive. Purposive sampling techniques were used to recruit individuals who shared their experiences of successful ageing. Constructivist grounded theory coding techniques were used for analysis. Themes related to successful ageing included resilience strategies and challenges, social support and environmental context. Stigma and struggles to maintain health were identified as impediments to successful ageing. Models of successful ageing must take into account the potential for a subjective appraisal of success in populations suffering from chronic and life-threatening illnesses including HIV. Practitioners can draw upon organically existent strengths in this population in order to provide intervention development for older adults around the world who are struggling to manage their HIV. [ABSTRACT FROM AUTHOR]


OBJECTIVE: Research has demonstrated that gay men are at increased risk for internalizing disorders compared with heterosexual men and that minority stressors are risk factors. However, the mechanisms underlying the associations between minority stressors and internalizing symptoms remain unclear. The current study examined coping strategies (active and disengaged

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). Recent seroconversion was associated with higher social support (p < .05). Higher RS was associated with higher active coping. Disengaged coping mediated the within-person associations between both minority stressors and internalizing symptoms. Of note, some associations with IH became nonsignificant controlling for RS, suggesting that the latter has a stronger influence on coping and internalizing symptoms. CONCLUSIONS: Findings demonstrate that gay men's negative thoughts and feelings about their sexual orientation and anxious expectations of rejection vary from week to week and this weekly fluctuation has an impact on mental health. Further, findings implicate disengaged coping as a mechanism through which minority stressors influence internalizing symptoms. (PsycINFO Database Record
to develop a social support prediction model. There were 119 newly diagnosed Spanish speakers who participated in this longitudinal study, completing measures of social support, internalized stigma, disclosure concerns, degree of disclosure, coping, anxiety, depression, and resilience. Bivariate associations and multiple regression analyses were performed. Results showed that the highest levels of support arose from friends, health care providers, and partners, and that social support decreased following diagnosis. Subsequent social support was negatively predicted by avoidance coping and positively by approach coping, steady partnership, and disclosure. It was significantly associated with decreased anxiety and depression and higher resilience. Interventions should seek to promote mental health in people living with HIV by increasing social support.


OBJECTIVES: A key UK public health priority is to reduce HIV incidence among gay and other men who have sex with men (MSM). This study aimed to explore the social and environmental context in which new HIV infections occurred among MSM in London and Brighton in 2015. DESIGN: A qualitative descriptive study, comprising in-depth interviews, was carried out as a substudy to the UK Register of HIV Seroconverters cohort: an observational cohort of individuals whose date of HIV seroconversion was well estimated. An inductive thematic analysis was conducted in NVivo, guided by a socio-ecological framework. SETTING: Participants were recruited from six HIV clinics in London and Brighton. Fieldwork was conducted between January and April 2015. PARTICIPANTS: All MSM eligible for the UK Register Seroconverter cohort (an HIV-positive antibody test result within 12 months of their last documented HIV-negative test or other laboratory evidence of HIV seroconversion) diagnosed within the past 12 months and aged >/=18 were eligible for the qualitative substudy. 21 MSM participated, aged 22-61 years and predominantly white. RESULTS: A complex interplay of factors, operating at different levels, influenced risk behaviours and HIV acquisition. Participants saw risk as multi-factorial, but the relative importance of factors varied for each person. Individual psycho-social factors, including personal history, recent life stressors and mental health, enhanced vulnerability towards higher risk situations, while features of the social environment, such as chemsex and social media, and prevalent community beliefs regarding treatment and HIV normalisation, encouraged risk taking. CONCLUSIONS: Recently acquired HIV infection among MSM reflects a complex web of factors operating at different levels. These findings point to the need for multi-level interventions to reduce the risk of HIV acquisition among high-risk MSM in the UK and similar settings.


We conducted a cross-sectional study among HIV-positive adults age >/= 50 in San Francisco to evaluate the frequency of loneliness, characteristics of those who reported loneliness, and the association of loneliness with functional impairment and health-related quality of life (HRQoL). Participants (N = 356) were predominately male (85%); 57% were white; median age was 56. 58% reported any loneliness symptoms with 24% reporting mild, 22% moderate and 12% severe loneliness. Lonely participants were more likely to report depression, alcohol and tobacco use, and have fewer relationships. In unadjusted models, loneliness was associated with functional impairment and poor HRQoL. In adjusted models, low income and depression remained associated with poor HRQoL, while low income, higher VACS index and depression were associated with functional impairment. A comprehensive care approach, incorporating mental health and psychosocial assessments with more traditional clinical assessments, will be needed to improve health outcomes for the aging HIV-positive population.


BACKGROUND: Substance use among HIV-positive persons exacerbates health problems. This study sought to estimate the prevalence of alcohol and drug-use diagnoses and examined hypothesized predictors associated with alcohol and drug-use diagnoses among HIV-positive patients in New York City (NYC). METHODS: This cohort study reviewed electronic medical records (EMRs) of 4965 HIV-positive patients based on diagnostic codes. These patients attended a comprehensive care clinic in NYC in 2012.

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Multinomial logistic regression was used to predict the odds of classification into substance use diagnosis grouping. RESULTS: Of the full sample, only 12.7% of patients had an alcohol use diagnosis documented in their EMR compared with more than one-quarter (26.4%) of patients having a recorded drug use diagnosis (p<0.001). Compared with the No Alcohol or Drugs group, the regression model showed that older age and having a recent inpatient hospital stay independently predicted being in the Alcohol Only group; years living with HIV, having an unsuppressed viral load, and having a recent inpatient hospital stay were associated with higher odds of being in the Drugs Only and Alcohol and Drugs groups; and being women and men who have sex with men (MSM) were associated with decreased odds of being in the Drugs Only and Alcohol and Drugs groups. CONCLUSIONS: Substance use diagnosis was associated with viremia and low CD4 counts and hospital stays. This implies that providers should screen for substance use in HIV-positive patients with poor health. Further examination of the extent of such comorbidity is instrumental for intervention efforts.


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 extent 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.


Syndemics research shows the additive effect of psychosocial problems on high-risk sexual behavior among gay and bisexual men (GBM). Psychosocial strengths may predict less engagement in high-risk sexual behavior. In a study of 470 ethnically diverse HIV-negative GBM, regression models were computed using number of syndemic psychosocial problems, number of psychosocial strengths, and serodiscordant condomless anal sex (CAS). The number of syndemic psychosocial problems correlated with serodiscordant CAS (RR = 1.51, 95% CI 1.18-1.92; p = 0.001). When adding the number of psychosocial strengths to the model, the effect of syndemic psychosocial problems became non-significant, but the number of strengths-based factors remained significant (RR = 0.67, 95% CI 0.53-0.86; p = 0.002). Psychosocial strengths may operate additively in the same way as syndemic psychosocial problems, but in the opposite direction. Consistent with theories of resilience, psychosocial strengths may be an important set of variables predicting sexual risk behavior that is largely missing from the current HIV behavioral literature.


The present study addresses gaps in the literature related to theory development for young men who have sex with men (YMSM) sexual practices through the application and modification of Social Action Theory. Data come from the Healthy Young Men study (N = 526), which longitudinally tracked a diverse cohort of YMSM ages 18-24 to characterize risk and protective factors associated with drug use and sexual practices. Structural equation modeling examined the applicability of, and any necessary modifications to a YMSM-focused version of Social Action Theory. The final model displayed excellent fit (CFI = 0.955, TLI = 0.947, RMSEA = 0.037) and suggested concordance between social support and personal capacity for sexual health promotion. For YMSM, practicing health promotion and avoiding practices that may put them at risk for HIV was associated with both social isolation and psychological distress (beta = -0.372, t = -4.601, p<0.001); psychological distress is an internalized response to environmental and
cognitive factors and sexual practices are an externalized response. Results point to the utility of Social Action Theory as a useful model for understanding sexual practices among YMSM, the application of which shows health protective sexual practices are a function of sociocognitive factors that are influenced by environmental contexts. Social Action Theory can help prevention scientists better address the needs of this vulnerable population.


The goal of this study was to gain insight on the sexual health needs of men who have sex with men (MSM) who use GPS-based social and sexual networking mobile applications (apps) and the future utility of app-based interventions. A health educator promoted HIV-testing resources in four popular apps used by MSM. Content analysis was used to identify salient themes that emerged from the conversations. Four major themes were identified: (1) soliciting sexual encounters, (2) relationship building, (3) HIV and STI-testing inquiries, and (4) seeking other sexual health information. The results suggest the intervention's social media-based strategy, respect for community culture, and unobtrusive approach was advantageous in establishing credibility and rapport with app users. These results highlight a need for convenient and discreet methods to access accurate sexual health information and suggest that apps provide an alternative, non-traditional venue for sexual health education in addition to HIV testing promotion.


BACKGROUND: While most people living with HIV who are incarcerated in United States receive appropriate HIV care while they are in prison, interruptions in antiretroviral therapy and virologic failure are extremely common after they are released. The purpose of this study was to describe whether and how HIV stigma influences continuity of care for people living with HIV while they transition from prison to community settings. METHODS: We conducted semi-structured, telephone-based interviews with 32 adults who received HIV care while residing in a Wisconsin state prison, followed by a second interview 6 months after they returned to their home community. Interview transcripts were analyzed by an interdisciplinary research team using conventional content analysis. We identified themes based on commonly-reported experiences that were characterized as internalized stigma, perceived stigma, vicarious stigma, or enacted stigma. RESULTS: All four forms of HIV stigma appeared to negatively influence participants’ engagement in community-based HIV care. Mechanisms described by participants included care avoidance due to concerns about HIV status disclosure and symptoms of depression and anxiety caused by internalized stigma. Supportive social relationships with clinic staff, professional case managers and supportive peers appeared to mitigate the impact of HIV stigma by increasing motivation for treatment adherence. CONCLUSIONS: HIV stigma is manifest in several different forms by people living with HIV who were recently incarcerated, and are perceived by patients to negatively influence their desire and ability to engage in HIV care. By being cognizant of the pervasive influence of HIV stigma on the lives of criminal justice involved adults, HIV care providers and clinical support staff can ameliorate important barriers to optimal HIV care for a vulnerable group of patients.


PURPOSE: The purpose of this study was to present current nationally representative data on the prevalences, sociodemographic correlates and risk of DSM-5 substance use disorders and other psychiatric disorders among sexual minorities (SMs) relative to heterosexuals, and among SMs by gender. METHODS: Data were derived from the 2012-2013 National Epidemiologic Survey on Alcohol and Related Conditions-III. RESULTS: In the general noninstitutionalized population, 1.5%, 1.3% and 0.5% of individuals self-identified as gay/lesbian, bisexual and not sure sexual orientations. Men were more likely to report gay/lesbian orientation than women (1.8% vs. 1.2%). Women were more likely than men to report bisexual (1.8% vs. 0.8%) and not sure (0.6% vs. 0.4%) sexual orientations. Sociodemographic characteristics varied across sexual orientation and gender. Relative to heterosexuals, disparities in substance use and psychiatric disorders were found across sexual orientations, especially among bisexual women. Greater rates of specific psychiatric disorders were also demonstrated by women reporting bisexual and not sure orientations relative to lesbian women, with fewer differences in rates of psychopathology among SM men. CONCLUSIONS: Despite growing acceptance of SMs and SM rights over the past decade, substantial mental health disparities exist among these subgroups.
of the U.S. noninstitutionalized population, especially among bisexual women. More research is needed to understand these mental health disparities, while considering nuances of multiple intersecting minority identities and unique contextual factors. FINDINGS: underscore the importance of advancing future population-based research that includes detailed information on the health and well-being of SMs in the United States.


INTRODUCTION: People living with HIV (PLWH) are at risk of both polypharmacy and unintentional overdose yet there are few data on whether polypharmacy increases risk of overdose. The study objective was to determine if the number and type of medication (e.g., sedating) were associated with non-fatal overdose (OD) among PLWH with past-year substance dependence or a lifetime history of injection drug use. MATERIALS AND METHODS: This was a longitudinal study of adults recruited from two urban, safety-net HIV clinics. Outcomes were i) lifetime and ii) past-year non-fatal OD assessed at baseline and a 12-month follow-up. We used logistic regression to examine the association between each outcome and the number of medications (identified from the electronic medical record) in the following categories: i) overall medications, ii) non-antiretroviral (non-ARV), iii) sedating, iv) non-sedating, as well as any vs no opioid medication and any vs no non-opioid sedating medication. Covariates included demographics, medical comorbidities, depressive and anxiety symptoms, and substance use. RESULTS: Among 250 participants, 80% were prescribed a sedating medication, 50% were prescribed an opioid; 51% exceeded risky drinking limits. In the past month, 23% reported illicit opioid use and 9% illicit opioid sedative use; 37% reported lifetime non-fatal OD and 7% past-year non-fatal OD. The median number (interquartile range) of total medications was 10 (7, 14) and 2 (1, 3) sedating. The odds of lifetime non-fatal OD were significantly higher with each additional sedating medication (OR 1.26, 95% CI 1.08, 1.46) and any opioid medication (OR 2.31; 95% CI 1.37, 3.90), but not with each overall, non-ARV, or non-sedating medication. The odds of past year non-fatal OD were greater with each additional sedating medication (OR 1.18; 95% CI 1.00, 1.39, p=0.049), each additional non-ARV medication (OR 1.07; 95% CI 0.01, 1.15, p=0.048), and non-significantly for any opioid medication (OR 2.23; 95% CI 0.93, 5.35). CONCLUSIONS: In this sample of PLWH with substance dependence and/or injection drug use, number of sedating medications and any opioid were associated with non-fatal overdose; sedating medications were prescribed to the majority of patients. Polypharmacy among PLWH and substance dependence warrants further research to determine whether reducing sedating medications, including opioids, lowers overdose risk.


OBJECTIVE: As the prevalence of older adults living with HIV disease increases, questions are emerging regarding the extent to which older age amplifies the adverse effects of HIV on employment status and functioning. This cross-sectional study sought to (1) investigate the combined effects of HIV and older age on employment status, (2) identify clinicodemographic correlates of employment status among older HIV+ persons, and (3) examine the combined effects of HIV and age on workplace performance among employed participants. METHOD: The sample was 358 HIV+ (163 older, 195 younger) and 193 HIV- (94 older, 99 younger) adults, who completed a comprehensive neurocognitive research assessment that included measures of employment status and current workplace functioning. RESULTS: We observed main effects of HIV and age on employment status, but no interaction. The older HIV+ sample demonstrated particularly high rates of disability, rather than elective retirement or unemployment. Among older HIV+ adults significant predictors of employment status included age, global neurocognitive functioning, combination antiretroviral therapy status, age at HIV infection, and hepatitis C coinfection. Finally, self-reported work functioning of older HIV+ adults differed only from the younger HIV+ group. CONCLUSION: Findings suggest that older age and HIV disease have additive adverse effects on employment status, but not work functioning, and that employment status is associated with both neurocognitive and medical risk factors among older HIV+ adults. Further longitudinal research is needed to elucidate specific disease and demographic characteristics that may operate as protective factors for retaining gainful employment among older HIV+ adults. (PsycINFO Database Record
INTRODUCTION: Stigma and discrimination contribute to elevated depression risks among sexual minority women (SMW) and gender minority (GM) people who identify as lesbian, bisexual, or queer. Syndemics theory posits that adverse psychosocial outcomes cluster to negatively impact health and mental health outcomes among sexual minorities. We tested whether a syndemic condition composed of low social support, low self-rated health, low self-esteem, and economic insecurity mediated the relationship between sexual stigma and depressive symptoms among SMW/GM. METHODS: We implemented a cross-sectional, Internet-based survey with SMW and GM in Toronto, Canada. We conducted structural equation modeling using maximum likelihood estimation to test a conceptual model of pathways between sexual stigma, syndemic factors, and depressive symptoms. RESULTS: A total of 391 SMW/GM with a mean age of 30.9 (SD = 7.62) were included in the analysis. The model fit consisting of psychosocial variables (low social support, low self-rated health, low self-esteem, economic insecurity) was very good (χ²(2) = 6.022, df = 2, p = .049; comparative fit index = 0.973, Tucker-Lewis index = 0.918, root-mean square error of approximation = 0.072). In the simultaneous model, sexual stigma had a significant direct effect on depression. When the syndemic variable was added as a mediator, the direct path from sexual stigma to depression was no longer significant, suggesting mediation. The model fit the data well: χ² = 33.50, df = 12, p = .001; comparative fit index = 0.951, Tucker-Lewis index = 0.915, root-mean square error of approximation = 0.068. CONCLUSIONS: Our results highlight the salience of considering both sexual stigma and syndemic factors to explain mental health disparities experienced by SMW and GM. Addressing sexual stigma in the context of co-occurring psychosocial factors and economic insecurity will be key to achieving optimal health for SMW and GM.


Due to the high stigma surrounding the Human Immunodeficiency Virus (HIV), people living with HIV (PLWH) often reach out peers over the Internet for emotional and social support. The purpose of this study was to assess the characteristics of PLWH who use HIV internet forums. A cross-sectional study was conducted using an online survey investigating demographic characteristics of PLWH, level of satisfaction of the HIV Internet forums, time living with HIV, forum users' anxiety levels, self-reported adherence to antiretroviral treatment (ART), and reasons for missing pills (n = 222). Logistic regression models were constructed to compare the use of general HIV forums with social networking sites, general HIV forums with group emails, and social
networking sites with group emails. Two hundred and twenty-two patients responded to the survey. Social networking sites were used by recently diagnosed PLWH who were on antiretroviral treatment (ART) > 1 year. Young patients (<40 years) and those diagnosed < 1 year before, tended to use social networking sites, while older patients (>/=40 years), those diagnosed > 5 years, and from low- and middle-income countries, were more likely to use emailing lists. There was no significant difference between PLWH's adherence to treatment and anxiety levels and the usage of different Internet forums. PLWH's Internet resource choice varied depending on the availability of Internet and illness duration. Different segments of the population could be reached via social networking sites versus group emails to provide HIV information.


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.

Mannes, Z. L., et al. Contextualizing Psychosocial Determinants of Alcohol Use by Age Cohorts of Adults Living With HIV, Ages 50 and Older.

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. Copyright (C) 2016 Association of Nurses in AIDS Care


OBJECTIVE: Develop a novel theatre-based program and test its feasibility, tolerability, and preliminary efficacy for improving empathy/compassion and well-being among older adults. METHOD: Thirteen older adults were randomized to a 6-week Drama Workshop (DW) program or time-equivalent Backstage Pass (BP) control condition. Pre- and post-treatment measures included empathy, compassion, and mood scales. Additional post-treatment measures included self-rated change in empathy/compassion, confidence, and affect. Participants also rated their mood/affect after each session. RESULTS: The program was successfully completed and well-liked. No pre-to-post-treatment changes in empathy/compassion or mood symptoms were found in either group. Compared to BP, DW weekly ratings indicated higher levels of anxiety and lower happiness; however, the DW program had higher self-ratings of positive change in self-esteem, confidence, and happiness post-treatment. DISCUSSION: While the DW may not promote empathy/compassion and was personally challenging during the program, engagement in dramatic exercises and rehearsing and performing a dramatic piece was seen by participants as a positive growth experience, as indicated by

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the post-treatment ratings of enhanced self-esteem, confidence and happiness. Thus, such a program might be useful for
counteracting some of the potential negative aspects of aging, including reduced self-efficacy due to physical limitations and
negative affect due to losses.


e0188088.

BACKGROUND: There has been a global increase in HIV infection in persons 50 years of age and older. This group is at risk
for development of chronic illness that may be exacerbated by socio-behavioral risk factors such as smoking, unhealthy alcohol use,
and sedentary lifestyle. However, socio-behavioral risk factors in this older HIV infected population are not well described. The
current study aims to describe and document factors related to alcohol use, tobacco smoking, and physical exercise in older adults
living with HIV (OALHIV). METHODS: This cross-sectional quantitative study was conducted between August and September 2015,
and enrolled HIV-infected participants aged 50 years and older from 12 community hospitals in Chiang Mai Province, Northern
Thailand. RESULTS: Of the 364 participants recruited in the study, 57.1% were female, and 67.3% were between 50-59 years of age.
Respectively, 15.1%, 59.1%, and 18.7% were current smokers, currently engaged in physical exercises, and reported ever drank
alcohol in the past year. 22.1% of those who drank alcohol reported experience of heavy episodic drinking. Male gender was one of
the strongest predictors of ever drank alcohol in the past year (AOR, 4.66; CI, 2.28-9.49; P<0.001) and of being a current smoker
(AOR, 13.41; CI, 7.23-24.87; P<0.001). Lower household income was associated with increased odds of ever drank alcohol in the past
year (household income (1 USD = 35 THB) of $<5,000 Baht versus >20,000 Baht: AOR, 5.34; CI, 1.28-22.25; P = 0.021). Lower
educational level was associated with decreased odds of physical exercises (no education versus secondary and higher: AOR, 0.22;
CI, 0.08-0.55; P = 0.001). CONCLUSION: Smoking and alcohol use is common among OALHIV, with a substantial proportion not
engaging in physical exercises. Interventions for OALHIV should particularly target males and those of lower socio-economic status
to deter smoking and alcohol use and to promote physical exercises.

Nagington, M., et al. (2017). "Collaboratively setting the priorities for health and social care research for older lesbian, gay, bisexual

This paper reports on a novel approach to setting research priorities relevant to the needs of older LGBT people. Research is
growing in this area and has recognised the negative impact of contemporary and historical discrimination towards non-normative
genders and sexualities. The results of a symposium, survey and agreement analysis are presented to identify the levels of priority
placed on 60 different research topics. Discussion focuses on the novelty and/or similarity to existing research patterns on LGBT
ageing, as well as prioritising topics such as: how to include unheard voices; exploring trans* people’s experiences and preferences
around long-term hormone use; and, embedding research findings into policy and practice. [ABSTRACT FROM AUTHOR]


This paper reports findings from a study that compared older (n = 21, >/= age 50) and younger (n = 96, </= age 49) African
Americans' stories (N = 117) of living with HIV/AIDS to determine how they make sense of the experience. The purpose was to: (1)
identify and describe the cultural models African Americans use to inform their stories of living with HIV/AIDS, and (2) to compare
older and younger adults' HIV stories. To characterize the cultural models engaged in the telling of these HIV stories, we conducted
schema analysis. Analyses documented six diverse schemas, ranging from "Stages of Grief", "12 Steps", "Wake Up Call", "Continuity
of Life", to "Angry and Fearful", "Shocked and Amazed". Comparison conducted by age group showed older adults more frequently
expressed their story of living with HIV as "Stages of Grief" and "Continuity of Life", whereas younger adults expressed their stories
as "12 Steps" and "Wake Up Call". Findings contribute by documenting African American stories of living with HIV/AIDS, important
heterogeneity in cultural schemas for experiences of living with HIV and differences by age group. These findings may help by
identifying the cultural resources as well as challenges experienced with aging while living with HIV/AIDS for African Americans.
Chronic pain and substance use disorders occur commonly among HIV-infected persons. Recent CDC guidelines recommend non-pharmacologic approaches over opioid medications for the management of chronic pain. This is particularly relevant for persons with substance use disorders. Structured physical activity may be an effective strategy for pain reduction. We developed a combined cognitive-behavioral therapy (CBT) + exercise intervention to reduce pain, pain-related disability and substance use and improve physical function in older HIV-infected adults with chronic pain and substance use. We employed established CBT protocols for the intervention, and sought feedback from potential end users when developing the exercise component of the intervention. A total of 27 HIV-infected adults >/= 50 years of age participated in four focus group sessions. Transcripts were analyzed using thematic analysis. Participant demographics: mean age 54 years; male 81%; Hispanic 48%, Black 33%; treated for substance abuse in the past 52%. Exercise was seen as a desirable activity, but many participants expressed barriers to exercise including fear of pain exacerbation, low physical fitness, and lack of availability of perceived safe spaces for HIV-infected persons. Most participants were receptive to exercise for pain reduction, particularly modalities that provide added psychological benefits of reducing stress and anxiety. Exercise for pain management among older HIV-infected adults with chronic pain and substance use was found to be highly acceptable. However, interventions need to be tailored to the unique needs of this population to address their fears and concerns.


For persons living with HIV, health-related quality of life (HRQOL) may be threatened by physical and mental conditions but may be protected by positive psychological traits. We performed an exploratory look at the risk and protective factors for HRQOL in older adults living with HIV. Cross-sectional analyses of baseline data from the Rush Center of Excellence on Disparities in HIV and Aging (CEDHA), a community-based cohort of persons ages >/=50 living with HIV (n = 176) were performed. Analyses examined the relationship between risk/protective factors and two outcomes (i.e., self-reported health status [SRHS] and the healthy days index [HDI]). Having good/excellent health was associated with being a non-smoker (p = 0.002), greater purpose in life (p = 0.006), higher education (p = 0.007), fewer depressive symptoms (p = 0.004), fewer disabilities (p = 0.000), and less loneliness (p = 0.002) in bivariate analyses. Males (p = 0.03) and African Americans/Blacks (p = 0.03) reported higher HDI. Fewer depressive symptoms (p = 0.000), disabilities (p = 0.002), adverse life events (p = 0.0103), and loneliness (p = 0.000) were associated with higher HDI in bivariate analyses. In a logistic regression model, greater purpose in life, fewer disabilities, and being a non-smoker were associated with better SRHS after adjusting for covariates. For African Americans/Blacks, having fewer depressive symptoms and disabilities were associated with higher HDI after adjusting for covariates. Disabilities, depression, smoking status, race/ethnicity, and purpose in life were significantly associated with HRQOL. Findings support the need for research to examine the influence of cultural interpretations of life quality and focus on promoting physical function, smoking cessation, and psychological wellness in persons aging with HIV.


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.

OBJECTIVE: To examine associations between lipohypertrophy and lipoatrophy and illicit drug use, smoking, and at-risk alcohol use among a large diverse cohort of persons living with HIV (PLWH) in clinical care. METHODS: 7,931 PLWH at six sites across the United States completed 21,279 clinical assessments, including lipohypertrophy and lipoatrophy, drug/alcohol use, physical activity level, and smoking. Lipohypertrophy and lipoatrophy were measured using the FRAM body morphology instrument and associations were assessed with generalized estimating equations. RESULTS: Lipohypertrophy (33% mild, 4% moderate-to-severe) and lipoatrophy (20% mild, 3% moderate-to-severe) were common. Older age, male sex, and higher current CD4 count were associated with more severe lipohypertrophy (p values <.001-0.3). Prior methamphetamine or marijuana use, and prior and current cocaine use, were associated with more severe lipohypertrophy (p values <.001-.009). Older age, detectable viral load, and low current CD4 cell counts were associated with more severe lipoatrophy (p values <.001-.003). In addition, current smoking and marijuana and opiate use were associated with more severe lipoatrophy (p values <.001-.03). Patients with very low physical activity levels had more severe lipohypertrophy and also more severe lipoatrophy than those with all other activity levels (p values <.001). For example, the lipohypertrophy score of those reporting high levels of physical activity was on average 1.6 points lower than those reporting very low levels of physical activity (-1.6, 95% CI: -1.8 to -1.4, p < .001). CONCLUSIONS: We found a high prevalence of lipohypertrophy and lipoatrophy among a nationally distributed cohort of PLWH. While low levels of physical activity were associated with both lipohypertrophy and lipoatrophy, associations with substance use and other clinical characteristics differed between lipohypertrophy and lipoatrophy. These results support the conclusion that lipohypertrophy and lipoatrophy are distinct, and highlight differential associations with specific illicit drug use.


INTRODUCTION: Ecological momentary assessment (EMA) has been used to characterize substance use among adult populations; however, little is known about the validity of EMA and the patterns and predictors of substance use among older adults with and without HIV infection. METHODS: Thirty-five (22 HIV-positive, 13 HIV-negative) older adults aged 50-74 were assessed for 14 days and completed up to four smartphone-based surveys per day. RESULTS: Participants completed an average of 89.5% of possible EMA surveys. EMA self-reported alcohol and cannabis use were significantly positively correlated with laboratory-assessed, self-reported days of alcohol (r=0.52, p=0.002) and cannabis (r=0.61, p<0.001) used and quantity of alcohol (r=0.42, p=0.013) and cannabis (r=0.41, p=0.016) used in the 30 days prior to baseline assessment. In a subset of 15 alcohol or cannabis users, preliminary analyses of the effects of mood and pain on alcohol or cannabis use showed: 1) greater anxious mood predicted substance use at the next EMA survey (OR=1.737, p=0.023), 2) greater happiness predicted substance use later in the day (OR=1.383, p<0.001), and 3) higher pain level predicted substance use earlier in the day (OR=0.901, p=0.005). CONCLUSIONS: Findings demonstrate that EMA-measured alcohol and cannabis use has convergent validity among older adults with and without HIV infection. Preliminary results showing predictors of substance use highlight the importance of gathering EMA data to examine daily variability and time-dependent antecedents of substance use among this population.


Black men who have sex with men in the USA face disproportionate incidence rates of HIV. This paper presents findings from an ethnographic study conducted in New York City that explored the structural and socio-cultural factors shaping men's sexual relationships with the goal of furthering understandings of their HIV-related vulnerability. Methods included participant observation and in-depth interviews with 31 Black men who have sex with men (three times each) and 17 key informants. We found that HIV vulnerability is perceived as produced through structural inequalities including economic insecurity, housing instability, and stigma and discrimination. The theoretical concepts of social risk, intersectional stigma, and the social production of space are offered as lenses through which to analyse how structural inequalities shape HIV vulnerability. We found that social risk shaped HIV vulnerability by influencing men's decisions in four domains: 1) where to find sexual partners, 2) where to engage in sexual relationships, 3) what kinds of relationships to seek, and 4) whether to carry and to use condoms. Advancing conceptualisations of
social risk, we show that intersectional stigma and the social production of space are key processes through which social risk generates HIV vulnerability among Black men who have sex with men.


Objective: Loneliness can be detrimental to health. The aim of this study is to estimate the prevalence of loneliness as well as its risk factors in older adults in South Africa. Materials and Methods: This cross-sectional population based study investigated factors associated with loneliness in a nationally representative sample (n=3624) of older South Africans who took part in the "Study of Global Ageing and Adults Health (SAGE)" wave 1 in 2008. The outcome variable was self-reported prevalence of loneliness and the exposure variables were socio-demographic characteristics and health variables. Results: The overall prevalence of self-reported loneliness was 9.9%. Prevalence of loneliness was 10.2% for females and 9.5% for males, lowest among those married (7.5%), and highest among the 70+ years olds (12.5%). Individuals with highest level of education had the lowest prevalence of loneliness (5.9%). Indians or Asians were significantly more likely to experience loneliness than other population groups (Adjusted Odds Ratio=AOR: 3.20; 95% Confidence Interval=CI: 1.31, 7.80). Married or cohabiting individuals were significantly less likely to experience loneliness than unmarried or non-cohabiting ones, respectively (AOR: 0.55; 95% CI: 0.37, 0.81). In multivariable logistic regression, individuals with good subjective health were less likely to experience loneliness than those with poor health (AOR: 0.40, 95% CI: 0.22, 0.73). Similarly, individuals with good cognitive functioning were significantly less likely to experience loneliness than those with poor cognitive functioning (AOR: 0.55, 95% CI: 0.32, 0.97). Conclusion: The study found that the prevalence of loneliness among older adults in South Africa is significant. Preventative interventions that address the identified factors, including poor health status and low cognitive functioning, associated with loneliness need to be developed. [ABSTRACT FROM AUTHOR]


Objectives: This study investigated whether sexual orientation moderated the mediation effects of coping resources (i.e., spirituality and complementary and integrative health [CIH] use) in the relationship between HIV stigma and psychological well-being (PWB) among older men with HIV (MWH). Method: Data from the Research of Older Adults with HIV (ROAH) study was used (N = 640, Age 50+). Structural equation modeling (SEM) was employed to examine a coping resource mediation model. We used a multiple-group procedure to test moderation effects by sexual orientation. Results: HIV stigma was negatively associated with spirituality and PWB. HIV stigma accounted for a significant amount of variance in PWB, with significant indirect effects via spirituality, indicating a partial mediation. Chi-square difference tests supported the hypothesis that this mediation effect was moderated by sexual orientation. C Uh use was not statistically significant. Discussion: HIV stigma's negative relationship with PWB was salient in both groups. Spirituality's buffer between HIV stigma and PWB was stronger in older gay/bisexual MWH compared to their heterosexual counterparts. With respect to HIV stigma, older gay/bisexual MWH exhibited a "crisis competence" in coping with stigma, perhaps through overcoming past homophobia related to their sexual minority status (i.e., homophobia).


Purpose of the Study: The National Institutes of Health calls for research that explores what it means to age optimally with HIV/AIDS as half of the U.S. people with HIV are aged 50 or older. This study applied the stress process model to examine the association between HIV stigma and psychological well-being and mediating resources (i.e., spirituality and complementary and integrative health [CIH]) approaches) in older adults with HIV. Design and Methods: Using data from the Research on Older Adults with HIV (ROAH) study, structural equation modeling was used to estimate these relationships within a latent variable model. Namely, a direct negative association between HIV stigma and psychological well-being was hypothesized that would be mediated by spirituality and/or CIH use. Results: The analyses showed that the model fits the data well [chi2 (137, N = 914) = 561.44, p = .000; comparative fit index = .964; root mean square error of approximation = .058, 95% confidence interval = .053 to .063]. All observed variables significantly loaded on their latent factor, and all paths were significant. Results indicated that spirituality and CIH use significantly mediated the negative association between HIV stigma and psychological well-being. Implications: Findings highlight the
importance of spiritual and CIH interventions for older adults with HIV/AIDS. Practice recommendations are provided at the micro- and mesolevel.


One in three people with HIV in the UK is over 50, representing part of the fastest growing group of people living with HIV.


Continuous HIV care supports antiretroviral therapy initiation and adherence, and prolongs survival. We investigated the association of social determinants of health (SDH) and subsequent retention in HIV care in a clinical cohort in Ontario, Canada. The Ontario HIV Treatment Network Cohort Study is a multi-site cohort of patients at 10 HIV clinics. Data were collected from medical charts, interviews, and via record linkage with the provincial public health laboratory for viral load tests. For participants interviewed in 2009, we used three-category multinomial logistic regression to identify predictors of retention in 2010-2012, defined as (1) continuous care (>\geq2 viral loads >\geq90 days in all years; reference category); (2) discontinuous care (only 1 viral load/year in >\geq1 year); and (3) a gap in care (>\geq1 year in 2010-2012 with no viral load). In total, 1838 participants were included. In 2010-2012, 71.7% had continuous care, 20.9% had discontinuous care, and 7.5% had a gap in care. Discontinuous care in 2009 was predictive (p < .0001) of future retention. SDH associated with discontinuous care were Indigenous ethnicity, being born in Canada, being employed, reporting hazardous drinking, and non-injection drug use. Being a heterosexual male was associated with having a gap in care, and being single and younger were associated with discontinuous care and a gap in care. Various SDH were associated with retention. Care discontinuity was highly predictive of future gaps. Targeted strategic interventions that better engage those at risk of suboptimal retention merit exploration. ABBREVIATIONS: AOR: adjusted odds ratio; ART: antiretroviral therapy; AUDIT: Alcohol Use Disorders Identification Test; CES-D: Center for Epidemiologic Studies Depression Scale; CI: confidence intervals; HIV: human immunodeficiency virus; IQR: interquartile range; MSM: men who have sex with men; NA-ACCORD: North American AIDS Cohort Collaboration on Research and Design; OCS: Ontario HIV Treatment Network Cohort Study; OHTN: Ontario HIV Treatment Network; OR: odds ratio; PHOL: Public Health Ontario Laboratories; REB: Research Ethics Board; SDH: social determinants of health; US: United States.


In the first part of this review, the nature of the associations between alcohol use and HIV/AIDS is discussed. Alcohol use has been found to be strongly associated with incidence and progression of HIV/AIDS, but the extent to which this association is causal has traditionally remained in question. Experiments where alcohol use has been manipulated as the independent variable have since helped establish a causal effect of alcohol use on the intention to engage in condomless sex. As the intention to engage in condomless sex is a surrogate measure of actual condom use behavior, which itself is linked to HIV incidence and re-infection, the causal chain has been corroborated. Moreover, there are biological pathways between alcohol use and the course of HIV/AIDS, only in part being mediated by adherence to antiretroviral medication. In the second part of the contribution, we provide suggestions on the quantification of the link between alcohol use and HIV incidence, using risk relations derived from experimental data. The biological links between alcohol use and course of HIV/AIDS are difficult to quantify given the current state of knowledge, except for an operationalization for the link via adherence to medication based on meta-analyses. The suggested quantifications are exemplified for South Africa.


BACKGROUND: Valid and reliable instruments for the measurement of enacted, anticipated and internalised stigma in people living with HIV are crucial for mapping trends in the prevalence of HIV-related stigma and tracking the effectiveness of stigma-reducing interventions. Although longer instruments exist, e.g., the commonly used 40-item HIV Stigma Scale by Berger et al,
a shorter instrument would be preferable to facilitate the inclusion of HIV stigma in more and broader surveys. Therefore, the aim of this work was to develop a substantially shorter, but still valid, version of the HIV Stigma Scale. METHODS: Data from a psychometric evaluation of the Swedish 40-item HIV Stigma Scale were reanalysed to create a short version with 12 items (three from each of the four stigma subscales: personalised stigma, disclosure concerns, concerns with public attitudes and negative self-image). The short version of the HIV stigma scale was then psychometrically tested using data from a national survey investigating stigma and quality of life among people living with HIV in Sweden (n = 880, mean age 47.9 years, 26% female). RESULTS: The hypothesized factor structure of the proposed short version was replicated in exploratory factor analysis without cross loadings and confirmatory factor analysis supported construct validity with high standardised effects (>0.7) of items on the intended scales. The chi(2) test was statistically significant (chi(2) = 154.2, df = 48, p < 0.001), but alternate fit measures indicated acceptable fit (comparative fit index: 0.963, Tucker-Lewis index: 0.950 and root mean square error of approximation: 0.071). Corrected item-total correlation coefficients were >0.4 for all items, with a variation indicating that the broadness of the concept of stigma had been captured. All but two aspects of HIV-related stigma that the instrument is intended to cover were captured by the selected items in the short version. The aspects that did not lose any items were judged to have acceptable psychometric properties. The short version of the instrument showed higher floor and ceiling effects than the full-length scale, indicating a loss of sensitivity in the short version. Cronbach's alpha for the subscales were all >0.7. CONCLUSIONS: Although being less sensitive in measurement, the proposed 12-item short version of the HIV Stigma Scale has comparable psychometric properties to the full-length scale and may be used when a shorter instrument is needed.


OBJECTIVE: Psychological risk factors (PRFs) are associated with impaired learning and memory in HIV-infected (HIV+) women. We determined the dynamic nature of the effects of PRFs and HIV serostatus on learning and memory over time. DESIGN: Multi-center, prospective cohort study METHODS:: Every two years between 2009 and 2013 (3 times), 646 HIV+ and 300 demographically-similar HIV-uninfected (HIV-) women from the Women's Interagency HIV Study completed neuropsychological (NP) testing and questionnaires measuring PRFs (perceived stress, post-traumatic stress disorder (PTSD) symptoms, depressive symptoms). Using mixed-effects regressions, we examined separate and interactive associations between HIV-serostatus and PRFs on performance over time. RESULTS: HIV+ and HIV- women had similar rates of PRFs. Fluency was the only domain where performance over time depended on the combined influence of HIV-serostatus and stress or PTSD (p's < 0.05); not depression. In HIV, higher stress and PTSD were associated with a greater cognitive decline in performance (p's < 0.05) versus lower stress and PTSD. Irrespective of time, performance on learning and memory depended on the combined influence of HIV-serostatus and stress or PTSD (p's < 0.05). In the context of HIV, stress and PTSD were negatively associated with performance. Effects were pronounced on learning among HIV+ women without effective treatment or viral suppression. Regardless of time or HIV-serostatus, all PRFs were associated with lower speed, global NP, and executive function. CONCLUSIONS: More than depression, perceived stress and PTSD symptoms are treatment targets to potentially improve fluency, learning, and memory in women living with HIV particularly when HIV treatment is not optimal.

Due to life-enhancing effects of antiretroviral therapy, HIV-positive persons have the potential for long life comparable to their uninfected peers. Older women (age 50+) living with HIV (OWLH) are often an under-recognized aging group. We conducted a systematic review to examine psychosocial factors that impact how OWLH live, cope, and age with HIV. Initial key word search yielded 1527 records, and 21 studies met our inclusion criteria of original quantitative or qualitative research published between 2013 and 2016 with results specific to OWLH. These focused on health care and self-management, sexual health and risk, stigma, loneliness, mental health (depression, substance use), and protective factors (coping, social support, well-being). Due to the scarcity of studies on each topic and inconclusive findings, no clear patterns of results emerged. As the number of OWLH continues to grow, more research, including longitudinal studies, is needed to fully characterize the psychosocial factors that impact aging with HIV.


OBJECTIVE: Increasing numbers of children with HIV are surviving to adolescence and encountering multiple clinical and social consequences of long-standing HIV infection. We aimed to investigate the association between HIV and disability, social functioning and school inclusion among 6- to 16-year-olds in Zimbabwe. METHODS: HIV-infected children receiving antiretroviral therapy from a public-sector HIV clinic and HIV-uninfected children attending primary care clinics in the same catchment area were recruited. Standardised questionnaires were used to collect socio-demographic, social functioning and disability data. Multivariable logistic regression was used to assess the relationship between HIV status and disability and functioning. RESULTS: We recruited 202 HIV-infected and 285 HIV-uninfected children. There was no difference in age and gender between the two groups, but a higher proportion of HIV-infected children were orphaned. The prevalence of any disability was higher in HIV-infected than uninfected children (37.6% vs. 18.5%, P < 0.001). HIV-infected children were more likely to report anxiety (adjusted odds ratio (aOR) 4.4; 95% CI 2.4, 8.1), low mood (aOR 4.2; 2.1, 8.4) and difficulty forming friendships (aOR 14.8; 1.9, 116.6) than uninfected children. Children with HIV also reported more missed school days, repeating a school year and social exclusion in class. These associations remained apparent when comparing children with HIV and disability to those with HIV but no disabilities. CONCLUSIONS: Children with HIV commonly experience disabilities, and this is associated with social and educational exclusion. Rehabilitation and support services are needed to facilitate educational attainment and social participation in this group.


HIV-related stigma is a barrier to the prevention and treatment of HIV. For midlife and older Black women, the nature and intensity of HIV-related stigma may be compounded by their multiple marginalised social status based on gender, race, and age. We examined the perceptions and experiences of HIV-related stigma among midlife and older Black women living in Prince George's County, Maryland, USA. Between 2014 and 2015, we conducted semi-structured interviews with a sample of 35 midlife and older Black women living with HIV. Using a modified grounded theory approach, we explored emergent themes related to the manifestation and experience of intersectional stigma and changes in stigma experience over time. Our findings suggest that intersectional stigma is a central feature in midlife and older Black women's lives, with women reporting experiences of intersectional stigma at the interpersonal/familial, community, and institutional/structural levels. Although women acknowledged gradual acceptance of their HIV-positive status over time, they continued to experience negative responses related to gender, race, age, and disease. Our findings indicate that a more robust understanding of the impact of HIV-related stigma requires work to consider the complex manifestations of intersectional stigma among an increasingly aging population of Black women in the USA.


Stigma is recognized as a barrier to the prevention, care, and treatment of HIV, including engagement in the HIV care continuum. HIV stigma in older Black women may be compounded by preexisting social inequities based on gender, age, and race. Using semi-structured interviews and survey questionnaires, we explore experiences of HIV stigma, retention in care, and antiretroviral therapy (ART) adherence in 35 older Black women with HIV from Prince George's County, Maryland. Study findings indicated that older Black women experienced high levels of HIV stigma, retention in care, and ART adherence. Findings suggest that
experiences of HIV stigma were intensified for older Black women due to multiple stigmatized social positions. Participants also reported experiences of marginalization in health care that hindered retention in care and ART adherence. Interventions aimed at improving HIV prevention, care, and treatment outcomes should incorporate HIV stigma reduction strategies as core elements.


OBJECTIVES: Psychosocial stressors such as depression and stress, intimate partner violence (IPV) and alcohol use have been linked to preterm and small-for-gestational-age (SGA) births in general populations. The prevalence of psychosocial stressors and alcohol abuse is high in many HIV-infected (HIV+) populations. Our objective was to evaluate the effects of psychosocial stressors and alcohol abuse on birth outcomes in HIV-infected women. METHODS: Antenatal depression and non-specific psychological distress, periconception IPV and alcohol consumption were measured during the second trimester among HIV+ women initiating antiretroviral treatment with efavirenz + emtricitibine + tenofovir in Cape Town, South Africa. Log binomial regression models were used to estimate the risk ratios (RR) and 95% CIs of the effects of psychosocial stressors and periconception alcohol consumption on birth outcomes: SGA (birth weight <10th centile for gestational age) and preterm (<37 weeks) births. RESULTS: Of the 571 mother-infant pairs, 26% of women reported hazardous alcohol consumption (Alcohol Use Disorders Identification Test-C score >/=3) periconception periods, 11% reported depressive symptoms, 7% reported non-specific psychological distress and 15% reported experiencing physical or psychological IPV. 14% of infants were born preterm and 12% were SGA. Infants born to women reporting hazardous drinking were twice (adjusted RR 2.00 (95% CI 1.13 to 3.54)) as likely to be SGA compared with women reporting low alcohol intake. Alcohol consumption did not have a significant effect on the incidence of preterm birth. Depressive symptoms, non-specific psychological distress, physical and psychological IPV did not increase the risk of SGA or preterm birth significantly. CONCLUSIONS: The observed elevated risk of SGA births associated with periconception alcohol consumption underscores the urgent need to reduce alcohol consumption among women of childbearing age. Interventions targeting modifiable risk factors of adverse birth outcomes need to be integrated into HIV prevention and maternal child health programmes to improve the long-term health of HIV-exposed children. TRIAL REGISTRATION NUMBER: NCT01933477; Pre-results.


People living with HIV (PLWH) are aging and many suffer with multimorbidities, making caregiving a relevant and important area of study. The purpose of our study was to understand the occurrence and role of informal caregivers in the current stage of the HIV epidemic. We conducted a Web-based survey with 1,373 PLWH to assess: how many had an informal, unpaid caregiver; the type of relationship with the informal caregiver; and the number of hours the caregiver provided support each day. Among respondents, 333 had an informal caregiver. Blacks, those with low income, individuals who ever had an AIDS diagnosis, those with basic cellphone service, and those living with other comorbid conditions were significantly more likely to have an informal caregiver. Given the demographic profile of those PLWH who were most likely to have caregivers, further study is needed to understand the needs of both caregivers and care recipients.


OBJECTIVES: Older people may suffer from stigmas linked to cancer and aging. Although some studies suggested that a negative view of cancer may increase the level of depression, such an association has never been studied in the elderly population. Similarly, even though it is established that a negative self-perception of aging has deleterious consequences on mental and physical health in normal aging, the influence in pathological contexts, such as oncology, has not been studied. The main aim of this study is thus to analyze the effect of these two stigmas on the health of elderly oncology patients. MATERIALS AND METHODS: 101 patients suffering from a cancer (breast, gynecological, lung or hematological) were seen as soon as possible after their diagnosis. Their self-perception of age, cancer view and health (physical and mental) was assessed. RESULTS: Multiple regressions showed that patients with a more negative self-perception of aging and/or more negative cancer view reported poorer global health. We also observed that negative self-perception of aging was associated with worse physical and mental health, whereas negative cancer views were
only linked to worse mental health. No interaction was observed between these two stigmas, suggesting that their action is independent. CONCLUSION: Older patients with cancer face double stigmatization, due to negative self-perception of aging and cancer, and these stigmas have impacts on global and mental health. Self-perception of aging is also linked to physical health. Longitudinal studies will be necessary to analyze the direction of the association between this double stigmatization and health.


Developing interventions that address psychosocial wellbeing of people living with HIV is critical to ensure strong linkages to and retention in HIV care. This paper describes the development of Sondela, an HIV adjustment and coping intervention for heterosexual men and women living with HIV, and its relevance and feasibility in the South African context. Sondela is a six three-hour, small group-based, participatory workshop series. We followed an iterative, multi-phased process of curriculum development that involved research, theoretical frameworks and piloting. A systematic review highlighted the absence of psychosocial interventions targeting heterosexual HIV positive populations living in high HIV prevalence and resource-poor settings. Formative studies demonstrated risk and social factors associated with adjustment and coping with HIV, emphasising the need for interventions that acknowledge gendered experiences. Our pilot of Sondela demonstrated high levels of relevance and feasibility. Men appreciated the workshop "space" to openly talk about their HIV positive status and what is means for their role as partners and fathers and friends. Women valued the skills and approaches because they were relevant to "real life" situations and not just about HIV. Sondela promises to be valuable in supporting health system initiatives and psychosocial support to strengthen linkages to and retention in HIV care, and this suggests a need for rigorous evaluation of Sondela to establish evidence for its effectiveness in a general population.


BACKGROUND: Little is known about drug use patterns among people living with HIV in comparison to an uninfected group in the general population. The aim of this study was to investigate the association between legal and illegal drug use and HIV infection in a nationally representative sample of adults in the United States. METHODS: Public use data files (2005-2014) from the National Survey on Drug Use and Health (NSDUH) were used. Respondents were asked whether a medical professional had ever told them that they had HIV/AIDS. Ever (lifetime), past-year, and past month use of cigarettes, alcohol, marijuana, cocaine, heroin, hallucinogens, inhalants, and nonmedical use of psychotherapeutics was assessed. Logistic regression was used to estimate adjusted odds ratios (aOR) of the relationship between drug use and HIV infection, adjusting for demographics. RESULTS: Of 377,787 respondents age 18 and older, 548 (0.19%) were categorized as HIV-infected. Ever use of cigarettes, tobacco, marijuana, cocaine, heroin, hallucinogens, inhalants, and nonmedical use of psychotherapeutics was higher in HIV-infected individuals compared to HIV-uninfected individuals after adjustment for sex, race/ethnicity, education, total family income, and marital status. Past year and past month use was also higher for HIV-infected individuals for all substances aside from alcohol. CONCLUSIONS: In a nationally representative sample, there are higher levels of drug use and DSM-IV dependence among the HIV-infected population compared to the HIV-uninfected population. This is of concern because drug use and dependence can impede engagement in HIV care and adherence to antiretroviral therapy.


OBJECTIVES: Involvement of people living with HIV (PLHIV) in the design of HIV cure studies is important, given the potential risks to participants. We present results of an international survey of PLHIV to define these issues and inform cure research. METHODS: PLHIV were recruited in June-November 2014 through HIV websites, advocacy forums, social media and 12 UK HIV clinics. The survey included questions concerning demographics, HIV disease history, the desirability of types of cure and the
patient's willingness to accept potential toxicity and treatment interruption (TI). We examined factors associated with TI and willingness to accept substantial risks. RESULTS: A total of 982 PLHIV completed the survey; 87% were male, 79% white and 81% men who have sex with men (MSM). Fifty-one per cent were aged 25-44 years and 69% were UK residents. The median time since diagnosis was 7 years (interquartile range [IQR] 2-17 years). Eighty-eight per cent were receiving antiretrovirals (91% reported undetectable viral load). Health/wellbeing improvements (96%) and an inability to transmit HIV (90%) were more desirable cure characteristics than testing HIV-negative (69%). Ninety-five per cent were interested in participating in cure studies, and 59% were willing to accept substantial risks. PLHIV with a low CD4 count [201-350 cells/μl vs. >/= 350 cells/μl; odds ratio (OR) 2.11; 95% confidence interval (CI) 1.11-4.00] were more likely to accept risks, whereas those with limited knowledge of HIV treatments vs. excellent/good knowledge and those aged >/= 65 years vs. 45-64 years were less likely to accept risks [OR 0.58 (95% CI 0.37-0.90) and OR 0.18 (95% CI 0.07-0.45), respectively]. TI was acceptable for 62% of participants, with the main concerns being becoming unwell (82%), becoming infectious (76%) and HIV spreading through the body (76%). CONCLUSIONS: Cure research was highly acceptable to the PLHIV surveyed. Most individuals would accept risks, including TI, even in the absence of personal benefit. An optimal cure would improve health and minimize onward transmission risk.


People living with HIV (PLWH) experience an increase in chronic conditions with aging, but little is known about experiences of living with multimorbidity with HIV. Because early palliative care services may improve well-being for individuals with multimorbidity, we planned to test an intervention to provide these services to community-dwelling PLWH with other chronic conditions. To tailor our intervention to the target population, we conducted four focus groups (n = 22) that elicited health-related needs, experiences, and views regarding palliative and other health services. We identified four themes related to patients' needs and experiences: views of HIV as background to other chronic conditions, challenges managing medications and provider interactions, concerns about coping with future health needs, and persistence of HIV stigma. In addressing multimorbidity with HIV, providers and patients may benefit from enhanced attention to communication when crossing specialty areas and from additional support to decrease stressors associated with HIV stigma.


Background and Objectives: We reviewed the literature on older adults (OAs) who are caring for persons living with HIV/AIDS in sub-Saharan Africa (SSA), with the goal of adapting models of caregiver stress and coping to include culturally relevant and contextually appropriate factors specific to SSA, drawing on both life course and cultural capital theories. Research Design and Methods: A systematic literature search found 81 articles published between 1975 and 2016 which were reviewed using a narrative approach. Primary sources of articles included electronic databases and relevant WHO websites. Results: The main challenge of caregiving in SSA reflects significant financial constraints, specifically the lack of necessities such as food security, clean water, and access to health care. Caregiving is further complicated in SSA by serial bouts of caring for multiple individuals, including adult children and grandchildren, in the context of high levels of stigma associated with HIV. Factors promoting caregiver resilience included spirituality, bidirectional (reciprocal) caregiving, and collective coping strategies. Discussion and Implications: The creation of a theoretical model of caregiving which focuses more broadly on the sociocultural context of caregiving could lead to new ways of developing interventions in low-resources communities.


As people living with HIV (PLWH) live longer, increased understanding of individuals' values and perceptions of successful aging can assist health providers in working with PLWH to set meaningful goals as they age. The purpose of this qualitative study was to understand how PLWH define successful aging and their perceptions of contributors to successful aging. Fourteen men and ten women over the age of 50 years (mean age 57 years; mean time since diagnosis 18 years) participated in individual interviews. Interviews were analyzed using directed content analysis. Six themes emerged: accepting limitations, staying positive, maintaining social supports, taking responsibility, living a healthy lifestyle, and engaging in meaningful activities. The participants emphasized

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individual control. This highlights the importance of working with PLWH to understand their values and aspirations, and create patient-centered goals. From a research perspective this reinforces calls to include the subjective experiences of older adults in developing successful aging criteria.


Contingency management (CM) interventions generally target a single behavior such as attendance or drug use. However, disease outcomes are mediated by complex chains of both healthy and interfering behaviors enacted over extended periods of time. This paper describes a novel multi-target contingency management (CM) program developed for use with HIV positive substance users enrolled in a CTN multi-site study (0049 Project HOPE). Participants were randomly assigned to usual care (referral to health care and SUD treatment) or 6-months strength-based patient navigation interventions with (PN+CM) or without (PN only) the CM program. Primary outcome of the trial was viral load suppression at 12-months post-randomization. Up to $1160 could be earned over 6 months under escalating schedules of reinforcement. Earnings were divided among eight CM targets; two PN-related (PN visits; paperwork completion; 26% of possible earnings), four health-related (HIV care visits, lab blood draw visits, medication check, viral load suppression; 47% of possible earnings) and two drug-use abatement (treatment entry; submission of drug negative UAs; 27% of earnings). The paper describes rationale for selection of targets, pay amounts and pay schedules. The CM program was compatible with and fully integrated into the PN intervention. The study design will allow comparison of behavioral and health outcomes for participants receiving PN with and without CM; results will inform future multi-target CM development.


A large body of research identifies depressive symptoms as a barrier to optimal antiretroviral therapy (ART) adherence, whereas treatment motivation has been characterized as a facilitator. There is evidence, however, that these patterns may not hold for some ART patients despite the widespread use of motivational techniques aimed at promoting adherence. Little is known about how the interplay between different levels of depressive symptoms and variations in the types and levels of motivation may influence ART adherence. The purpose of this study was to examine the relationship between depressive symptoms, two types of motivation, and adherence, with self-efficacy as a mediator. The sample consisted of 121 ART patients who reported various levels of depressive symptoms (mean age = 41 years; 84% African-American; and 68% female). Path analysis revealed that self-efficacy fully mediated the relationship between the three predictor variables (depressive symptoms, intrinsic motivation, and extrinsic motivation) and adherence, chi(2)(3, N = 121) = .78, RMSEA = .00, SRMR = .02, CFI = 1.00, NNFI = 1.06. Findings suggest that interventions using motivational techniques to build adherence among patients with varying levels of depressive symptoms should address the role of treatment self-efficacy to improve their effectiveness.


OBJECTIVES: The aim of the study was to compare maternal characteristics and pregnancy outcomes in women aged < 40 years and >/= 40 years in a large unselected population of HIV-positive women delivering in the UK and Ireland between 2000 and 2014. METHODS: Comprehensive population-based surveillance data on all HIV-positive pregnant women and their children seen for care in the UK and Ireland are collected through the National Study of HIV in Pregnancy and Childhood. All singleton and multiple pregnancies reported by the end of June 2015 resulting in live birth or stillbirth to women diagnosed with HIV infection before delivery and delivering in 2000-2014 were included. Logistic regression models were fitted in analyses examining the association between older maternal age and specific outcomes (preterm delivery and stillbirth). RESULTS: Among 15 501 pregnancies in HIV-positive women, the proportion in older women (>/= 40 years) increased from 2.1% (73 of 3419) in 2000-2004 to 8.9% (510 of 5748) in 2010-2014 (P < 0.001). Compared with pregnancies in younger women, those in older women were more likely to result in multiple birth (3.0 vs. 1.9% in younger women; P = 0.03), stillbirth (adjusted odds ratio 2.39; P = 0.004) or an infant with a chromosomal abnormality (1.6 vs. 0.2%, respectively; P < 0.001). However, there was no increased risk of preterm delivery, low birth weight or mother-to-child HIV transmission among older mothers. CONCLUSIONS: There has been a significant increase over time in
the proportion of deliveries to women living with HIV aged \( \geq 40 \) years, which has implications for pregnancy management, given their increased risk of multiple births, stillbirth and chromosomal anomalies, as also apparent in the general population.


In light of the dilemma of global climate change that we have presented ourselves with in the twenty-first century and beyond, many researchers express despair at the ability of humans and societies to change behavior. The paper identifies how global humanity at individual, institutional, and governmental levels have addressed life-threatening dangers in the recent past and begun processes of long-term corrective action. The paper thus discusses global social transformations from the recent past in regards to tobacco use and HIV/AIDS, to think about how Hannah Arendt’s concept of the Polis detailed in The Human Condition (1958) may be engaged to address the human dimensions of climate change. As an output of the Andrew W. Mellon European Observatory of the New Human Condition, this paper’s focus is commensurate with the thrust of this special issue of Global and Planetary Change which considers climate change to be more of a crisis in the human condition than an environmental problem. Arendt’s concept of the Polis provides a framework for a better understanding of change in behavior, preference and motivation. We argue that her perspectives are central to developing multi and inter-disciplinary humanities, social science, science and business perspectives to mobilize collective human action towards adapting to and mitigating the social and environmental threats of global climate change.

• Facing the dilemma of global climate change, many scientific researchers express despair at the human ability to change behavior. • Humanity has addressed the dangers in the recent past and, instituted processes of long-term corrective action. • Global response against tobacco and HIV/AIDS epidemics provide a template for climate-change action. • Hannah Arendt’s The Human Condition (1958) proffers political strategies to address human dimensions of climate change.


We present a conceptual framework that highlights how unique dimensions of individual-level HIV-related stigma (perceived community stigma, experienced stigma, internalized stigma, and anticipated stigma) might differently affect the health of those living with HIV. HIV-related stigma is recognized as a barrier to both HIV prevention and engagement in HIV care, but little is known about the mechanisms through which stigma leads to worse health behaviors or outcomes. Our conceptual framework posits that, in the context of intersectional and structural stigmas, individual-level dimensions of HIV-related stigma operate through interpersonal factors, mental health, psychological resources, and biological stress pathways. A conceptual framework that encompasses recent advances in stigma science can inform future research and interventions aiming to address stigma as a driver of HIV-related health.


BACKGROUND: Ecological momentary assessments (EMA) are data collection approaches that characterize behaviors in real-time. However, EMA is underutilized in alcohol and substance use research among men who have sex with men (MSM). The aim of this analysis is to explore the correlates of engagement in EMA text messages among substance-using MSM in San Francisco.

METHODS: The present analysis uses data collected from the Project IN pilot study (n=30). Over a two-month period, participants received and responded to EMA daily text messages inquiring about their study medication, alcohol, and methamphetamine use. Baseline characteristics including demographics, alcohol use, and substance use were examined as potential correlates of engagement in EMA text messages in logistic regression and proportional hazards models. RESULTS: Participants had a 74% response rate to EMA text messages over the study period. MSM of color had significantly lower adjusted odds of responding to EMA texts 80% of the time or more, compared to white MSM (adjusted odds ratio=0.05, 95%CI=0.01-0.38). College-educated MSM had a lower adjusted hazard of week-long discontinuation in EMA texts (adjusted hazard ratio=0.12, 95%CI=0.02-0.63). Older MSM had a higher adjusted hazard of week-long discontinuation in EMA texts (adjusted hazard ratio=1.15, 95%CI=1.01-1.31). CONCLUSION: Differences in engagement in EMA text prompts were discovered for MSM with different racial/ethnic backgrounds,
ages, and education levels. Substance use variables were not correlated with engagement in text messages, suggesting that EMA may be a useful research tool among actively substance-using MSM in San Francisco.


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.


HIV chronicity has resulted in increased life expectancy for many African American women who acquired the disease during the epidemic's peak years. As these women live longer and age, their social support needs may increase. Five focus groups were conducted in Washington, DC with 23 HIV-positive African American women aged 52-65 to explore women's perceptions about how aging and HIV chronicity affects their social support needs. Participants were recruited from the longitudinal Women's Interagency HIV Study (WIHS) participant pool. A constant comparison approach was applied during data analysis. Participants reported needing increased social support, especially emotional support from health care providers, family, and HIV-positive peers. The importance of providers and HIV-positive peers was discussed most frequently relative to meeting these needs. Health care providers in particular may need to increase their provision of emotional support when devising treatment plans to meet the social support needs of older HIV-positive African American women.


BACKGROUND: Sexually transmitted infections spread across contact networks. Partner elicitation and notification are commonly used public health tools to identify, notify, and offer testing to persons linked in these contact networks. For HIV-1, a rapidly evolving pathogen with low per-contact transmission rates, viral genetic sequences are an additional source of data that can be used to infer or refine transmission networks. METHODS AND FINDINGS: The New York City Department of Health and Mental Hygiene interviews individuals newly diagnosed with HIV and elicits names of sexual and injection drug using partners. By law, the Department of Health also receives HIV sequences when these individuals enter healthcare and their physicians order resistance testing. Our study used both HIV sequence and partner naming data from 1342 HIV-infected persons in New York City between 2006 and 2012 to infer and compare sexual/drug-use named partner and genetic transmission networks. Using these networks, we determined a range of genetic distance thresholds suitable for identifying potential transmission partners. In 48% of cases, named partners were infected with genetically closely related viruses, compatible with but not necessarily representing or implying, direct transmission. Partner pairs linked through the genetic similarity of their HIV sequences were also linked by naming in 53% of cases.
Persons who reported high-risk heterosexual contact were more likely to name at least one partner with a genetically similar virus than those reporting their risk as injection drug use or men who have sex with men. CONCLUSIONS: We analyzed an unprecedentedly large and detailed partner tracing and HIV sequence dataset and determined an empirically justified range of genetic distance thresholds for identifying potential transmission partners. We conclude that genetic linkage provides more reliable evidence for identifying potential transmission partners than partner naming, highlighting the importance and complementarity of both epidemiological and molecular genetic surveillance for characterizing regional HIV-1 epidemics.


Purpose This paper is a conceptual discussion of the marginalisation of the voices of older lesbians, gay and bisexual (LGB) women, within the collective discourse of "older LGBT* housing". The purpose of this paper is to critically interrogate its (in)equality implications and to consider ways in which they might be overcome. Design/methodology/approach This is a conceptual discussion that draws on the social justice model of equality developed by Nancy Fraser, specifically the domains of resources, recognition and representation. Findings The housing needs, wishes and concerns of older LGB women are often marginalised while at the same time those of older gay men are privileged. Older LGB women’s preferences for gender- and/or sexuality- specific housing are silenced within collective homogenising discourse – by researchers and activists alike – which mobilises a “mainstream” or “LGBT*-specific” binary about housing options. Research limitations/implications Research findings which do not include the voices of older lesbian, gay and bisexual women are inherently flawed. There is a need to ensure their voices – across the older age spectrum – are included. Practical implications The voices of older LGB women in relation to older age housing need to be better heard so that they can be better resourced. Social implications The marginalisation of older lesbian, gay and bisexual women’s voices in relation to older age housing has profound equality and human rights implications. Originality/value Critical discussions about the gendering of older LGBT* housing discourse are long overdue. This paper seeks to open a dialogue about these important issues. [ABSTRACT FROM AUTHOR]


Social–sexual networking technologies have been reported to yield both psychosocial benefits and sexual risks for gay and bisexual men, yet little research has explored how technology interacts with the social–geographical environment to shape the health of gay and bisexual men in the relatively understudied environment of small cities. This article draws on 29 semistructured interviews examining the use of social–sexual networking technologies among racially diverse gay and bisexual men in two small cities. Questions probed participants’ use of technology to meet sexual partners, engagement in the gay community, and the role of virtual and nonvirtual spaces in relation to health. Findings suggest that social networking technologies can help men navigate the challenges of small cities, including small and insular gay communities, lack of dedicated gay spaces, and sexual minority stigma. However, participants also describe declines in gay community visibility and cohesion, which they attribute to technology use. The article concludes by discussing the intersections of virtual and physical space in small cities as sites for the production of health and illness. [ABSTRACT FROM AUTHOR]


Safe sexual behaviors and anti-retroviral use help prevent HIV transmission. In this cross-sectional study, we assessed correlates of anti-retroviral (ART) status and transmission risk (a constructed variable) among a convenience sample of n = 1041 HIV-positive women (pre-intervention) enrolled in an evidence-based intervention at four CBOs. Multinomial logistic regression models were used. Younger women and those diagnosed with HIV in the last 5 years more often reported that they had not been prescribed ART. Self-reported non-adherence to ART was less frequently reported among women who were older, had a higher HIV knowledge, and those with attitudes/beliefs supportive of condom use. The highest-risk transmission group (condomless sex with HIV-
negative/unknown partner and not prescribed or non-adherent to ART) was associated with younger age, attitudes/beliefs less supportive of condom use, and low self-efficacy discussing condom use. Our findings inform HIV prevention efforts among similar populations of HIV-positive women enrolled in interventions at CBOs.


Wilson, K. S., et al. (2017). ""At our age, we would like to do things the way we want: " a qualitative study of adolescent HIV testing services in Kenya." AIDS 31 Suppl 3: S213-S220.

OBJECTIVES: Adolescents in Africa have low HIV testing rates. Better understanding of adolescent, provider, and caregiver experiences in high-burden countries such as Kenya could improve adolescent HIV testing programs. DESIGN: We conducted 16 qualitative interviews with HIV-positive and HIV-negative adolescents (13-18 years) and six focus group discussions with Healthcare workers (HCWs) and caregivers of adolescents in Nairobi, Kenya. METHODS: Semi-structured interviews and focus groups were recorded and transcribed. Analysis employed a modified constant comparative approach to triangulate findings and identify themes influencing testing experiences and practices. RESULTS: All groups identified that supportive interactions during testing were essential to the adolescent's positive testing experience. HCWs were a primary source of support during testing. HCWs who acted respectful and informed helped adolescents accept results, link to care, or return for repeat testing, whereas HCWs who acted dismissive or judgmental discouraged adolescent testing. Caregivers universally supported adolescent testing, including testing with the adolescent to demonstrate support. Caregivers relied on HCWs to inform and encourage adolescents. Although peers played less significant roles during testing, all groups agreed that school-based outreach could increase peer demand and counteract stigma. All groups recognized tensions around adolescent autonomy in the absence of clear consent guidelines. Adolescents valued support people during testing but wanted autonomy over testing and disclosure decisions. HCWs felt pressured to defer consent to caregivers. Caregivers wanted to know results regardless of adolescents' wishes. CONCLUSION: Findings indicate that strengthening HCW, caregiver, and peer capacities to support adolescents while respecting their autonomy may facilitate attaining '90-90-90' targets for adolescents.


HIV-infected pregnant women in sub-Saharan Africa are at risk for depression and alcohol abuse. Young women may be more vulnerable, but little is known about the psychosocial functioning of this population. We compared younger (18-24 years old) and older (>/>=25 years old) HIV-infected pregnant women initiating antiretroviral therapy (ART) in Cape Town, South Africa. Women were assessed on a range of psychosocial measures, including the Alcohol Use Disorders Identification Test and the Edinburgh Postnatal Depression Scale (EPDS). Among 625 women initiating ART, 16 % reported risky alcohol use and 21 % alcohol-related harm; these percentages were similar across age groups. When younger women were stratified by age, 37 % of 18-21 years old versus 20 % of 22-24 years old reported alcohol-related harm (p = 0.02). Overall, 11 % of women had EPDS scores suggesting probable depression, and 6 % reported self-harming thoughts. Younger women reported more depressive symptoms. Report of self-harming thoughts was 11 % in younger and 4 % in older women (p = 0.002). In multivariable analysis, age remained significantly associated with depressive symptoms and report of self-harming thoughts. Level of HIV-related stigma and report of intimate partner violence modified the association between age and depressive symptoms. Young HIV-infected pregnant women in South Africa were more likely to report depressive symptoms and self-harming thoughts compared to older women, and the youngest women reported the highest levels of alcohol-related harm. HIV-related stigma and intimate partner violence may be moderating factors. These findings have implications for maternal and infant health, underscoring the urgent need for effective targeted interventions in this vulnerable population.

PURPOSE: To examine differences in racial disparities across levels of neighborhood poverty and differences in socioeconomic disparities by race/ethnicity in viral suppression among persons living with HIV (PLWH). METHODS: Using HIV surveillance data, we categorized and geocoded PLWH who were in care in New York City (NYC). Multilevel binomial regression techniques were used to model viral suppression with a two-level hierarchical structure, by including age, transmission risk, year of diagnosis, race/ethnicity, census tract poverty, and an interaction term of race/ethnicity and census tract poverty in the model.

RESULTS: There were 30,638 Blacks, 22,921 Hispanics, and 11,695 Whites living with HIV and retained in care in NYC, 2014. Compared with Blacks living in the most impoverished neighborhoods (>/=30% residents living below the federal poverty level) who had the lowest proportion of viral suppression, with 75% in males and 76% in females, Whites living in the least impoverished neighborhoods (<10% residents living below the federal poverty level) had the highest, with 92% in males (prevalence ratio = 1.16; 95% confidence interval: 1.13, 1.18) and 90% in females (PR = 1.14; 95% CI: 1.09, 1.19). CONCLUSIONS: By examining racial and socioeconomic disparities simultaneously, we were able to detect both disparities in viral suppression among PLWH in NYC.


Stigma associated with HIV is considered a major stressor for people living with HIV/AIDS (PLWHA) that affects quality of life and may serve as a barrier to effective care and treatment. This manuscript explores the prevalence of stigma among PLWHA (N = 124), differentiates the ways that stigma manifests itself (i.e., personalized, disclosure concerns, negative self-image, public attitudes), and examines the predictive nature of stigma in how individuals experience an HIV diagnosis. Multiple regression analyses and canonical correlations indicate that stigma was found to be correlated with, and predictive of, experiencing an HIV diagnosis in a consequential and potentially traumatic way. Lastly, implications for mental health counselors are presented. [ABSTRACT FROM AUTHOR]

WOMEN – AGING – HIV


The prevalence of depression among women living with HIV/AIDS is elevated, compared with women in the general population and men diagnosed with HIV/AIDS. Although symptoms of HIV may overlap with somatic symptoms of depression, little research has explored how well screening tools accurately assess depression rather than symptoms of HIV/AIDS among women. The present study examined the utility of a widely used tool for assessing depression symptoms among women living with HIV/AIDS. Data are from the Women’s Interagency HIV Study (WIHS), a multisite, longitudinal cohort study of women living with HIV/AIDS (n = 1,329) and seronegative women (n = 541) matched on key risk factors for HIV/AIDS. Confirmatory factor analysis-based measurement invariance tests of the Center for Epidemiologic Studies Depression Scale (CES-D) were conducted to determine whether women with HIV and those without HIV responded to the scale similarly. Results supported measurement invariance of CES-D scores. Findings suggest that the CES-D can be used to assess for burden of depression symptoms among women diagnosed with HIV/AIDS. (PsycINFO Database Record


BACKGROUND: While the literature on HIV and aging has grown significantly in the past decade, there has been little examination of the needs of older women living with HIV and their disability experiences. PURPOSE: The purpose of this study was to uncover the experiences of aging with HIV from the perspective of older women. METHOD: An interpretive qualitative study was undertaken using semistructured interviews to explore the experiences of 10 women who are HIV positive between the ages of 51
and 62 years. Interview transcripts were analyzed thematically. FINDINGS: Data analysis revealed seven themes: varying levels of acceptance, battling stigma of disclosure, declining functionality, living with negative emotions, practising healthy lifestyles, seeking social supports, and maximizing support from community services. IMPLICATIONS: There is a need for women’s peer support groups, education for women with HIV and their families, and enhanced support services. Suggestions are provided for how occupational therapists can enable participation.


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.

Arnold, E. A., et al. (2017). "Identifying social and economic barriers to regular care and treatment for Black men who have sex with men and women (BMSMW) and who are living with HIV: a qualitative study from the Bruthas cohort." BMC Health Serv Res 17(1): 90.

BACKGROUND: There is little research regarding the ability of Black men who have sex with men and women (BMSMW) to access and maintain HIV-related health care and treatment adherence. This population, who often insist on secrecy about their same-sex desire, may experience unique barriers to seeking regular care and treatment. METHODS: From March 2011-April 2014, we recruited 396 BMSMW in the San Francisco Bay Area to be enrolled in our randomized controlled trial. At baseline we administered a behavioral survey assessing: demographics, homelessness, employment, history of incarceration, HIV status and disclosure practices, care and treatment adherence. 64 men reported living with HIV at intake. To learn more about their experiences, we recruited N = 25 to participate in qualitative interviews, which were conducted April-December 2014. Topics included: current living situation, diagnosis story, disclosure practices, experiences of accessing and maintaining care and treatment, and HIV-related stigma. Recordings were transcribed and coded for major themes. RESULTS: Despite being located in an area where treatment is plentiful, men faced social and economic barriers to maintaining regular care and treatment adherence. Several findings emerged to shed light on this quandary: (1) Competing needs particularly around attaining stable housing, food security, and money created barriers to treatment and care; (2) Side effects of HIV medications discouraged men from adhering to treatment; (3) Provider and Institutional level characteristics influenced care engagement; (4) Disclosure and social support made a difference in care and treatment behaviors; and (5) Participants expressed a desire for group-based intervention activities to support treatment and care among HIV+ BMSMW. Inadequate engagement in the continuum of care for HIV was born out in the quantitative data where 28% of participants did not know their Viral Load. CONCLUSIONS: A holistic approach to HIV health for BMSMW would appear to translate to better outcomes for men living with HIV, where a goal of viral suppression must also include attending to their basic social and economic support needs.


Subclinical kidney disease is associated with developing hypertension in the general population, but data are lacking among HIV-infected people. We examined associations of kidney function and injury with incident hypertension in 823 HIV-infected and 267 HIV-uninfected women in the Women’s Interagency HIV Study, a multicenter, prospective cohort of HIV-infected and uninfected women in the United States. Baseline kidney biomarkers included estimated glomerular filtration rate using cystatin C, urine albumin-to-creatinine ratio, and 7 urine biomarkers of tubular injury: alpha-1-microglobulin, interleukin-18, kidney injury molecule-1, neutrophil gelatinase-associated lipocalin, liver fatty acid-binding protein, N-acetyl-beta-d-glucosaminidase, and alpha1-acid-glycoprotein. We used multivariable Poisson regression to evaluate associations of kidney biomarkers with incident hypertension, defined as 2 consecutive visits of antihypertensive medication use. During a median follow-up of 9.6 years, 288 HIV-infected women
(35%) developed hypertension. Among the HIV-infected women, higher urine albumin-to-creatinine ratio was independently associated with incident hypertension (relative risk = 1.13 per urine albumin-to-creatinine ratio doubling, 95% confidence interval, 1.07-1.20), as was lower estimated glomerular filtration rate (relative risk = 1.10 per 10 mL/min/1.73 m(2) lower estimated glomerular filtration rate; 95% confidence interval, 1.04-1.17). No tubular injury and dysfunction biomarkers were independently associated with incident hypertension in HIV-infected women. In contrast, among the HIV-uninfected women, urine albumin-to-creatinine ratio was not associated with incident hypertension, whereas higher urine interleukin-18, alpha1-acid-glycoprotein, and N-acetyl-beta-d-glucosaminidase levels were significantly associated with incident hypertension. These findings suggest that early glomerular injury and kidney dysfunction may be involved in the pathogenesis of hypertension in HIV-infected people. The associations of tubular markers with hypertension in HIV-uninfected women should be validated in other studies.


OBJECTIVE: Women living with HIV are at increased risk of human papillomavirus (HPV) infection, which can lead to cervical cancer. New guidelines recommend indefinite screening. The objective of this study is to describe cervical cancer screening practices and colposcopy results in a cohort of women living with HIV over age of 65 who were followed before the new guidelines. Comorbidities, sexually transmitted infections (STIs), and other risk factors were evaluated. METHODS: We conducted a retrospective chart review on 75 women aged 65 or older living with HIV with at least one Pap smear. RESULTS: The mean age of the cohort was 66.5 and at HIV diagnosis was 56. The majority of women were immunocompetent. 80% had serial Pap smears. Of these, 86% of 238 were negative or ASCUS. No women progressed to HSIL. 92% of colposcopies had negative or CIN I results. Three women were treated successfully for high-grade dysplasia. More than half of women had other STIs. 72% were screened for HPV; 50% were positive. CONCLUSION: The majority of women had negative and low-grade Pap smears. Questions remain regarding the utility of continued Pap screening and the added value of HPV testing in this unique population of older women living with HIV.


Many women living with HIV experience a range of physical, social, and psychological challenges linked to their HIV status. Psychosocial support interventions may help women cope with these challenges and may allow women to make better decisions around their sexual and reproductive health (SRH), yet no reviews have summarized the evidence for the impact of such interventions on well-being and SRH decision-making among women living with HIV. We systematically reviewed the evidence for non-specialist delivered psychosocial support interventions for women living with HIV, which are particularly relevant in low-resource settings. Outcomes of interest included mental, emotional, social well-being and/or quality of life, common mental health disorders, and SRH decision-making. Searching was conducted through four electronic databases and secondary reference screening. Systematic methods were used for screening and data abstraction. Nine articles met the inclusion criteria, showing positive or mixed results for well-being and depressive symptoms indicators. No studies reported on SRH decision-making outcomes. The available evidence suggests that psychosocial support interventions may improve self-esteem, coping and social support, and reduce depression, stress, and perceived stigma. However, evidence is mixed. Most studies placed greater emphasis on instrumental health outcomes to prevent HIV transmission than on the intrinsic well-being and SRH of women living with HIV. Many interventions included women living with HIV in their design and implementation. More research is required to understand the most effective interventions, and their effect on sexual and reproductive health and rights.

Women who are structurally vulnerable are at heightened risk for HIV/STIs. Identifying typologies of structural vulnerability that drive HIV/STI risk behavior is critical to understanding the nature of women’s risk. Latent class analysis (LCA) was used to classify exotic dancers \( n = 117 \) into subgroups based on response patterns of four vulnerability indicators. Latent class regression models tested whether sex- and drug-related risk behavior differed by vulnerability subgroup. Prevalence of vulnerability indicators varied across housing instability (39%), financial insecurity (39%), limited education (67%), and arrest history (36%). LCA yielded a two-class model solution, with 32% of participants expected to belong to a "high vulnerability" subgroup. Dancers in the high vulnerability subgroup were more likely to report sex exchange (OR = 8.1, 95% CI, 1.9-34.4), multiple sex partnerships (OR = 6.4, 95% CI, 1.9-21.5), and illicit drug use (OR = 17.4, 95% CI, 2.5-123.1). Findings underscore the importance of addressing inter-related structural factors contributing to HIV/STI risk.


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 \( (N = 2078; \text{mean } 64.5 \pm/-.7.1 \text{ years of age}) \) 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 +/- .02 SE = 1.02 +/- .037, \( p = .005 \)) after adjustments for covariates. Insomnia symptoms were also associated with more late differentiated T cells (beta +/- .02 SE = 0.59 +/- .21, \( p = .006 \)), but not with naive T cells. 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.


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.


The current article discusses the importance of implementing HIV and AIDS education, prevention, and intervention programs that are tailored to women 50 and older and to determine HIV risk factors for this population. A literature search was performed, resulting in 41 relevant articles. The literature underscored the significance of increasing awareness of HIV/AIDS, particularly among older women. HIV risk behaviors and the effect that these behaviors have on HIV transmission and prevention...
among women 50 and older are described. Prior research findings identified risk categories of older women that may contribute to the transmission of HIV among this particular population, including heterosexual relations, perceived HIV risk, ageism and HIV transmission, biological factors, transfusions, sexual enhancement aids, and health care providers and prevention messages. In addition, previous findings indicate that health care providers have not traditionally targeted women 50 and older for HIV prevention. Health care providers should incorporate discussion of HIV risk and transmission during clinic visits and implement prevention programs that target this population. [Journal of Gerontological Nursing, 43(12), 29-34.]


Woman to Woman (W2W) is a novel adaptation of the Sisters Informing Sisters about Topics on AIDS (SISTA) HIV prevention program. This article describes the process of adapting and piloting W2W based on recommendations from existing HIV prevention research. Six older women, all of whom had histories of homelessness and the majority of whom identified as African American, enrolled in the study, which piloted the adapted intervention and materials, evaluated the acceptability of the program, and assessed the measures related to the intervention. Participants described satisfaction with the program and had high rates of attendance; observations regarding the measures suggest the need to further develop assessments of HIV knowledge, condom use self-efficacy, and risk behaviors in this context.


BACKGROUND: Angiogenic processes in the placenta are critical regulators of fetal growth and impact birth outcomes, but there are limited data documenting these processes in HIV-infected women or women from low-resource settings. OBJECTIVE: We sought to determine whether angiogenic factors are associated with adverse birth outcomes in HIV-infected pregnant women started on antiretroviral therapy. STUDY DESIGN: This is a secondary analysis of samples collected as part of a clinical trial randomizing pregnant women and adolescents infected with HIV to lopinavir/ritonavir-based (n = 166) or efavirenz-based (n = 160) antiretroviral therapy in Tororo, Uganda. Pregnant women living with HIV were enrolled between 12-28 weeks of gestation. Plasma samples were evaluated for angiogenic biomarkers (angiopoietin-1, angiopoietin-2, vascular endothelial growth factor, soluble fms-like tyrosine kinase-1, placental growth factor, and soluble endoglin) by enzyme-linked immunosorbent assay between: 16-<20, 20-<24, 24-<28, 28-<32, 32-<36, 36-<37 weeks of gestation. The primary outcome was preterm birth. RESULTS: In all, 1115 plasma samples from 326 pregnant women and adolescents were evaluated. There were no differences in angiogenic factors according to antiretroviral therapy group (P > .05 for all). The incidence of adverse birth outcomes was 16.9% for spontaneous preterm births, 25.6% for small-for-gestational-age births, and 2.8% for stillbirth. We used linear mixed effect modelling to evaluate longitudinal changes in angiogenic factor concentrations between birth outcome groups adjusting for gestational age at venipuncture, maternal age, body mass index, gravidity, and the interaction between treatment arm and gestational age. Two angiogenic factors-soluble endoglin and placental growth factor-were associated with adverse birth outcomes. Significantly higher concentrations of soluble endoglin throughout gestation were found in study participants destined to deliver preterm [likelihood ratio test, chi(2)(1) = 12.28, P < .0005] and in those destined to have stillbirths [chi(2)(1) = 5.67, P < .02]. By contrast, significantly lower concentrations of placental growth factor throughout gestation were found in those destined to have small-for-gestational-age births [chi(2)(1) = 7.89, P < .005] and in those destined to have stillbirths [chi(2)(1) = 21.59, P < .0001]. CONCLUSION: An antiangiogenic state in the second or third trimester is associated with adverse birth outcomes, including stillbirth in women and adolescents living with HIV and receiving antiretroviral therapy.


OBJECTIVE: To characterize and compare cardiovascular disease (CVD) risk in HIV-infected and uninfected postmenopausal minority women using the Framingham Risk Score (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 and menopause features were retrieved by retrospective chart review. Bivariate statistics
was 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, less obese, and with lower rates of diabetes versus controls. In a subset of age-matched participants, 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). Fourteen percent of HIV-infected women meeting criteria for the low-risk FRS category (<10%) had a history of CVD, a similar rate as controls. HIV-infected women at intermediate/high CVD risk had higher rates of surgical menopause. According to 2013 clinical guidelines, more than half of HIV-infected women not prescribed statin therapy (52%) were eligible for treatment; however, statin therapy was similarly under-prescribed in uninfected women. CONCLUSIONS: In this study, CVD risk as assessed by the FRS was not significantly different by HIV status. Performance of the FRS may be compromised in postmenopausal HIV-infected minority women. HIV-infected and uninfected women may be undertreated with statin therapy. Large longitudinal cohorts and inclusion of subclinical measures of CVD are necessary to better characterize risk.


Although the incidence of HIV among women on probation, parole and alternatives to incarceration programs is significant to public health, drivers of this concentrated epidemic among women under community corrections remain understudied. This study examined prevalence of HIV and sexually transmitted infections and the associations between substance use, socio-demographic factors and the prevalence of biologically-confirmed HIV and other sexually transmitted infections among a sample of 337 substance-using women recruited from community correction sites in New York City. Prevalence of HIV was 13% and sexually transmitted infections was 26% (Chlamydia, trachomatis and Neisseria gonorrhoea). After adjusting for covariates, HIV-positive women were 1.42 times more likely to use crack/cocaine than HIV-negative women (95% CI = 1.05-1.92). HIV-positive women were 25% less likely than HIV-negative women to report any unprotected vaginal and anal sex with their main partner (95% CI = 0.61-0.9). They were 70% less likely than HIV-negative women to report unprotected vaginal sex with a non-paying casual partner (95% CI = 0.1-0.9) and 22% less likely to report unprotected vaginal sex across all partners (95% CI = 0.61-0.99). Community corrections settings may be optimal venues to launch HIV/sexually transmitted infections prevention that have potential to reach and engage an ever-growing number of substance-using women.


Sexual minority women (SMW) are at increased risk for substance abuse compared to heterosexual women. Two psychosocial factors that have been implicated in SMW’s substance abuse are outness and LGBT community involvement, but findings have been mixed as to whether these are risk or protective factors. One possible explanation is that they may have different consequences for subgroups of SMW (lesbians, bisexual women, and queer women). While being open about one’s sexual orientation and involved in the community may be protective for lesbians, discrimination against bisexual women may lead these same factors to contribute to substance abuse for bisexual women. It is unclear how these associations will operate for queer women, given limited research on this subpopulation. The current study examined whether sexual identity moderated the associations between outness and community involvement with alcohol and drug abuse. We also examined whether perceived discrimination would help explain why these associations may be different for subgroups of SMW. A sample of 288 self-identified SMW (113 lesbians, 106 bisexual women, and 69 queer women) completed an online survey. Higher outness was associated with higher alcohol and drug abuse for bisexual women, but not for lesbians or queer women. Similarly, higher community involvement was associated with higher drug abuse for bisexual women, but not for lesbians or queer women. Among bisexual women, the association between community involvement and drug abuse was mediated by perceived discrimination. Further, the association between outness and drug abuse was mediated by both community involvement and perceived discrimination. Findings demonstrate that outness and community involvement function as risk factors for substance abuse for bisexual women, in part due to their associations with discrimination.

The widespread availability of effective antiretroviral therapy (ART) has transformed HIV from a life-limiting condition to one with near-normal life expectancy. HIV is associated with an increased risk of osteopenia and osteoporosis, with people living with HIV (PLHIV) potentially experiencing these conditions at a younger age than their HIV-negative counterparts. The mechanisms driving bone disease in HIV are complex and include: an increased prevalence of traditional risk factors; other comorbid conditions; and HIV-associated factors such as viral effects, systemic inflammation, and ART-related factors. One-third of PLHIV in the United Kingdom are female, and increasing numbers of women living with HIV (WLHIV) are reaching menopausal age. Oestrogen decline in the context of an elevated background risk of poor bone health results in WLHIV being at greater risk of osteoporosis than women without HIV. European HIV guidelines therefore recommend routine screening of postmenopausal WLHIV using FRAX((c)) for clinical risk factors, with or without bone mineral density scanning. Data support the use of calcium and vitamin D supplementation, and bisphosphonates in the treatment of osteoporosis in PLHIV. Additionally, some patients with confirmed osteoporosis may benefit from a switch to an ART agent with a better bone safety profile. However, there remains a notable paucity of data on HIV and menopause, including the impact of hormone replacement therapy on the bone health of WLHIV. In conclusion, it is important that clinicians are aware that postmenopausal WLHIV are a group at particular risk of bone disease, who require proactive screening and advice about preventative measures.


OBJECTIVES: To inform the development of HIV care strategies for older women with HIV infection, an understudied group, we compared the psychosocial, behavioral, and clinical characteristics of HIV-positive women aged >/=50 (older women) with those aged 18-49 (younger women). METHODS: We examined factors among HIV-positive women in care using data from the 2009 through 2013 cycles of a nationally representative sample of HIV-positive adults in care (Medical Monitoring Project). We compared psychosocial, clinical, and behavioral factors among women aged >/=50 years at interview versus those aged <50 years. We calculated weighted frequency estimates and performed logistic regression to compute adjusted prevalence ratios (aPR) and 95% confidence intervals (CIs) for the comparison of characteristics among women aged >/=50 versus <50 years. RESULTS: Of 22,145 participants, 6186 were women; 40.7% (CI 39.1-42.3) were >/=50 years, and 32.7% of older women reported being sexually active. Compared with women <50 years, women aged >/=50 years were more likely to be dose adherent (aPR = 1.19; CI 1.07-1.33), prescribed antiretroviral therapy and have sustained viral load suppression (aPR = 1.03; CI 1.00-1.18), and were less likely to report any depression (aPR = 0.92; CI 0.86-0.99), to report condomless sex with a negative or unknown partner if sexually active (aPR = 0.56; CI 0.48-0.67), and to have received HIV/sexually transmitted infection (STI) prevention counseling from a healthcare provider (aPR = 0.82; CI 0.76-0.88). CONCLUSIONS: These data suggest that older women in HIV care have more favorable outcomes in some clinical areas, but may warrant increased HIV/STI prevention counseling from their care providers, especially if sexually active.


Around half of the global adult HIV-positive population are women, yet historically women have been under-represented in clinical studies of antiretroviral therapy (ART) and there has been minimal exploration of gender-specific factors related to the response to and appropriateness of treatment choices in women living with HIV (WLH). There are several key issues pertaining to the cascade of HIV care that make it important to differentiate WLH from men living with HIV. Factors that are gender specific may impact on the status of WLH, affecting access to diagnosis and treatment, optimal clinical management, ART outcomes, retention in care, and the overall long-term wellbeing of WLH. In this review, we discuss the results of recently reported women-only clinical trials and highlight the key unmet needs of WLH as they pertain to the cascade of HIV care across World Health Organization European Region countries. As significant knowledge gaps remain, the review identifies key areas where further research is required, in order to support improved management of WLH and guide informed clinical decision-making, including addressing psychosocial factors as part of comprehensive care.

The present study examined measurement invariance of the Center for Epidemiologic Studies Depression Scale (CES-D) in community groups of Australian heterosexual men (N = 1106), heterosexual women (N = 2111), gay men (N = 527), and lesbians (N = 712). Confirmatory factor analysis of CES-D item scores supported the theorized oblique 4-factor model. There was support for full measurement invariance across the 4 groups, based on differences in approximate fit indices. In contrast there was support for only partial invariance when the chi-square difference test was applied. Lack of invariance was mostly for depressed affect and somatic symptom items, with noninvariant somatic symptom items showing consistently high factor loadings and thresholds among lesbians compared with the other groups. The findings are discussed in relation to the use of the CES-D, the relevance of different depression symptoms to how depressions is experienced by the different gender and sexual orientation groups, and gender role socialization and minority sexual orientation theories. (PsycINFO Database Record)


OBJECTIVES: Predicting mortality in middle-aged HIV-infected (HIV+) women on antiretroviral therapies (ART) is important for understanding the impact of HIV infection. Several health indices have been used to predict mortality in women with HIV infection. We evaluated: (1) an HIV biological index, Veterans Aging Cohort Study (VACS); (2) a physical index, Fried Frailty Index (FFI); and (3) a mental health index, Center for Epidemiologic Studies-Depression (CES-D). Proportional hazards regression analyses were used to predict death and included relevant covariates. DESIGN: Prospective, observational cohort. SETTING: Multicentre, across six sites in the USA. PARTICIPANTS: 1385 multirace/ethnic ART-experienced HIV+ women in 2005. PRIMARY AND SECONDARY OUTCOMES: All deaths, AIDS deaths and non-AIDS deaths up to ~8 years from baseline. RESULTS: Included together in one model, VACS Index was the dominant, significant independent predictor of all deaths within 3 years (HR=2.20, 95% CI 1.83, 2.65, chi(2)=69.04, p<0.0001), and later than 3 years (HR=1.55, 95% CI 1.30, 1.84, chi(2)=23.88, p<0.0001); followed by FFI within 3 years (HR=2.06, 95% CI 1.58, 3.75, chi(2)=16.18, p=0.0001). CES-D score was not independently associated with mortality. CONCLUSIONS AND RELEVANCE: This is the first simultaneous evaluation of three common health indices in HIV+ adults. Indices reflecting physical and biological ageing were associated with death.


PURPOSE: Neighborhood characteristics shape sexual risk in HIV-uninfected adults in the United States (US). We assess relationships between census tract characteristics and sexual risk behaviors in a predominantly HIV-infected cohort of women living in the Southern US. METHODS: This cross-sectional multilevel analysis included data from 737 HIV-infected and HIV-uninfected women enrolled in the Women's Interagency HIV Study. Administrative data captured characteristics of census tracts where women lived; participant-level data were gathered via survey. We used principal components analysis to condense tract-level variables into components: social disorder (e.g., violent crime rate), and social disadvantage (e.g., alcohol outlet density). We used hierarchical generalized linear models to assess relationships between tract-level characteristics and condomless vaginal intercourse, anal intercourse, and condomless anal intercourse. RESULTS: Greater social disorder was associated with less anal intercourse (OR = 0.63, 95% CI = 0.43-0.94) and condomless anal intercourse (OR = 0.49, 95% CI = 0.30-0.80), regardless of HIV status. There were no statistically significant additive or multiplicative interactions between tract characteristics and HIV status. CONCLUSIONS: Neighborhood characteristics are associated with sexual risk behaviors among women living in the Southern US, these relationships do not vary by HIV status. Future studies should establish temporality and explore the causal pathways through which neighborhoods influence sexual risk.


Due to the improved availability of highly active antiretroviral therapy (HAART) life expectancy amongst people living with HIV has drastically increased. Older people, aged 50 and over now make up the fastest growing group of individuals living with HIV in
the UK. Despite this little is known about their experiences of ageing with HIV. In addition, further still is known about older Black African women living with HIV in the UK, despite the complexity of their social and political context. This was, therefore, the first study to explore the lived experiences of this underrepresented group of women. The thesis adopted a phenomenological approach to examining how the intersections of older black African women's identities shaped their experiences of living with HIV in the UK. In addition, it explored the ways in which they coped with the devastating impact HIV appeared to have on their lives. Using interviews with seven women and interpretative phenomenological analysis, the results revealed three master themes. These were 'Spilt Identities', 'A present without light and a future without hope' and 'Escaping the labyrinth of distress and uncertainty'. A detailed account of these master themes is provided. The findings are discussed in relation to existing literature, implications for clinical practice, methodological limitations and suggestions for future research.


BACKGROUND: We sought to understand whether people living with HIV (PLHIV) ever on highly active antiretroviral therapy (ART) follow a pattern where morbidity is compressed into the last years of life or lessened as people age. We aimed to estimate health-adjusted life expectancy (HALE) among adults living with and without HIV, and examine dependency between causes of comorbidities. METHODS: The Comparative Outcomes and Service Utilization Trends (COAST) study is a retrospective cohort of adults (>/>=20 years) including all known PLHIV and a 10% random sample of the general population of British Columbia, and with longitudinal data spanning from April 1, 1996, to Dec 31, 2012. We determined the prevalence of select comorbidities (cardiovascular, respiratory, liver, and renal diseases, and non-AIDS defining cancers because of their high prevalence among PLHIV) by age and sex by use of case-finding algorithms. Deaths were obtained from a vital event registry from British Columbia, Canada. Comorbid-specific HALE was estimated from 20 years of age by HIV status and sex. For each comorbidity, a healthy state was defined as the proportion of life expectancy comorbidity-free, and was adjusted on the probability of occurrence of other different comorbidities. The sensitivity of HALE estimates was assessed to the sequencing of select comorbidities for the dependent comorbidity adjustments. FINDINGS: Our sample consisted of electronic health records from 9310 HIV-infected and 510 313 uninfected adults over the period April 1, 1996, to Dec 31, 2012. These individuals contributed 49 605 deaths and 5 576 841 person-years over the study period. At exactly age 20 years, HALE was about 31 years (SD 0.16) among men living with HIV and 27 years (0.16) among women living with HIV. In the HIV-negative population, HALE was around 58 years (SD 0.02) for men and 63 years (0.02) for women. These results seem independent of ordering. However, PLHIV, particularly women living with HIV, had much shorter overall life expectancies than did their HIV-negative counterparts in the general population [29.1 years (SD 0.1) vs 65.4 years (0.1)], and thus spent less time in a healthy state. INTERPRETATION: Although we noted little differences in the levels of morbidity compression by HIV status, PLHIV-especially women living with HIV-spent less time in a healthy state. Expanded service delivery interventions to address complex care needs of ageing PLHIV are crucial to address shorter life expectancies, and improve their healthy states. FUNDING: Canadian Institutes of Health Research.


PURPOSE: Among HIV-infected persons, antiretroviral therapy (ART) and depression are strongly associated with mortality. We estimated reductions in 5-year mortality in Women's Interagency HIV Study participants under plausible hypothetical increases in ART initiation and reductions in depression (CES-D score >=16). METHODS: We followed 885 ART-naive Women's Interagency HIV Study participants for 5 years from their first study visit after April 1998 to death or censoring. We used the parametric extended g-formula to estimate cumulative mortality under the natural course (NC) and alternative exposure distributions. RESULTS: Baseline prevalence of depression was 52% and 62% initiated ART by 5 years. Compared with mortality under NC (13.2%), immediate ART and elimination of 36% or 67% of depressive episodes were associated with risk differences (RDs) of -5.2% (95% CI: -7.7%, -2.6%) and -5.7 (95% CI: -8.7, -2.7). Compared with immediate ART and NC for depression, additionally eliminating 67% of the depressive episodes was associated with RD = -1.6 (95% CI: -3.9, 0.8). Compared with 5-year mortality under NC for ART and elimination of 67% of depression, also initiating ART immediately was associated with RD = -2.6 (95% CI: -5.0, -0.3). CONCLUSIONS: Increasing ART initiation and reducing depression were associated with moderate reductions in 5-year mortality among HIV-infected women.
Whether widespread use of HAART changed patterns of HIV status disclosure among women living with HIV is largely unknown. In addition, the association between time to first HIV disclosure and depression has not been fully explored among women. A retrospective cross-sectional survey was conducted among HIV-infected women from the Washington, DC site of the Women’s Interagency HIV Study to collect detailed information about their HIV status disclosure behavior. A sample of 202 HIV-positive women, 102 diagnosed prior to and 100 post-HAART era participated in this study. Relationships between treatment era when diagnosed (pre-HAART or HAART era) and patterns of HIV status disclosure, and associations between HIV status disclosure and depression level were examined using generalized linear regression models with generalized estimating equation to adjust for repeated measurements from the same individuals. Our analyses showed that treatment era was not associated with either comfort level of HIV status disclosure or time to first HIV disclosure to either family members or friends. However, women were less likely to disclose HIV status to their family members in the HAART era (P = 0.006) after adjusting for social network type, comfort level of disclosure, time to first disclosure and length of follow-up time. In addition, longer time to first HIV disclosure, but not comfort level or extent of HIV status disclosure, was independently associated with depression levels as measured by CES-D score at study enrollment ("a few months after" vs "within a few days": P = 0.008). More definitive studies utilizing longitudinal designs should be conducted to further examine impact of HAART era on HIV status disclosure and effect of HIV status disclosure on mental health.

INTRODUCTION: Stigma and discrimination contribute to elevated depression risks among sexual minority women (SMW) and gender minority (GM) people who identify as lesbian, bisexual, or queer. Syndemics theory posits that adverse psychosocial outcomes cluster to negatively impact health and mental health outcomes among sexual minorities. We tested whether a syndemic condition composed of low social support, low self-rated health, low self-esteem, and economic insecurity mediated the relationship between sexual stigma and depressive symptoms among SMW/GM. METHODS: We implemented a cross-sectional, Internet-based survey with SMW and GM in Toronto, Canada. We conducted structural equation modeling using maximum likelihood estimation to test a conceptual model of pathways between sexual stigma, syndemic factors, and depressive symptoms. RESULTS: A total of 391 SMW/GM with a mean age of 30.9 (SD = 7.62) were included in the analysis. The model fit for a latent syndemics construct consisting of psychosocial variables (low social support, low self-rated health, low self-esteem, economic insecurity) was very good (chi2 = 6.022, df = 2, p = .049; comparative fit index = 0.973, Tucker-Lewis index = 0.918, root-mean square error of approximation = 0.072). In the simultaneous model, sexual stigma had a significant direct effect on depression. When the syndemic variable was added as a mediator, the direct path from sexual stigma to depression was no longer significant, suggesting mediation. The model fit the data well: chi2 = 33.50, df = 12, p = .001; comparative fit index = 0.951, Tucker-Lewis index = 0.915, root-mean square error of approximation = 0.068. CONCLUSIONS: Our results highlight the salience of considering both sexual stigma and syndemic factors to explain mental health disparities experienced by SMW and GM. Addressing sexual stigma in the context of co-occurring psychosocial factors and economic insecurity will be key to achieving optimal health for SMW and GM.

The aims of this study were to examine the prevalence and correlates of psychological distress among older women living with HIV in comparison to their male counterparts and younger women and to identify the sociodemographic and disease-related factors associated with psychological distress. The sample consisted of 508 HIV-infected patients (65 older women, 323 women aged below 50 years, and 120 older men) recruited from 10 Portuguese hospitals. Data regarding psychological distress were collected using the Brief Symptom Inventory (BSI). Seven older women (10.8%), eight older men (6.7%), and 61 younger women (18.9%) reported a T-score ≥ 63 for global severity index (GSI), indicative of a need for further psychological evaluation. Overall, younger women reported significantly higher psychological distress than older men. The odds of having clinically significant psychological distress score were significantly lower for older women reporting sexual transmission, while for younger women, having other co-infections was a significant correlate of higher psychological distress. Younger women were 2.67 (95% CI: 1.22-5.84) times more likely to report psychological distress than were older men. The odds were not significantly different from older women. This study shows that older women do not differ substantially from younger women and older men in terms of psychological distress. The results reinforce, however, that mental health interventions should be tailored to reflect individuals' circumstances as well as developmental contexts. Moreover, they draw attention to the importance of examining resilience characteristics in older adults to understand the mechanisms behind 'successful ageing' while living with HIV.


Transgender (trans) women have been particularly impacted by HIV. To seek insights into the dynamics of health service utilization, interviews were conducted with trans women living with HIV (n = 14) as part of the Trans PULSE community-based research project in Ontario, Canada. Service providers (n = 10) were also interviewed to provide additional details about communication between trans women, social service providers, and clinicians. Results highlight how both problematic interactions with individuals and health systems navigation challenges affect access to services and impede the development of trans-specific HIV supports. Participants described discrimination, identified strategies for navigating a dysfunctional system, and outlined specific ways in which health and social services may be failing trans women living with HIV. Findings support the importance of coordinating HIV services and transition-related care, and providing training for service providers.


BACKGROUND: Hepatitis C virus (HCV) screening has taken on new importance as a result of updated guidelines and new curative therapies. Relatively few studies have assessed HCV infection in homeless populations, and a minority include women. We assessed prevalence and correlates of HCV exposure in a cohort of homeless and unstably housed women in San Francisco, and estimated the proportion undiagnosed. METHODS: A probability sample of 246 women were recruited at free meal programs, homeless shelters, and low-cost single room occupancy hotels in San Francisco; women with HIV were oversampled. At baseline, anti-HCV status was assessed using an enzyme immunoassay, and results compared in both HIV-positive and negative women. Exposures were assessed by self-report. Logistic regression was used to assess factors independently associated with HCV exposure. RESULTS: Among 246 women 45.9% were anti-HCV positive, of whom 61.1% were HIV coinfected; 27.4% of positives reported no prior screening. Most (72%) women were in the 'baby-boomer' birth cohort; 19% reported recent injection drug use (IDU). Factors independently associated with anti-HCV positivity were: being born in 1965 or earlier (AOR) 3.94; 95%CI: 1.88, 8.26), IDU history (AOR 4.0; 95%CI: 1.68, 9.55), and number of psychiatric diagnoses (AOR 1.16; 95%CI: 1.08, 1.25). CONCLUSIONS: Results fill an important gap in information regarding HCV among homeless women, and confirm the need for enhanced screening in this population where a high proportion are baby-boomers and have a history of drug use and psychiatric problems. Due to their age and risk profile, there is a high probability that women in this study have been infected for decades, and thus have significant liver disease. The association with mental illness and HCV suggests that in addition increased screening, augmenting mental health care and support may enhance treatment success.

BACKGROUND: HIV and sexually transmitted infections (STIs) disproportionately affect women who experience intimate partner violence (IPV). OBJECTIVE: The current study (1) applied a syndemic framework to study the collective effects of problematic drug use, hazardous drinking, depression, and posttraumatic stress disorder (PTSD) on fear of condom negotiation, condom negotiation, and condom use and (2) evaluated condom negotiation (controlling for fear of condom negotiation) as a mediator of the association between syndemic severity and condom use among low-income IPV-exposed women. METHODS: Participants were 158 women living in the community and experiencing ongoing IPV who completed face-to-face, computer-assisted interviews. RESULTS: Almost three-fourths of the participants reported problematic drug use, hazardous drinking, depression, and/or PTSD; many of these factors were correlated, indicating a syndemic. Multivariate logistic and linear regression analyses revealed associations between syndemic severity and fear of condom negotiation (OR = 1.57, p = .02), condom negotiation (beta = -8.51, p = .001), and condom use (beta = -8.26, p = .01). Meditation analyses identified condom negotiation as a mediator of the association between syndemic severity and condom use (effect = -6.57, SE = 2.01, [95% CI: -10.66, -2.77]). CONCLUSIONS: Results fill a critical gap in previous research by identifying condom negotiation as a mechanism through which this syndemic affects condom use. Prevention and intervention programs should consider addressing condom negotiation to reduce sexual risk among this high-risk population. Further, because IPV-exposed women may experience fear related to condom negotiation, it is critical that prevention and intervention efforts for this population offer skills to safely negotiate condom use, increase condom use, and reduce STI and HIV risk.


HIV-infected individuals are at risk for psychological distress, including depression, sadness, and suicidality. The purpose of this qualitative descriptive study was to examine 22 HIV-infected African American women’s experiences of psychological distress and use of coping strategies. Data were collected through in-person one-on-one interviews until conceptual saturation was reached. Data were analyzed using inductive content analysis. Four themes were found: (a) psychoemotional suffering, (b) contextual factors negatively influence the everydayness of living with HIV infection, (c) HIV-related stigma perpetuates isolation and loneliness, and (d) creating a safe haven. Implications for nurses and other health care providers include (a) holistic assessment to include evaluation of emotional and mental state, and (b) coping strategies. Integration of spiritual practices into plan of care is also important. Development and evaluation of individualized coping interventions that address stigma and psychological distress through holistic modalities is warranted.


Psychological stress is a known immunomodulator. In individuals with HIV, depression, the most common manifestation of increased psychological stress, can affect immune function with lower CD4+ T cell counts correlating with higher levels of depression. It is unknown how other forms of psychological stress can impact immune markers in people living with HIV. We conducted a cross-sectional study to determine how CD4+ T cell subpopulations correlated with different forms of psychological stress. We recruited 50 HIV-positive women as part of the Women's Interagency HIV Study. We assessed perceived stress, worry, acute anxiety, trait anxiety, and depression through self-report questionnaires and CD4+ T cell subpopulations using flow cytometry. Our sample was 96% African-American with a mean +/- SD age and body mass index of 42 +/- 8.8 years and 36.6 +/- 11.5 kg/m(2), respectively. The mean +/- SD scores on the psychological measures were as follows: Perceived Stress Scale (PSS), 16.5 +/- 6.4; Penn State Worry Questionnaire (PSWQ), 47.7 +/- 13.8; State-Trait Anxiety Inventory - State (STAIS), 39.1 +/- 12.3; State-Trait Anxiety Inventory - Trait (STAIT), 40.2 +/- 11.4; Center for Epidemiological Studies Depression Scale (CES-D), 15.6 +/- 11.4. The mean +/- SD values for the immune parameters were as follows: regulatory T cells (Treg), 1.25% +/- 0.7; T helper 1 (Th1), 14.9% +/- 6.1; T helper 2 (Th2), 3.8% +/- 2; Th1/Th2 ratio, 4.6 +/- 3; and CD4+ T cell count (cells/mm(3)), 493 +/- 251. Treg levels positively correlated with PSS, STAIS, and STAIT. CD4+ T cell count negatively correlated with PSS, PSWQ, STAIS, STAIT, and CES-D. These data suggest that immune function may be impacted by various forms of psychological stress in HIV-positive women. Interventions that target stress reduction may be useful in improving immune parameters and quality of life.

OBJECTIVE: Psychological risk factors (PRFs) are associated with impaired learning and memory in HIV-infected (HIV+) women. We determined the dynamic nature of the effects of PRFs and HIV serostatus on learning and memory over time. DESIGN: Multi-center, prospective cohort study METHODS: Every two years between 2009 and 2013 (3 times), 646 HIV+ and 300 demographically-similar HIV-uninfected (HIV-) women from the Women's Interagency HIV Study completed neuropsychological (NP) testing and questionnaires measuring PRFs (perceived stress, post-traumatic stress disorder (PTSD) symptoms, depressive symptoms). Using mixed-effects regressions, we examined separate and interactive associations between HIV-serostatus and PRFs on performance over time. RESULTS: HIV+ and HIV- women had similar rates of PRFs. Fluency was the only domain where performance over time depended on the combined influence of HIV-serostatus and stress or PTSD (p's < 0.05); not depression. In HIV, higher stress and PTSD were associated with a greater cognitive decline in performance (p's < 0.05) versus lower stress and PTSD. Irrespective of time, performance on learning and memory depended on the combined influence of HIV-serostatus and stress or PTSD (p's <0.05). In the context of HIV, stress and PTSD were negatively associated with performance. Effects were pronounced on learning among HIV+ women without effective treatment or viral suppression. Regardless of time or HIV-serostatus, all PRFs were associated with lower speed, global NP, and executive function. CONCLUSIONS: More than depression, perceived stress and PTSD symptoms are treatment targets to potentially improve fluency, learning, and memory in women living with HIV particularly when HIV treatment is not optimal.


OBJECTIVE: To determine whether persistent viral suppression alters cognitive trajectories among HIV-infected (HIV+) women on combination antiretroviral therapy (cART) by investigating performance longitudinally in uninfected (HIV-) and 3 groups of HIV+ women: those with consistent viral suppression after continuous cART use (VS), those without consistent virologic suppression despite continuous cART use (NVS), and those without consistent virologic suppression after intermittent cART use (Int NVS). METHODS: Two hundred thirty-nine VS, 220 NVS, 172 Int NVS, and 301 HIV- women from the Women's Interagency HIV Study (WIHS) completed neuropsychological testing every 2 years for 3 visits between 2009 and 2013. Mixed-effects regressions were used to examine group differences on continuous T scores and categorical measures of impairment (T score <40). RESULTS: On global function, VS women demonstrated lower scores and were more likely to score in the impaired range than HIV- women (p = 0.01). These differences persisted over time (group x time, p > 0.39). VS women demonstrated lower learning and memory scores than HIV- women (p < 0.05) and lower attention/working memory and fluency scores than HIV- and NVS women (p < 0.05). Group differences in scores persisted over time. Categorically, VS women were more likely to be impaired on attention/working memory and executive function than HIV- women (p < 0.05). On motor skills, VS and NVS women showed a greater decline and were more likely to be impaired than HIV- women (p < 0.05). CONCLUSIONS: Cognitive difficulties remain among HIV+ women despite persistent viral suppression. In some instances, VS women are worse than NVS women, reinforcing the need for novel adjunctive therapies to attenuate cognitive problems.


Due to life-enhancing effects of antiretroviral therapy, HIV-positive persons have the potential for long life comparable to their uninfected peers. Older women (age 50+) living with HIV (OWLH) are often an under-recognized aging group. We conducted a systematic review to examine psychosocial factors that impact how OWLH live, cope, and age with HIV. Initial key word search yielded 1527 records, and 21 studies met our inclusion criteria of original quantitative or qualitative research published between 2013 and 2016 with results specific to OWLH. These focused on health care and self-management, sexual health and risk, stigma, loneliness, mental health (depression, substance use), and protective factors (coping, social support, well-being). Due to the scarcity of studies on each topic and inconclusive findings, no clear patterns of results emerged. As the number of OWLH continues to grow, more research, including longitudinal studies, is needed to fully characterize the psychosocial factors that impact aging with HIV.
OBJECTIVES: Psychosocial stressors such as depression and stress, intimate partner violence (IPV) and alcohol use have been linked to preterm and small-for-gestational-age (SGA) births in general populations. The prevalence of psychosocial stressors and alcohol abuse is high in many HIV-infected (HIV+) populations. Our objective was to evaluate the effects of psychosocial stressors and alcohol abuse on birth outcomes in HIV-infected women. METHODS: Antenatal depression and non-specific psychological distress, periconception IPV and alcohol consumption were measured during the second trimester among HIV+ women initiating antiretroviral treatment with efavirenz + emtricitibine + tenofovir in Cape Town, South Africa. Log binomial regression models were used to estimate the risk ratios (RR) and 95% CIs of the effects of psychosocial stressors and periconception alcohol consumption on birth outcomes: SGA (birth weight <10th centile for gestational age) and preterm (<37 weeks) births. RESULTS: Of the 571 mother-infant pairs, 26% of women reported hazardous alcohol consumption (Alcohol Use Disorders Identification Test-C score >/=3) periconception periods, 11% reported depressive symptoms, 7% reported non-specific psychological distress and 15% reported experiencing physical or psychological IPV. 14% of infants were born preterm and 12% were SGA. Infants born to women reporting hazardous drinking were twice (adjusted RR 2.00 (95% CI 1.13 to 3.54)) as likely to be SGA compared with women reporting low alcohol intake. Alcohol consumption did not have a significant effect on the incidence of preterm birth. Depressive symptoms, non-specific psychological distress, physical and psychological IPV did not increase the risk of SGA or preterm birth significantly. CONCLUSIONS: The observed elevated risk of SGA births associated with periconception alcohol consumption underscores the urgent need to reduce alcohol consumption among women of childbearing age. Interventions targeting modifiable risk factors of adverse birth outcomes need to be integrated into HIV prevention and maternal child health programmes to improve the long-term health of HIV-exposed children. TRIAL REGISTRATION NUMBER: NCT01933477; Pre-results.

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.


Cardiovascular disease (CVD) is a major comorbidity among HIV-infected individuals. Common carotid artery intima-media thickness (cCIMT) is a valid and reliable subclinical measure of atherosclerosis and is known to predict CVD. We performed genome-wide association (GWA) and admixture analysis among 682 HIV-positive and 288 HIV-negative Black, non-Hispanic women from the Women's Interagency HIV study (WIHS) cohort using a combined and stratified analysis approach. We found some suggestive associations but none of the SNPs reached genome-wide statistical significance in our GWAS analysis. The top GWAS SNPs were rs2280828 in the region intergenic to mediator complex subunit 30 and exostosin glycosyltransferase 1 (MED30 | EXT1) among all women, rs2907092 in the catenin delta 2 (CTNND2) gene among HIV-positive women, and rs7529733 in the region intergenic to family with sequence similarity 5, member C and regulator of G protein signaling 18 (FAM5C | RGS18) genes among HIV-negative women. The most significant local European ancestry associations were in the region intergenic to the zinc finger and SCAN domain containing 50 gene and NADH:ubiquinone oxidoreductase complex assembly factor 1 (ZSCAN5D | NDUF1) pseudogene on chromosome 19 among all women, in the region intergenic to vomeronasal 1 receptor 6 pseudogene and zinc finger protein 845 (VN1R6P | ZNF845) gene on chromosome 19 among HIV-positive women, and in the region intergenic to the SEC23-interacting protein and phosphatidic acid phosphatase type 2 domain containing 1A (SEC23IP PPAPDC1A) genes located on chromosome 10 among HIV-negative women. A number of previously identified SNP associations with cCIMT were also observed and included rs2572204 in the ryanodine receptor 3 (RYR3) and an admixture region in the secretion-regulating guanine nucleotide exchange factor (SERGEF) gene. We report several SNPs and gene regions in the GWAS and admixture analysis, some of which are common across HIV-positive and HIV-negative women as demonstrated using meta-analysis, and also across the two analytic approaches (i.e., GWA and admixture). These findings suggest that local European ancestry plays an important role in genetic associations of cCIMT among black women from WIHS along with other environmental factors that are related to CVD and may also be triggered by HIV. These findings warrant confirmation in independent samples.


STUDY OBJECTIVE: Depressed young women are at increased risk for adverse outcomes related to sexual behavior, including unintended pregnancy, HIV, and other sexually transmitted infections. Brief sexual risk reduction interventions have not targeted depressed young women’s specific needs for affect management and impulse control. DESIGN, SETTING, PARTICIPANTS, INTERVENTIONS, AND MAIN OUTCOME MEASURES: We interviewed depressed young women ages 15-23 years engaging in sexual risk behavior about a proposed intervention approach. The approach was described as in-person counseling and cognitive-behavioral skills training, followed by an ecological momentary intervention (EMI) delivered via smartphone application for 4 weeks.
The EMI would include reporting multiple times a day on affective states, self-efficacy for safer sex behavior, and sexual behavior, and receiving responsive messages to provide support and prompt use of cognitive-behavioral skills. Participants provided their perspectives on comfort, usability, burden, confidentiality, and potential efficacy of the EMI and recommended message content. Interviews were audio-recorded, transcribed, and analyzed using thematic analysis. RESULTS: Thematic saturation was reached with 16 interviews. Participants expressed positive opinions about the EMI. They believed that reporting at random times would help them to recognize their feelings, receiving the messages would be reassuring, and overall the smartphone application would be experienced as therapeutic. They desired a high degree of personalization of the message quality, style, and voice, and provided a wide variety of message content. CONCLUSION: Depressed young women believed that a flexible, personalized approach to mobile momentary intervention for addressing the link between their symptoms and behavior would be acceptable, supportive, and effective in reducing sexual risk.


Purpose of review To examine the epidemiology and mechanistic underpinnings of heightened cardiovascular disease (CVD) risk among women living with HIV (WLHIV) in North America and Europe. Recent findings WLHIV in North America and Europe exhibit high CVD incidence rates, which are at par with those of compatriot men living with HIV. Compared with uninfected women, WLHIV in these regions face a 2-4-fold increased relative risk for myocardial infarction, stroke, and heart failure. HIV-associated CVD risk is fuelled by a negative synergy of traditional cardiometabolic risk factors and heightened systemic immune activation/inflammation. Among WLHIV, female sex and endogenous sex hormone production influence both traditional cardiometabolic risk factors and patterns of systemic immune activation/inflammation. WLHIV in North America and Europe may also experience heightened CVD risk in relation to a relatively increased prevalence of behavioral and psychosocial CVD risk factors, coupled with suboptimal therapeutic targeting of known traditional cardiometabolic risk factors. Summary Additional research on sex-specific mechanisms of HIV-associated CVD -based not only out of North America and Europe but also and especially out of Africa, Asia, and South America - will inform the development of CVD prediction algorithms and prevention guidelines clinically relevant to the approximately 17 million women aging with HIV globally.


Women are living with HIV into middle and older age and are likely to face multiple comorbidities and stressors as they age. This study focused on understanding how women who experience multiple forms of oppression and ongoing adversity are still able to adapt and stand strong. Using a theoretical framework of resilience and a feminist research ideology, interviews of eight middle-aged and older African American women living with HIV were analyzed. Despite experiences of HIV-related discrimination, trauma, and violence, these women demonstrated a remarkable ability to adapt and maintain support. Implications for research and practice are discussed.


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.


Immunosenescence is an age-related reduction of immune system activity that can be associated with frailty. This study aimed to compare cytomegalovirus (CMV) and Epstein-Barr virus (EBV) reactivations (based on viremias) between young and elderly women who had a chronic CMV and/or EBV infection (i.e., an IgG+ serostatus) without an acute infection (i.e., an IgM- serostatus), and among the elderly group categorized according to frailty status. DNA was extracted from plasma using standard protocols and serostatus was determined by enzyme-linked immunosorbent assay. Quantitative real-time polymerase chain reaction analyses for CMV and EBV were carried out and viral loads were determined. Among elderly women (n = 71), 59% were positive for CMV, in contrast to only 8% of young women (n = 73). Elderly women classified as frail, pre-frail, and non-frail presented 82%, 56%, and 48% positivity for CMV, respectively. Frequency and viral load were significantly higher in the elderly group vs. the young group (p < 0.0001 and p = 0.01, respectively) and in elderly with frailty vs. those without frailty (p = 0.007 and p = 0.03, respectively). The frequency of CMV reactivation presented odds ratios of 11.77 for aging and 6.13 for frailty, and relative risks of 5.39 for aging and 1.93 for frailty. EBV was detected in 30% of the elderly women and 15% of the young women (p = 0.04); however, the viral load did not significantly differ between the two age groups. The frequency of EBV reactivation presented odds ratios of 2.36 for aging and 2.90 for frailty, and relative risks of 1.96 for aging and 2.12 for frailty. However, no difference in EBV viral load among the frailty status subgroups was found. In conclusion, the frequency of CMV reactivation was associated with aging and ongoing frailty, whereas the frequency of EBV reactivation was associated only with aging.


Depression affects up to 30% of human immunodeficiency virus (HIV)-infected individuals. We estimated joint effects of antiretroviral therapy (ART) initiation and depressive symptoms on time to death using a joint marginal structural model and data from a cohort of HIV-infected women from the Women's Interagency HIV Study (conducted in the United States) from 1998-2011. Among 848 women contributing 6,721 years of follow-up, 194 participants died during follow-up, resulting in a crude mortality rate of 2.9 per 100 women-years. Cumulative mortality curves indicated greatest mortality for women who reported depressive symptoms and had not initiated ART. The hazard ratio for depressive symptoms was 3.38 (95% confidence interval (CI): 2.15, 5.33) and for ART was 0.47 (95% CI: 0.31, 0.70). Using a reference category of women without depressive symptoms who had initiated ART, the hazard ratio for women with depressive symptoms who had initiated ART was 3.60 (95% CI: 2.02, 6.43). For women without depressive symptoms who had not started ART, the hazard ratio was 2.36 (95% CI: 1.16, 4.81). Among women reporting depressive symptoms who had not started ART, the hazard ratio was 7.47 (95% CI: 3.91, 14.3). We found a protective effect of ART initiation on mortality, as well as a harmful effect of depressive symptoms, in a cohort of HIV-infected women.


OBJECTIVES: The aim of the study was to compare maternal characteristics and pregnancy outcomes in women aged < 40 years and >/= 40 years in a large unselected population of HIV-positive women delivering in the UK and Ireland between 2000 and 2014. METHODS: Comprehensive population-based surveillance data on all HIV-positive pregnant women and their children seen for care in the UK and Ireland are collected through the National Study of HIV in Pregnancy and Childhood. All singleton and multiple pregnancies reported by the end of June 2015 resulting in live birth or stillbirth to women diagnosed with HIV infection before

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delivery and delivering in 2000-2014 were included. Logistic regression models were fitted in analyses examining the association between older maternal age and specific outcomes (preterm delivery and stillbirth). RESULTS: Among 15 501 pregnancies in HIV-positive women, the proportion in older women (≥ 40 years) increased from 2.1% (73 of 3419) in 2000-2004 to 8.9% (510 of 5748) in 2010-2014 (P < 0.001). Compared with pregnancies in younger women, those in older women were more likely to result in multiple birth (3.0 vs. 1.9% in younger women; P = 0.03), stillbirth (adjusted odds ratio 2.39; P = 0.004) or an infant with a chromosomal abnormality (1.6 vs. 0.2%, respectively; P < 0.001). However, there was no increased risk of preterm delivery, low birth weight or mother-to-child HIV transmission among older mothers. CONCLUSIONS: There has been a significant increase over time in the proportion of deliveries to women living with HIV aged ≥ 40 years, which has implications for pregnancy management, given their increased risk of multiple births, stillbirth and chromosomal anomalies, as also apparent in the general population.


BACKGROUND: Research has shown that sexual minorities (SMs) (e.g. lesbian, gay, and bisexual individuals), compared to their heterosexual counterparts, may engage in riskier health behaviors, are at higher risk of some adverse health outcomes, and are more likely to experience reduced health care access and utilization. However, few studies have examined how the interplay between race and sexual orientation impacts a range of health measures in a nationally representative sample of the U.S. POPULATION: METHODS: To address these gaps in the literature, we sought to investigate associations between sexual orientation identity and health/healthcare outcomes among U.S. women and men within and across racial/ethnic groups. Using 2013-2015 National Health Interview Survey data (N = 91,913) we employed Poisson regression with robust variance to directly estimate prevalence ratios (PR) comparing health and healthcare outcomes among SMs of color to heterosexuals of color and white heterosexuals, stratified by gender and adjusting for potential confounders. RESULTS: The sample consisted of 52% women, with approximately 2% of each sex identifying as SMs. Compared to their heterosexual counterparts, white (PR = 1.25 [95% confidence interval (CI): 1.08-1.45]) and black (1.54 [1.07, 2.20]) SM women were more likely to report heavy drinking. Hispanic/Latino SM women and men were more likely to experience short sleep duration compared to white heterosexual women (1.33 [1.06, 1.66]) and men (1.51 [1.21, 1.90). Black SM women had a much higher prevalence of stroke compared to black heterosexual women (3.25 [1.63, 6.49]) and white heterosexual women (4.51 [2.16, 9.39]). White SM women were more likely than white heterosexual women to be obese (1.31 [1.15, 1.48]), report cancer (1.40 [1.07, 1.82]) and report stroke (1.91 [1.16, 3.15]. White (2.41 [2.24, 2.59]), black (1.40[1.20, 1.63]), and Hispanic/Latino SM (2.17 [1.98, 2.37]) men were more likely to have been tested for HIV than their heterosexual counterparts. CONCLUSIONS: Sexual minorities had a higher prevalence of some poor health behaviors, health outcomes, and healthcare access issues, and these disparities differed across racial groups. Further research is needed to investigate potential pathways, such as discrimination, in the social environment that may help explain the relationship between sexual orientation and health.


Cardiovascular disease is a leading cause of death in women, nevertheless it is often underestimated in female patients without overt risk factors. The chronic infection by Human Immunodeficiency Virus (HIV) is clearly associated, along with the use of certain antiretroviral drugs and traditional risk factors, with an increased risk of cardiovascular diseases. The aim of this manuscript is to review the epidemiology, risk factors, pathogenesis, diagnostic approach, primary and secondary prevention strategies of cardiovascular disease in HIV-negative and HIV-positive female subjects. The ultimate goal is to promote knowledge and development of specific and appropriate clinical interventions and guidelines in this group of high-risk patients, mostly in view of the expected growth of ageing females with HIV.
HIV chronicity has resulted in increased life expectancy for many African American women who acquired the disease during the epidemic’s peak years. As these women live longer and age, their social support needs may increase. Five focus groups were conducted in Washington, DC with 23 HIV-positive African American women aged 52–65 to explore women’s perceptions about how aging and HIV chronicity affects their social support needs. Participants were recruited from the longitudinal Women’s Interagency HIV Study (WIHS) participant pool. A constant comparison approach was applied during data analysis. Participants reported needing increased social support, especially emotional support from health care providers, family, and HIV-positive peers. The importance of providers and HIV-positive peers was discussed most frequently relative to meeting these needs. Health care providers in particular may need to increase their provision of emotional support when devising treatment plans to meet the social support needs of older HIV-positive African American women.


Purpose This paper is a conceptual discussion of the marginalisation of the voices of older lesbians, gay and bisexual (LGB) women, within the collective discourse of “older LGBT* housing”. The purpose of this paper is to critically interrogate its (in)equality implications and to consider ways in which they might be overcome. Design/methodology/approach This is a conceptual discussion that draws on the social justice model of equality developed by Nancy Fraser, specifically the domains of resources, recognition and representation. Findings The housing needs, wishes and concerns of older LGB women are often marginalised while at the same time those of older gay men are privileged. Older LGB women’s preferences for gender- and/or sexuality-specific housing are silenced within collective homogenising discourse – by researchers and activists alike – which mobilises a “mainstream” or “LGBT*-specific” binary about housing options. Research limitations/implications Research findings which do not include the voices of older lesbian, gay and bisexual women are inherently flawed. There is a need to ensure their voices – across the older age spectrum – are included. Practical implications The voices of older LGB women in relation to older age housing need to be better heard so that they can be better resourced. Social implications The marginalisation of older lesbian, gay and bisexual women’s voices in relation to older age housing has profound equality and human rights implications. Originality/value Critical discussions about the gendering of older LGBT* housing discourse are long overdue. This paper seeks to open a dialogue about these important issues. [ABSTRACT FROM AUTHOR]


Safe sexual behaviors and anti-retroviral use help prevent HIV transmission. In this cross-sectional study, we assessed correlates of anti-retroviral (ART) status and transmission risk (a constructed variable) among a convenience sample of n = 1041 HIV-positive women (pre-intervention) enrolled in an evidence-based intervention at four CBOs. Multinomial logistic regression models were used. Younger women and those diagnosed with HIV in the last 5 years more often reported that they had not been prescribed ART. Self-reported non-adherence to ART was less frequently reported among women who were older, had a higher HIV knowledge, and those with attitudes/beliefs supportive of condom use. The highest-risk transmission group (condomless sex with HIV-negative/unknown partner and not prescribed or non-adherent to ART) was associated with younger age, attitudes/beliefs less supportive of condom use, and low self-efficacy discussing condom use. Our findings inform HIV prevention efforts among similar populations of HIV-positive women enrolled in interventions at CBOs.


Women living with HIV may present with high levels of body fat that are associated with altered bioenergetic function. Excess body fat may therefore exacerbate the bioenergetic dysfunction observed with HIV infection. To determine if body fat is
associated with bioenergetic function in HIV, we conducted a cross-sectional study of 42 women with HIV who were virologically suppressed on antiretroviral therapy. Body composition was determined via dual-energy x-ray absorptiometry. Oxygen consumption rate (OCR) of monocytes was sorted from peripheral blood mononuclear cells obtained from participants in the fasting state. Differences in bioenergetic function, as measured by OCR, was assessed using Kruskal-Wallis tests and Spearman correlations adjusted for age, race, and smoking status. Participants were 86% Black, 45.5 years old, 48% current smokers, and 57% were obese (body mass index >30). Nearly all women (93%) had >30% total fat mass, while 12% had >50% total fat mass. Elevated levels of total fat mass, trunk fat, and leg fat were inversely correlated with measures of bioenergetic health as evidenced by lower maximal and reserve capacity OCR, and Bioenergetic Health Index. Measures of extracellular acidification (ECAR) in the absence (basal) or maximal (with oligomycin) were positively correlated with measures of bioenergetics, except proton leak, and were negatively correlated with fat mass. Despite virological suppression, women with HIV present with extremely high levels of adiposity that correlate with impaired bioenergetic health. Without effective interventions, this syndemic of HIV infection and obesity will likely have devastating consequences for our patients, potentially mediated through altered mitochondrial and glycolytic function.


OBJECTIVE: We assessed the relationship between positive affect and viral suppression among women with HIV infection.

METHOD: Three waves of 6-month data were analyzed from 995 women on HIV antiretroviral therapy participating in the Women’s Interagency HIV Study (10/11-3/13). The predictor variable was self-reported positive affect over 2 waves of data collection, and the outcome was suppressed viral load, defined as plasma HIV-1 RNA <200 copies/mL, measured at a third wave. RESULTS: Women with higher positive affect (36%) were more likely to have viral suppression at a subsequent wave (OR 1.92, 95% CI [1.34, 2.74]). Adjusting for covariates and their interactions, including negative affect, Wave 1 viral suppression, adherence, study site, recruitment cohort, substance use, heavy drinking, relationship status, interpersonal difficulties, and demographics, a statistically significant interaction was detected between negative affect, positive affect and viral suppression, t(965) = -2.7, p = .008. The association of positive affect and viral suppression differed at negative affect quartile values. For those reporting no negative affect, the AOR for positive affect and viral suppression was 2.41 (95% CI [1.35, 4.31]); at a negative affect score of 2, the AOR was 1.44 (95% CI [0.87, 2.36]); and at a score of 5.5, the AOR was 0.58 (95% CI [0.24, 1.42]). CONCLUSION: Our central finding related to the interaction effect, that positive affect is associated with viral control under conditions of lower negative affect, is consistent with previous theory and research with other health outcomes, and can help guide efforts to further delineate mechanisms linking affect and health. (PsycINFO Database Record


Background: Anemia in women of reproductive age (WRA) (age range: 15-49 y) remains a public health problem globally, and reducing anemia in women by 50% by 2025 is a goal of the World Health Assembly. Objective: We assessed the associations between anemia and multiple proximal risk factors (e.g., iron and vitamin A deficiencies, inflammation, malaria, and body mass index) and distal risk factors (e.g., education status, household sanitation and hygiene, and urban or rural residence) in nonpregnant WRA. Design: Cross-sectional, nationally representative data from 10 surveys (n = 27,018) from the Biomarkers Reflecting Inflammation and Nutritional Determinants of Anemia (BRINDA) project were analyzed individually and pooled by the infection burden and risk in the country. We examined the severity of anemia and measured the bivariate associations between anemia and factors at the country level and by infection burden, which we classified with the use of the national prevalences of malaria, HIV, schistosomiasis, sanitation, and water-quality indicators. Pooled multivariate logistic regression models were constructed for each infection-burden category to identify independent determinants of anemia (hemoglobin concentration <120 g/L). Results: Anemia prevalence was approximately 40% in countries with a high infection burden and 12% and 7% in countries with moderate and low infection burdens, respectively. Iron deficiency was consistently associated with anemia in multivariate models, but the proportion of anemic women who were iron deficient was considerably lower in the high-infection group (35%) than in the moderate- and low-infection groups (65% and 71%, respectively). In the multivariate analysis, inflammation, vitamin A insufficiency, socioeconomic status, and age were also significantly associated with anemia, but malaria and vitamin B-12 and folate deficiencies were not. Conclusions: The contribution of iron deficiency to anemia varies according to a country’s infection burden. Anemia-reduction
programs for WRA can be improved by considering the underlying infection burden of the population and by assessing the overlap of micronutrient deficiencies and anemia.


HIV-infected pregnant women in sub-Saharan Africa are at risk for depression and alcohol abuse. Young women may be more vulnerable, but little is known about the psychosocial functioning of this population. We compared younger (18-24 years old) and older (>/=25 years old) HIV-infected pregnant women initiating antiretroviral therapy (ART) in Cape Town, South Africa. Women were assessed on a range of psychosocial measures, including the Alcohol Use Disorders Identification Test and the Edinburgh Postnatal Depression Scale (EPDS). Among 625 women initiating ART, 16 % reported risky alcohol use and 21 % alcohol-related harm; these percentages were similar across age groups. When younger women were stratified by age, 37 % of 18-21 years old versus 20 % of 22-24 years old reported alcohol-related harm (p = 0.02). Overall, 11 % of women had EPDS scores suggesting probable depression, and 6 % reported self-harming thoughts. Younger women reported more depressive symptoms. Report of self-harming thoughts was 11 % in younger and 4 % in older women (p = 0.002). In multivariable analysis, age remained significantly associated with depressive symptoms and report of self-harming thoughts. Level of HIV-related stigma and report of intimate partner violence modified the association between age and depressive symptoms. Young HIV-infected pregnant women in South Africa were more likely to report depressive symptoms and self-harming thoughts compared to older women, and the youngest women reported the highest levels of alcohol-related harm. HIV-related stigma and intimate partner violence may be moderating factors. These findings have implications for maternal and infant health, underscoring the urgent need for effective targeted interventions in this vulnerable population.


BACKGROUND: Women's under-representation in HIV and cardiovascular disease (CVD) research suggests a need for novel strategies to ensure robust representation of women in HIV-associated CVD research. OBJECTIVE: To elicit perspectives on CVD research participation among a community-sample of women with or at risk for HIV, and to apply acquired insights toward the development of an evidence-based campaign empowering older women with HIV to participate in a large-scale CVD prevention trial. METHODS: In a community-based setting, we surveyed 40 women with or at risk for HIV about factors which might facilitate or impede engagement in CVD research. We applied insights derived from these surveys into the development of the Follow YOUR Heart campaign, educating women about HIV-associated CVD and empowering them to learn more about a multi-site HIV-associated CVD prevention trial: REPRIEVE. RESULTS: Endorsed best methods for learning about a CVD research study included peer-to-peer communication (54%), provider communication (46%) and video-based communication (39%). Top endorsed non-monetary reasons for participating in research related to gaining information (63%) and helping others (47%). Top endorsed reasons for not participating related to lack of knowledge about studies (29%) and lack of request to participate (29%). Based on survey results, the REPRIEVE Follow YOUR Heart campaign was developed. Interwoven campaign components (print materials, video, web presence) offer provider-based information/knowledge, peer-to-peer communication, and empowerment to learn more. Campaign components reflect women's self-identified motivations for research participation - education and altruism. CONCLUSIONS: Investigation of factors influencing women’s participation in HIV-associated CVD research may be usefully applied to develop evidence-based strategies for enhancing women's enrollment in disease-specific large-scale trials. If proven efficacious, such strategies may enhance conduct of large-scale research studies across disciplines.

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Background: While in its early years the HIV epidemic affected primarily the male and the young, nowadays, the population living with HIV/AIDS is approximately 24% women, and its age composition has shifted towards older ages. Many of the older women who live with HIV/AIDS also live with the medical and social conditions that accompany aging. This work aims to identify and characterize empirical studies of strategies for the comprehensive management of women over 40, including transgender women, who live with HIV/AIDS. Forty was chosen as an operational age cutoff to identify premenopausal women who are less likely to bear children, as well as peri- and postmenopausal women. Methods: We conducted a literature search after discussions with a diverse panel of content experts and other stakeholders and developed an evidence map that identified 890 citations that address questions having to do with programs and barriers to engaging with programs, as well as the role of insurance and comorbidities, and have enrolled older women who live with HIV/AIDS. Results: Of these, only 37 (4%) reported results of interest for women over 40 who live with HIV/AIDS, or examined interactions between gender and older age that would allow predictions in this subgroup. Few of the 37 eligible studies focused on women facing obvious challenges, such as immigrants, transgender, physically abused, or those recently released from prison. No studies focused on women caring for dependents, including children and grandchildren, or those diagnosed after age 40. Conclusion: The evidence base that is directly applicable to women over 40 who live with HIV/AIDS in the USA is limited, and the research need is broad. We propose research prioritization strategies for this population. [ABSTRACT FROM AUTHOR]


The prevalence of depression among women living with HIV/AIDS is elevated, compared with women in the general population and men diagnosed with HIV/AIDS. Although symptoms of HIV may overlap with somatic symptoms of depression, little research has explored how well screening tools accurately assess depression rather than symptoms of HIV/AIDS among women. The present study examined the utility of a widely used tool for assessing depression symptoms among women living with HIV/AIDS. Data are from the Women’s Interagency HIV Study (WIHS), a multisite, longitudinal cohort study of women living with HIV/AIDS (n = 1,329) and seronegative women (n = 541) matched on key risk factors for HIV/AIDS. Confirmatory factor analysis-based measurement invariance tests of the Center for Epidemiologic Studies Depression Scale (CES-D) were conducted to determine whether women with HIV and those without HIV responded to the scale similarly. Results supported measurement invariance of CES-D scores. Findings suggest that the CES-D can be used to assess for burden of depression symptoms among women diagnosed with HIV/AIDS. (PsycINFO Database Record


Older adults have been largely overlooked in community studies of HIV in highly endemic African countries. In our rural study site in Mpumalanga Province, South Africa, HIV prevalence among those aged 50 and older is 16.5%, suggesting that older adults are at risk of both acquiring and transmitting HIV. This paper utilises community-based focus-group interviews with older rural South African men and women to better understand the normative environment in which they come to understand and make decisions about their health as they age in an HIV endemic setting. We analyse the dimensions of an inductively emerging theme: kuti hlayisa (to take care of yourself). For older adults, 'taking care' in an age of AIDS represented: (1) an individualised pathway to achieving old-age respectability through the taking up of responsibilities and behaviours that characterise being an older person, (2) a set of gendered norms and strategies for reducing one's HIV risk, and (3) a shared responsibility for attenuating the impact of the HIV epidemic in the local community. Findings reflect the individual, interdependent and communal ways in which older rural South Africans understand HIV risk and prevention, ways that also map onto current epidemiological thinking for improving HIV-related outcomes in high-prevalence settings.

HIV-infected patients show high risk of fracture. The aims of our study were to determine the prevalence of vertebral fractures (VFs) and their associations with vitamin D in HIV patients. 100 patients with HIV infection and 100 healthy age- and sex-matched controls were studied. Bone mineral density was measured by quantitative ultrasound at the non-dominant heel. Serum osteocalcin and C-terminal telopeptide of collagen type 1 served as bone turnover markers. Bone ultrasound measurements were significantly lower in patients compared with controls (Stiffness Index (SI): 80.58 ± 19.95% vs. 93.80 ± 7.10%, respectively, p < 0.001). VFs were found in 16 patients and in 2 controls. HIV patients with vertebral fractures showed lower stiffness index (SI) (70.75 ± 10.63 vs. 83.36 ± 16.19, respectively, p = 0.045) and lower vitamin D levels (16.20 ± 5.62 vs. 28.14 ± 11.94, respectively, p < 0.02). The majority of VFs (87.5%) were observed in HIV-infected patients with vitamin D insufficiency, and regression analysis showed that vitamin D insufficiency was significantly associated with vertebral fractures (OR 9.15; 95% CI 0.18-0.52, p < 0.04). VFs and are a frequent occurrence in HIV-infected patients and may be associated with vitamin D insufficiency. [ABSTRACT FROM AUTHOR]


Background: Increasing alcohol use is associated with increased risk of mortality among patients living with HIV (PLWH). This association varies by race/ethnicity among general outpatients, but racial/ethnic variation has not been investigated among PLWH, among whom racial/ethnic minorities are disproportionately represented.; Methods: VA electronic health record data from the Veterans Aging Cohort Study (2008-2012) were used to describe and compare mortality rates across race/ethnicity and levels of alcohol use defined by the Alcohol Use Disorders Identification Test-Consumption (AUDIT-C) questionnaire. Within each racial/ethnic group, Cox proportional hazards models, adjusted for age, disease severity, and comorbidities, compared mortality risk for moderate-risk (AUDIT-C = 4-7) and high-risk (AUDIT-C ≥ 8) relative to lower-risk (AUDIT-C = 1-3) alcohol use.; Results: Mean follow-up time among black (n = 8518), Hispanic (n = 1353), and white (n = 7368) male PLWH with documented AUDIT-C screening (n = 17,239) was 4.3 years. Black PLWH had the highest mortality rate among patients reporting lower-risk alcohol use (2.9/100 person-years) relative to Hispanic and white PLWH (1.8 and 2.3, respectively) (p value for overall comparison = 0.011). Mortality risk was increased for patients reporting high-risk relative to lower-risk alcohol use in all racial/ethnic groups [black adjusted hazard ratio (AHR) = 1.36, 95% confidence interval (CI) 1.12-1.66; Hispanic AHR = 2.18, 95% CI 1.30-3.64; and white AHR = 2.04, 95% CI 1.61-2.58]. For only white PLWH, mortality risk was increased for patients reporting moderate-relative to lower-risk alcohol use (black AHR = 1.09, 95% CI 0.93-1.27; Hispanic AHR = 1.36, 95% CI 0.89-2.09; white AHR = 1.51, 95% CI 1.28-1.77).; Conclusion: Among all PLWH, mortality risk was increased among patients reporting high-risk alcohol use across all racial/ethnic groups, but mortality risk was only increased among patients reporting moderate-risk relative to lower-risk alcohol use among white PLWH, and black patients appeared to have higher mortality risk relative to white patients at lower-risk levels of alcohol use. Findings of the present study further underscore the need to address unhealthy alcohol use among PLWH, and future research is needed to understand mechanisms underlying observed differences.;


Persons living with HIV/AIDS (PLHIV) are able to live full lifespans after infection, however, rates of anxiety disorders among this population are elevated compared to national samples. Importantly, these anxiety symptoms and disorders have a negative effect on medication adherence, quality of life and other psychological disorders, such as depression. In order to reduce the impact of anxiety among PLHIV, a six-session transdiagnostic CBT-based treatment manual for anxiety among PLHIV named the HIV/Anxiety Management-Reduction Treatment (HAMRT) was developed and implemented. The current manuscript discusses the content of this manual as well as results from three cases examining the impact of HAMRT. Results indicated that HAMRT was effective in reducing symptoms of anxiety, anxiety sensitivity, depression, and negative affect among our sample. Additionally, results indicated that HAMRT was effective in increasing HIV medication adherence as well as quality of life. Results are discussed in terms of the potential utility of an anxiety-reduction therapy program aimed at increasing medication adherence among PLHIV.
A six-session CBT-based transdiagnostic anxiety treatment was administered to three persons living with HIV. Persons receiving treatment showed decreases in anxiety symptoms, anxiety sensitivity, depression symptoms, and negative affect. Persons receiving treatment showed increases in HIV medication adherence and quality of life.


BACKGROUND: The differential effects of commonly prescribed combined antiretroviral therapy (cART) regimens on AIDS-defining neurological conditions (neuroAIDS) remain unknown. SETTING: Prospective cohort studies of HIV-positive individuals from Europe and the Americas included in the HIV-CAUSAL Collaboration. METHODS: Individuals who initiated a first-line cART regimen in 2004 or later containing a nucleoside reverse transcriptase inhibitor backbone and either atazanavir, lopinavir, darunavir, or efavirenz were followed from cART initiation until death, lost to follow-up, pregnancy, the cohort-specific administrative end of follow-up, or the event of interest, whichever occurred earliest. We evaluated 4 neuroAIDS conditions: HIV dementia and the opportunistic infections toxoplasmosis, cryptococcal meningitis, and progressive multifocal leukoencephalopathy. For each outcome, we estimated hazard ratios for atazanavir, lopinavir, and darunavir compared with efavirenz via a pooled logistic model. Our models were adjusted for baseline demographic and clinical characteristics. RESULTS: Twenty six thousand one hundred seventy-two individuals initiated efavirenz, 5858 initiated atazanavir, 8479 initiated lopinavir, and 4799 initiated darunavir. Compared with efavirenz, the adjusted HIV dementia hazard ratios (95% confidence intervals) were 1.72 (1.00 to 2.96) for atazanavir, 2.21 (1.38 to 3.54) for lopinavir, and 1.41 (0.61 to 3.24) for darunavir. The respective hazard ratios (95% confidence intervals) for the combined end point were 1.18 (0.74 to 1.88) for atazanavir, 1.61 (1.14 to 2.27) for lopinavir, and 1.36 (0.74 to 2.48) for darunavir. The results varied in subsets defined by calendar year, nucleoside reverse transcriptase inhibitor backbone, and age. CONCLUSION: Our results are consistent with an increased risk of neuroAIDS after initiating lopinavir compared with efavirenz, but temporal changes in prescribing trends and confounding by indication could explain our findings.


The use of recreational drugs while having sex is associated with increased HIV incidence among men who have sex with men (MSM). Taking a daily antiretroviral pill, or pre-exposure prophylaxis (PrEP) is a biomedical intervention to prevent HIV. However, the efficacy of PrEP is closely tied with high levels of adherence. While PrEP has the potential to reduce HIV acquisition, the use of recreational drugs may impede adherence. We explored perceptions of PrEP utilization and regimen preferences among 40 HIV-negative, MSM who reported concurrent recreational drug use and condomless anal sex with a man. Semi-structured qualitative interviews were conducted and the data were analyzed using a qualitative descriptive approach. Participants perceived that it would be challenging to take PrEP while high on crystal meth, crack, powder cocaine, ecstasy and/or GHB. However, men identified strategies for using PrEP when they were not high on these drugs, including taking the pill when they started their day and integrating PrEP into an established routine, such as when taking other medications or preparing for sex. PrEP regimen preferences seemed to be shaped by the frequency in which participants used drugs and their ability to plan for sex. Taking PrEP everyday was appealing for those who regularly engaged in sexualized recreational drug use. Accounts depict these sexual interactions as frequent but unpredictable. A daily regimen would allow them to be prepared for sex without having to plan. An event-driven regimen was acceptable to men who occasionally used recreational drugs in the context of sex. For this group, sex usually occurred was generally prearranged. Patterns of sex and recreational drug use figured largely into participants’ framings of how they would use PrEP. These behaviors will likely play a role in the uptake of and adherence to PrEP among this population.


An emerging paradigm in immunology suggests that metabolic reprogramming and immune cell activation and functions are intricately linked. Viral infections, such as HIV infection, as well as cancer force immune cells to undergo major metabolic challenges. Cells must divert energy resources in order to mount an effective immune response. However, the fact that immune cells adopt specific metabolic programs to provide host defense against intracellular pathogens and how this metabolic shift impacts
immune cell functions and the natural course of diseases have only recently been appreciated. A clearer insight into how these processes are inter-related will affect our understanding of several fundamental aspects of HIV persistence. Even in patients with long-term use of anti-retroviral therapies, HIV infection persists and continues to cause chronic immune activation and inflammation, ongoing and cumulative damage to multiple organs systems, and a reduction in life expectancy. HIV-associated fundamental changes to the metabolic machinery of the immune system can promote a state of “inflammaging”, a chronic, low-grade inflammation with specific immune changes that characterize aging, and can also contribute to the persistence of HIV in its reservoirs. In this commentary, we will bring into focus evolving concepts on how HIV modulates the metabolic machinery of immune cells in order to persist in reservoirs and how metabolic reprogramming facilitates a chronic state of inflammation that underlies the development of age-related comorbidities. We will discuss how immunometabolism is facilitating the changing paradigms in HIV cure research and outline the novel therapeutic opportunities for preventing inflammaging and premature development of age-related conditions in HIV+ individuals.


•The epigenetic clock DNA methylation signature has outperformed other biomarkers in predicting age. •Age associated DNA methylation drift is highly conserved across mammalian species. •Epigenetic clock acceleration promotes lifestyle diseases and mortality risk. •Epigenetic clock acceleration is associated with mitochondrial DNA copy number but not with telomere length. •Lifestyle interventions are developed to extend healthy lifespan by slowing down the epigenetic clock progression.

Aging is the most important risk factor for major human lifestyle diseases, including cancer, neurological and cardiometabolic disorders. Due to the complex interplay between genetics, lifestyle and environmental factors, some individuals seem to age faster than others, whereas centenarians seem to have a slower aging process. Therefore, a biochemical biomarker reflecting the relative biological age would be helpful to predict an individual’s health status and aging disease risk. Although it is already known for years that cumulative epigenetic changes occur upon aging, DNA methylation patterns were only recently used to construct an epigenetic clock predictor for biological age, which is a measure of how well your body functions compared to your chronological age. Moreover, the epigenetic DNA methylation clock signature is increasingly applied as a biomarker to estimate aging disease susceptibility and mortality risk. Finally, the epigenetic clock signature could be used as a lifestyle management tool to monitor healthy aging, to evaluate preventive interventions against chronic aging disorders and to extend healthy lifespan. Dissecting the mechanism of the epigenetic aging clock will yield valuable insights into the aging process and how it can be manipulated to improve health span.


PURPOSE OF REVIEW: The purpose of this article is to review age-associated alterations in microbiota composition, diversity and functional features in context of immune senescence, chronic inflammation and comorbidities associated with HIV infection. The overall goal is to assess whether modulating the microbiome will likely improve resilience of the immune system and augment return to health. RECENT FINDINGS: Alteration in the gut microbiota composition diversity and function occur in HIV and aging. Importantly, butyrate producing bacteria are reduced in both HIV and aging individuals. There is increasing relevance of studying metabolomics in the context of HIV-associated non-AIDS comorbidities and aging. Interventional prospects of probiotics, prebiotics and fecal microbiota transplantation in HIV and aging will provide novel therapeutic approaches. SUMMARY: Increasing evidence suggests a significant link in changes in the composition, diversity and functional aspects of intestinal microbiome with normal aging and HIV infection. Data on association of metabolites produced by the microbiome with HIV-associated non-AIDS comorbidities is mounting. The impact of the microbiome alterations on inflammation, immune and organ senescence and mechanisms by which bio-behavioral pathways will exacerbate these outcomes needs to be further evaluated.

We examined the prevalence of sex with older male partner (SWOMP) and its association with condomless anal intercourse (CAI) with male partners and unrecognized HIV infection among young men who have sex with men (MSM) in Shanghai, China. The analytic sample included 243 MSM who were 18-45 years and HIV negative or of unknown HIV serostatus. Older male partner refers to male sex partner who was at least 10 years older than themselves. Overall, 99 (43.0%) and 50 (20.7%) reported having SWOMP in lifetime and in the last 3 months, respectively. Having any CAI with male partners in the last 3 months was independently associated with SWOMP and sex with stable male partners in the last 3 months. Unrecognized HIV infection was independently associated with being HSV-2 positive and having any CAI with male partners as well as SWOMP in last 3 months. Sex with stable male partner in the last 3 months was also marginally significantly associated with unrecognized infection (p = 0.084). Older partner selection is common among young MSM in China. Prevention programs should incorporate education messages about the HIV risk associated with SWOMP. MSM should be informed that having condomless sex with stable partners may place them at HIV risk.


The National Institutes of Health human immunodeficiency virus (HIV) and Aging Working Group identified spirituality as a research emphasis. This qualitative study examines the importance of religion and spirituality among 30 HIV-positive older adults. Using modified grounded theory, adults 50+ were recruited in Ontario, Canada, through AIDS service organizations, clinics, and community agencies. Descriptions of religion and spirituality encapsulated the idea of a journey, which had two components: the long-term HIV survivor profile combined with the experience of aging itself. A final category of HIV as a spiritual journey was finalized through consensus and included the properties of (1) being rejected by as well as rejection of formalized religion, (2) differentiating spirituality from religion, (3) having a connection, (4) feeling grateful, and (5) mindfulness and learning new skills. Interventions fostering resilience and strengths in HIV-positive older adults using spirituality should be considered, including the promotion of person-centered spirituality and interventions that include mindfulness and skill building. ABSTRACT FROM AUTHOR


Background: Initial declines in bone mineral density (BMD) after antiretroviral therapy initiation in HIV are well described, but data on long-term changes and risk factors for decline, particularly among women, are limited. Methods: HIV-infected men and women in the Modena Metabolic Clinic underwent dual-energy X-ray absorptiometry (DXA) scans every 6-12 months for up to 10 years (median 4.6 years). Mixed effect regression models in combined and sex-stratified models determined annual rates of decline and clinical factors associated with BMD. Models included demographics, HIV-specific factors, and bone-specific factors; a final model added a sex · time interaction term. Results: A total of 839 women and 1759 men contributed ≥2 DXA scans. The majority (82%) were 50 years and younger; 76% had HIV-1 RNA ≤ 50 copies per milliliter at baseline; 15% of women were postmenopausal and 7% of men had hypogonadism; and 30% and 27%, respectively, had hepatitis C virus (HCV) coinfection. The adjusted slopes in BMD among women and men were significantly different at both the femoral neck (women 20.00897 versus men 20.00422 g/cm² per year (P < 0.001) and L-spine (women 20.0127 versus men 20.0076 g/cm² per year (P < 0.001). Modifiable risks associated with BMD decline included antiretroviral therapy exposure (greater decline with tenofovir disoproxil fumarate and less decline with integrase strand transfer inhibitor therapy), HCV, physical activity, and vitamin D insufficiency. Conclusions: Among HIV-infected individuals, bone density at the femoral neck, a significant predictor of fracture risk, declined twice as quickly among women compared with men. Female sex was independently associated with both lower femoral neck and lumbar BMD over time in adjusted models. [ABSTRACT FROM AUTHOR]


Background: Unhealthy alcohol use may be particularly detrimental among individuals living with HIV and/or hepatitis C virus (HCV), and is often under-reported. Direct biomarkers of alcohol exposure may facilitate improved detection of alcohol use.

Methods: We evaluated the association of alcohol exposure determined by both self-report [Alcohol Use Disorders Identification Test-Consumption (AUDIT-C)] and a direct biomarker [phosphatidylethanol (PEth)], with mortality among HIV-infected and HIV-uninfected in the Veterans Aging Cohort Study-Biomarker Cohort. We considered PEth <8 ng/mL to represent no alcohol use. Alcohol exposure by AUDIT-C scores [0, 1-3/1-2 (men/women), 4-7/3-7 (men/women), 8-12] and PEth (<8, ≥8) was combined into categories to model the relationship of alcohol with mortality. Participants were followed from blood collection date for 5 years or until death within 5 years. Results: The sample included 2344 (1513 HIV+; 831 uninfected) individuals, 95% men. During a median follow-up of 5 years, 13% died. Overall, 36% were infected with HCV (40% HIV+/HCV+, 27% HIV-/HCV+). Overall, 43% (1015/2344) had AUDIT-C = 0 (abstinence). Of these, 15% (149/1015) had PEth ≥8 suggesting recent alcohol exposure. Among those with AUDIT-C = 0, HCV+ individuals were more likely to have PEth ≥8. After controlling for age, sex, race, HIV, HCV, and HIV viral suppression, those with AUDIT-C = 0 but PEth ≥8 had the highest risk of mortality (adjusted hazard ratio 2.15, 95% confidence interval: 1.40 to 3.29). Conclusions: PEth in addition to self-report may improve detection of alcohol use in clinical settings, particularly among those at increased risk of harm from alcohol use. Individuals infected with HCV were more likely to under-report alcohol use.


INTRODUCTION: Despite major progress in controlling HIV disease through antiretroviral therapy, changes in immune phenotype and function persist in individuals with chronic HIV, raising questions about accelerated aging of the immune system.

METHODS: We conducted a cross-sectional study (2005-2007) of HIV-infected (n = 111) and uninfected (n = 114) men from the Veterans Aging Cohort Study. All HIV-infected subjects were on antiretroviral therapy with VL <400 copies/mL for at least 3 years. T-cell markers were examined using flow cytometry. We evaluated the impact of HIV serostatus and age on T-cell phenotypes (expressed as percentages of the total CD4 and CD8 T-cell population) using multivariate linear regression, adjusted for smoking, alcohol, and race/ethnicity. We tested for interactions between HIV and age by including interaction terms. RESULTS: Among both HIV-infected and uninfected subjects, increasing age was associated with a decreased proportion of naive CD4 T cells (P = 0.014) and CD8 T cells (P < 0.0001). Both HIV infection and increasing age were associated with higher proportions of effector memory CD4 T cells (P < 0.0001 for HIV; P = 0.04 for age) and CD8 T cells (P = 0.0001 for HIV; P = 0.0004 for age). HIV infection, but not age, was associated with a higher proportion of activated CD8 T cells (P < 0.0001). For all T-cell subsets tested, there were no significant interactions between HIV infection and age. CONCLUSIONS: Age and HIV status independently altered the immune system, but we found no conclusive evidence that HIV infection and advancing age synergistically result in accelerated changes in age-associated T-cell markers among virally suppressed individuals.


OBJECTIVES: To inform the development of HIV care strategies for older women with HIV infection, an understudied group, we compared the psychosocial, behavioral, and clinical characteristics of HIV-positive women aged >/=50 (older women) with those aged 18-49 (younger women). METHODS: We examined factors among HIV-positive women in care using data from the 2009 through 2013 cycles of a nationally representative sample of HIV-positive adults in care (Medical Monitoring Project). We compared psychosocial, clinical, and behavioral factors among women aged >/=50 years at interview versus those aged <50 years. We calculated weighted frequency estimates and performed logistic regression to compute adjusted prevalence ratios (aPR) and 95% confidence intervals (CIs) for the comparison of characteristics among women aged >/=50 versus <50 years. RESULTS: Of 22,145 participants, 6186 were women; 40.7% (CI 39.1-42.3) were >/=50 years, and 32.7% of older women reported being sexually active. Compared with women <50 years, women aged >/=50 years were more likely to be dose adherent (aPR = 1.19; CI 1.07-1.33), prescribed antiretroviral therapy and have sustained viral load suppression (aPR = 1.03; CI 1.00-1.18), and were less likely to report any depression (aPR = 0.92; CI 0.86-0.99), to report condomless sex with a negative or unknown partner if sexually active (aPR = 0.56; CI 0.48-0.67), and to have received HIV/sexually transmitted infection (STI) prevention counseling from a healthcare provider (aPR = 0.82; CI 0.76-0.88). CONCLUSIONS: These data suggest that older women in HIV care have more favorable outcomes in some clinical areas, but may warrant increased HIV/STI prevention counseling from their care providers, especially if sexually active.

Purpose Of Review: As a consequence of antiretroviral therapy, the proportion of older HIV-infected adults is increasing, with a concomitant shift in burden of illness to age-related syndromes and disease. Frailty is an age-related syndrome of increased vulnerability to stress, predictive of major adverse clinical outcomes among HIV-infected and uninfected persons alike. Understanding frailty pathogenesis is critical to developing interventions to improve health outcomes in HIV. Here, we review the current evidence for the relationship between inflammation and frailty in HIV, and the potential for novel, inflammation-targeted interventions.; Recent Findings: Dysregulated inflammation has been consistently associated with frailty in elderly HIV-uninfected persons. Dysregulated inflammation is also central to HIV pathophysiology and several recent studies have demonstrated the important association of inflammation with frailty in HIV. Some evidence suggests that anti-inflammatory therapies may be effective in ameliorating the adverse impact of frailty among aging HIV-infected adults, though further investigation is necessary. Inflammation has been implicated in frailty in HIV infection, and improved understanding of the role that inflammation plays in frailty pathogenesis is key to the development of effective therapies to slow or prevent frailty in the vulnerable HIV-infected population.;


Awareness of Pre-exposure prophylaxis (PrEP) was assessed among a cohort of substance-using black men who have sex with men and transgender women (MSM/TGW) participating in the STAR Study, which recruited black MSM/TGW in New York City for HIV testing and linked HIV-infected individuals into care from July 2012 to April 2015. Sociodemographic, psychosocial, known HIV risk factors, and PrEP awareness were assessed among participants. Multivariable logistic regression was conducted to assess factors associated with PrEP awareness. Of 1673 participants, median age was 43 years and 25% were under age 30. Most participants (85.8%) reported having insufficient income for basic necessities at least occasionally, 54.8% were homeless, and 71.3% were unemployed. Awareness of PrEP was reported among 18.2% of participants. PrEP awareness was associated with younger age (adjusted odds ratio [aOR] 0.87, per 5 years), gay identity (aOR 2.46), higher education (aOR 1.70), more frequent past HIV testing (aOR 3.18), less HIV stigma (aOR 0.61), less hazardous/harmful alcohol use (aOR 0.61), and more sexual partners (aOR 1.04, per additional partner in past 30 days). In this substance-using black MSM/TGW cohort with high rates of poverty and homelessness, PrEP awareness was low. This study demonstrates the need for targeted dissemination of PrEP information to key populations to increase awareness and ultimately improve uptake and utilization of PrEP.


This review article addresses end-of-life care issues characterizing human immunodeficiency virus progression by delineating associated stages of medical and nursing care. The initial progression from primary medical and nursing care aimed at functional cure to palliative care is discussed. This transition is considered in accord with the major symptoms experienced, including fatigue, pain, insomnia; decreased libido, hypogonadism, memory, and concentration; depression; and distorted body image. From the stage of palliative care, progression is delineated onward through the stages of hospice care, death and dying, and the subsequent bereavement process.


AbstractObjectives:In Belgium, eleven AIDS Reference Centers (ARCs) and seven AIDS Reference Laboratories diagnose and treat HIV-positive individuals and track patients under care. As AIDS-related deaths are avoided and the HIV-positive population ages, non-infectious comorbidities (NICMs), such as cardiovascular disease, renal disease and certain cancers, play a larger role in the quality and length of patients' lives. This study aims to characterize the HIV-positive population in Belgium in terms of the prevalence of key NICMs.Methods:We performed a retrospective study of 5787 HIV-positive patients under follow-up at four ARCs...
across Belgium between 1st of June 2014 and 1st of July 2016. Results: The mean age of patients under follow-up was 46.7 (SD = 11.6) years, and the mean nadir CD4 count was 268.8 cells/mm3 (SD = 189.5). The prevalence of diabetes mellitus, arterial hypertension and chronic kidney disease (CKD) were 5.9, 31 and 7.8%, respectively. Cardiovascular events, defined as the occurrence of myocardial infarction, stroke or an invasive coronary procedure, occurred in 2.9% of patients. The highest age-adjusted mortality rates were observed among patients 51–55 years of age. Mortality rates were also higher among patients with CKD and patients with viremic hepatitis C virus (p < 0.05). Conclusions: Helping the aging HIV-positive population avoids premature morbidity and mortality from NICMs represents a key challenge to further improve patient outcomes. Belgium has an advanced system of HIV care and patient management; however, standardized data collection across ARCs is needed to improve knowledge sharing and to support future countrywide analyses.


BACKGROUND: To compare retinal vascular measurements, biomarkers of cerebral small vessel disease, in HIV-positive men aged 50 years and older with similarly aged HIV-negative men and younger HIV-positive men. METHODS: We recruited white, non-diabetic men into a cross-sectional substudy of a larger cohort including 3 demographically matched groups. Optic disc-centered 45-degree color fundus photographs were used to calculate central retinal arterial and venous caliber and the arterial-venous ratio (AVR). We used univariate and multivariable linear regression to compare retinal vessel measurements in the 3 groups and to identify factors associated with AVR. RESULTS: All HIV-positive men were virologically suppressed. In a multivariable model, study group was not associated with AVR [adjusted beta 0.010 for HIV-positive men <50 (n = 39) compared with HIV-positive men aged >/=50 years (n = 120), 95% confidence interval [CI] -0.018 to 0.038, P = 0.47; adjusted beta 0.00002 for HIV-negative men >/=50 years (n = 52), 95% CI -0.022 to 0.022, P = 0.99]. Factors associated with lower AVR were systolic blood pressure (adjusted beta -0.009 per +10 mm Hg, 95% CI -0.015 to -0.003, P = 0.002), history of stroke or transient ischemic attack (adjusted beta -0.070, 95% CI -0.12 to -0.015, P = 0.01), and recent recreational drug use (adjusted beta -0.037, 95% CI -0.057 to -0.018, P = 0.0002). CONCLUSIONS: There were no differences in retinal vascular indices between HIV-positive men aged >/=50 years and HIV-negative men aged >/=50 years or HIV-positive men aged <50 years, suggesting that HIV is not associated with an increased burden of cerebral small vessel disease.


Background: Despite the growing population of older adults living with human immunodeficiency virus/ acquired immune deficiency syndrome (HIV/AIDS), few studies have examined this population in terms of timing of HIV diagnosis. This study explores resilience and protective factors among HIV-positive older adults, 17 of whom were diagnosed prior to the development of highly active antiretroviral therapy (HAART), and 13 of whom were diagnosed after the development of HAART. Methods: We explored the concepts of resilience and protective factors in 30 older adults living with HIV in Ontario, Canada. A qualitative approach was used to conduct in-depth interviews and grounded theory techniques were used to analyze the interview transcripts. Results: Having lived with HIV for nearly 30 years, the pre-HAART group had developed more personal strategies for enhancing resilience, including self-care behaviors. They were more regimented and dedicated to their daily health, and were more engaged in their medical care as opposed to the post-HAART group who viewed self-care as staying adherent and refraining from risky health behaviors. Implications: Although HAART has radically changed the prognosis of HIV, we have limited information about the differences between those who were diagnosed before and after the development of HAART. We will present recommendations for addressing previous trauma and improving self-care. [ABSTRACT FROM PUBLISHER]

**Introduction:** Drug adherence has been a recurring issue in the field of HIV treatment, and low treatment adherence is typically associated with emergence of drug resistance, treatment failure and increased risks of transmission. Injectable antiretroviral drugs offer a unique opportunity to counter this issue for the treatment of HIV-positive individuals. In addition, injectables offer a remarkable opportunity to reduce new HIV infections, if applied in the context of both treatment-as-prevention and pre-exposure prophylaxis. Areas covered: Researchers and drug companies are developing long-acting agents that possess long biological half-life and excellent pharmacokinetic profiles that can be administered intramuscularly, intravenously, or subcutaneously. These long-acting injectables are categorized as drugs that target different steps of HIV replication cycle or monoclonal antibodies that target HIV entry. Expert commentary: Injectable agents against HIV have the potential to revolutionize the fight against HIV by facilitating both treatment and prevention in a wide variety of clinical settings. Several challenges remain including the identification of potent two-drug combinations of drugs that can be formulated as injectables, and thorough drug-drug interaction studies with a broad variety of medications. Finally we believe that the healthcare benefits of injectables will require regulatory changes to allow self-injection before they reach their full potential. [ABSTRACT FROM AUTHOR]


**Purpose Of Review:** Human immunodeficiency virus (HIV)-associated nephropathy (HIVAN) was identified as the major renal manifestation of HIV infection early in the HIV epidemic. However, HIV infection now is associated with a different spectrum of renal lesions leading to chronic kidney disease. This review examines the changes in kidney injury occurring in the current HIV era and the factors involved in this transformation of disease expression.; **Recent Findings:** The incidence of HIVAN and opportunistic infections in HIV-infected individuals has declined in concert with the use of effective combination antiretroviral agents. Chronic kidney disease has become more prevalent as patients infected with HIV are living longer and developing non-HIV-associated diseases such as hypertension and diabetes. Additionally, noncollapsing focal and segmental glomerulosclerosis, co-infection with hepatitis C, HIV-associated immune complex kidney disease, HIV-related accelerated aging, and antiretroviral therapies contribute to progressive loss of renal function.; **Summary:** HIV infection is now associated with a variety of renal lesions causing chronic kidney disease, not all of which are virally induced. It is important to determine the cause of renal functional decline in an HIV-infected patient, as this will impact patient management and prognosis.;


Subjective wellbeing was examined amongst 274 adults living with HIV in Australia and the United States of America. There were 164 adults aged 49 years and under, and 110 adults aged 50 years and over. Participants completed a composite questionnaire comprising the Personal Wellbeing Index-Adult (PWI-A), the HIV-Unsupportive Social Interactions Inventory (USII), and demographic and health-related items. Participants reported mean PWI-A scores of 54.7 points, considerably below the Western population normative range of 70–80 points. Older adults reported significantly greater subjective wellbeing compared to younger adults, but still below the normative range. Experiences of unsupportive social interactions were a significant predictor of reduced subjective wellbeing amongst all participants. Qualitative comments provided a greater understanding of the characteristics and psychological devices that enable some older adults to maintain and/or increase subjective wellbeing, even in the face of negative stressors such as unsupportive social interactions. This provides valuable information for service providers and clinicians as HIV increasingly becomes recognised as a disease affecting older adults in developed nations. Rather than positioning the ageing HIV-population as a potential burden, it is proposed that learning more about the coping mechanisms employed by older adults with HIV could prove beneficial for the HIV-population as a whole. [ABSTRACT FROM PUBLISHER]

Introduction: Interleukin (IL)-18 is involved in regulation of lipid and glucose metabolism. Mice lacking whole-body IL-18 signalling are prone to develop weight gain and insulin resistance, a phenotype which is associated with impaired fat oxidation and ectopic skeletal muscle lipid deposition. IL-18 mRNA is expressed in human skeletal muscle but a role for IL-18 in muscle has not been identified. Patients with HIV-infection and lipodystrophy (LD) are characterized by lipid and glucose disturbances and increased levels of circulating IL-18. We hypothesized that skeletal muscle IL-18 and IL-18 receptor (R) expression would be altered in patients with HIV-lipodystrophy. Design and methods: Twenty-three HIV-infected patients with LD and 15 age-matched healthy controls were included in a cross-sectional study. Biopsies from the vastus lateralis muscle were obtained and IL-18 and IL-18R mRNA expression were measured by real-time PCR and sphingolipids (ceramides, sphingosine, sphingosine-1-Phosphate, sphinganine) were measured by HPLC. Insulin resistance was assessed by HOMA and the insulin response during an OGTT. Results: Patients with HIV-LD had a 60% and 54% lower level of muscular IL-18 and IL-18R mRNA expression, respectively, compared to age-matched healthy controls. Patients with HIV-LD had a trend towards increased levels of ceramide (18.3±4.7 versus 14.8±3.0, p = 0.06) and sphingosine (0.41±0.13 versus 0.32±0.07, and lower level of sphinganine (p = 0.06). Low levels of muscle IL-18 mRNA correlated to high levels of ceramides (r = -0.31, p = 0.038) and sphingosine-1P (r = -0.29, p = 0.046) in skeletal muscle, whereas such a correlation was not found in healthy controls. Low expression of IL-18 mRNA in skeletal muscle correlated to elevated concentration of circulating triglycerides (Rp = -0.73, p<0.0001). Neither muscle expression of IL-18 mRNA or ceramide correlated to parameters of insulin resistance. Conclusion: IL-18 (mRNA) in skeletal muscle appears to be involved in the regulation of intramuscular lipid metabolism and hypertriglyceridemia. [ABSTRACT FROM AUTHOR]


African American women are disproportionately affected by HIV. We used a phenomenological approach to understand the experiences of living with HIV in a group of older African American women. Approvals were obtained, and a criterion sample of 10 participants who self-identified as African American were recruited. Data were collected using unstructured interviews. The emergence of seven essential themes resulted in a textual interpretative statement that indicated that the meaning of living with HIV disease for this group of older African American women was (a) the dynamic interrelated patterning processes of transcending adversity and becoming as they responded to their emotional ebbs and flows, (b) being always hypervigilant to HIV stigma, and (c) managing the paradoxical process of concealing while revealing aspects of their lives with HIV. The women used knowledge as empowerment and strove to maintain relationality by caring for others while they, themselves, were being cared for.


OBJECTIVES: To investigate the association between recurrent AIDS-defining events and a semi-competing risk of death in patients with advanced, multi-drug resistant HIV infection and to identify individuals at increased risk for these events using a joint frailty model. STUDY DESIGN AND SETTING: 368 patients with antiretroviral treatment failure in the OPTIMA Trial randomized to two antiretroviral treatment strategies using a 2x2 factorial design, intensive vs. standard and interruption vs. continuation, and followed for development of AIDS-defining events and death. RESULTS: Participants were heterogeneous for risk of AIDS-defining events and death (p<0.001) and AIDS-defining events were strongly associated with death (p<0.001), irrespective of treatment. The frailty model was used to classify individuals into high- and low-risk groups based on unobserved heterogeneity. Low-risk individuals were unlikely to die (0%) or have an AIDS-defining event (<4%), while high-risk individuals had event rates approaching 70%. About one-third of high-risk individuals had accelerated mortality, all who died before experiencing an AIDS-defining event. High-risk was associated with being immunocompromised and higher predicted 5-year mortality. CONCLUSION: The joint frailty model permits classification of individuals into risk groups based on unobserved heterogeneity that may be identifiable based on observed covariates, providing advantages over the traditional Cox model.

Despite achieving human immunodeficiency virus type 1 (HIV-1) RNA suppression below levels of detection and, for most, improved CD4+ T-cell counts, those aging with HIV experience excess low-level inflammation, hypercoagulability, and immune dysfunction (chronic inflammation), compared with demographically and behaviorally similar uninfected individuals. A host of biomarkers that are linked to chronic inflammation are also associated with HIV-associated non-AIDS-defining events, including cardiovascular disease, many forms of cancer, liver disease, renal disease, neurocognitive decline, and osteoporosis. Furthermore, chronic HIV infection may interact with long-term treatment toxicity and weight gain after ART initiation. These observations suggest that future biomarker-guided discovery and treatment may require attention to multiple biomarkers and, possibly, weighted indices. We are clinical trialists, epidemiologists, pragmatic trialists, and translational scientists. Together, we offer an operational definition of a biomarker and consider how biomarkers might facilitate progress along the translational pathway from therapeutic discovery to intervention trials and clinical management among people aging with or without HIV infection. [ABSTRACT FROM AUTHOR]


Objectives Thanks to the success of combination antiretroviral therapy (cART), HIV-infected patients can have almost a normal life expectancy. This has resulted in an aging HIV-infected population with other chronic comorbidities such as cardiovascular diseases, osteoporosis, and depression. Our hypothesis is that patients' perceptions of and attitudes towards their cART, which is perceived as crucial to their survival, differ from their beliefs about their co-treatments, and this may have an impact on their medication adherence. Methods We used the French version of the Beliefs about Medicine Questionnaire (BMQ-f) to measure the perceptions of patients about their co-treatments and the Beliefs about Medicine Questionnaire for Highly Active Antiretroviral Therapy (BMQ-HAART) to measure their beliefs about their cART in a representative sample (n = 150) of patients enrolled in the Swiss HIV Cohort Study (SHCS) and followed at the Infectious Disease Service at the University Hospital in Lausanne, Switzerland. The survey was administered to all eligible patients by the order of their scheduled appointments at the end of their medical visit. The BMQ comprises two subscores: Specific-Necessity (5 identical items in BMQ-f and BMQ-HAART) and Specific-Concerns (also 5 identical items in BMQ-f and BMQ-HAART). The subscores were standardized by dividing the score scale by the number of questions in the scale, resulting in a range of responses between 1 (low) and 5 (high). Self-reported medication adherence was measured using the SHCS Adherence Questionnaire (SHCS-AQ). Adherence was defined as not missing any dose or missing one dose of the treatment in the past 4 weeks. Sociodemographic variables were retrieved by reviewing the SHCS database. Results A response rate of 73% (109 of 150) was achieved. A total of 105 patients were included in the analysis: their median age was 56 [interquartile range (IQR) 51, 63] years and 74 were male (70%). Eighty-seven patients (83%) were adherent to cART and 75 (71%) were adherent to their co-treatments (P = 0.0001). The standardized mean responses for the BMQ Specific-Necessity subscores were 4.46 [standard deviation (SD): 0.58] and 2.86 (SD: 1.02) for cART and co-treatments, respectively (P < 0.0001). For Specific-Concerns, the standardized mean responses were 2.9 (SD: 1.02) for cART and 4.09 (SD: 1.02) (P < 0.0001) for co-treatments. cART and co-treatment concerns increased as the number of co-treatments increased (P = 0.03 and P < 0.0001, respectively). Conclusions Patients had higher Necessity and lower Concerns scores for their cART in comparison with their co-treatments. A higher percentage of patients reported being adherent to cART compared with the co-treatments that they reported they were most likely to miss. Further research using a bigger sample size and more objective measures of adherence is needed to explore the association between adherence and patients' perceptions. [ABSTRACT FROM AUTHOR]


We assessed firing and voltage-gated Ca(2+) influx in medial prefrontal cortex (mPFC) pyramidal neurons from older (12 months old) HIV-1 transgenic (Tg) rats. We found that neurons from older Tg rats showed increased firing compared to non-Tg rats, but Ca(2+) spikes were unchanged. However, stronger excitatory stimulation was needed to evoke Ca(2+) spikes, which was associated with reduced mPFC Cav1.2 L-type Ca(2+) channel (L-channel) protein. In contrast, L-channel protein was unaltered in younger (6-7 weeks old) Tg rats, which we previously found had enhanced neuronal Ca(2+) influx. These studies demonstrate that aging alters HIV-induced Ca(2+) channel dysfunction that affects mPFC activity.

HIV infection has long been known to result in dementia and other forms of neurocognitive deficits. The rate of HIV-associated dementia is decreasing, while mild forms of neurological impairments increase. Treatment of HIV infection has advanced, and patients are living longer, and are thus at a greater risk of cognitive decline. The HIV aging cohort is susceptible to neurocognitive impairment from other medical conditions that have a compounding effect on cognitive decline. The diagnosis of HIV-associated neurocognitive disorders involves identifying neurological dysfunction and then determining that HIV is the most probable cause. Implications for practice include early control of HIV replication and treatment of comorbid diseases.

• HIV associated neurocognitive disorder (HAND) affects patients’ quality of life. • HIV-related dementia is decreasing, while mild HAND increases. • cART has increased survival of PLWH, thus at a greater risk of cognitive decline. • Treatment of HIV of comorbid disease can decrease risk of cognitive impairment. • Hepatitis C treatment should be offered absent of contraindications.


Engaging highly marginalized HIV positive people in sustained medical care is vital for optimized health and prevention efforts. Prior studies have found that strengths-based case management helps link people who use drugs to HIV care. We conducted a pilot to assess whether a strengths-based case management intervention may help people who use injection drugs (PWID) or smoke crack cocaine (PWSC) achieve undetectable HIV viral load. PWID and PWSC were recruited in Oakland, California using targeted sampling methods and referral from jails and were tested for HIV. HIV positive participants not receiving HIV care (n = 19) were enrolled in a pilot strengths-based case management intervention and HIV positive participants already in HIV care (n = 29) were followed as comparison participants. The intervention was conducted by a social worker and an HIV physician. Special attention was given to coordinating care as participants cycled through jail and community settings. Surveys and HIV viral load tests were conducted quarterly for up to 11 visits. HIV viral load became undetectable for significantly more participants in the intervention than in the comparison group by their last follow-up (intervention participants: 32% at baseline and 74% at last follow-up; comparison participants: 45% at baseline and 34% at last follow-up; p = 0.008). In repeated measures analysis, PBO intervention participants had higher odds of achieving undetectable viral load over time than comparison participants (p = 0.033). Strengths-based case management may help this highly vulnerable group achieve undetectable HIV viral load over time.


Background: Although cocaine use may induce/accelerate HIV-associated comorbidities in HIV-infected individuals on antiretroviral therapy (ART), and that HIV itself may accelerate aging, the issue of whether cocaine use plays a role in HIV-associated aging in HIV-infected cocaine users has not been reported. The goals of this study were (1) to explore factor(s) associated with peripheral blood leukocyte telomere length, a marker of cellular replicative history, and telomere shortening in HIV-infected individuals, and (2) to assess whether cocaine use plays a role in accelerating telomere shortening in cocaine users with HIV infection.; Methods: Between June 2010 and December 2016, 147 HIV-infected participants in Baltimore, Maryland, were enrolled in a cross-sectional study investigating factor(s) associated with telomere length. Of these 147, 93 participated in a follow-up study to examine factor(s) associated with telomere shortening. Robust regression model was used to analyze cross-sectional data and the generalized estimating equation approach was used to analyze follow-up data.; Results: Cross-sectional analyses demonstrated that (1) both daily alcohol consumption and use of non-nucleoside reverse transcriptase inhibitors (NNRTIs) were independently associated with telomere length, and cocaine use modified the associations of daily alcohol use and NNRTI use with telomere length. Longitudinal analyses suggested that both daily alcohol consumption and duration of NNRTI use were independently associated with telomere shortening, and (2) cocaine use induced/accelerated telomere shortening in HIV-infected individuals.; Conclusions: Our findings suggest that cocaine use may promote premature aging in HIV-infected individuals who are on ART. Our results emphasize the importance of cocaine abstinence/reduced use, which may retard HIV-associated premature aging.; Copyright © 2018 Elsevier Inc. All rights reserved.
The innate and adaptive branches of the immune system display changes with aging, a fact referred to as immunosenescence. Furthermore, it has been established that adaptive immunity is more susceptible to age-related changes than innate immunity. The most prominent phenotypic changes that reflect the specific differentiation and role of each T cell subpopulation are two-fold. They are a decreased number of naïve T cells that parallels an increase in memory T cells, mainly in the cytotoxic CD8+ T cell population, which can be subdivided into naïve, central, effector memory and TEMRA cells. The two main T cell properties that are the most affected with aging are the altered clonal expansion and decreased cytokine production, especially IL-2. These T cell functions have been shown to be affected in the early events of signaling. The aim of the present study was to investigate the influence of age on TCR- and CD28-dependent activation of the downstream signaling effectors Lck, SHP-1, Akt, PI3K p85α and mTOR in differentiated subpopulations of CD4+ and CD8+ T cells. Results showed that lymphocytes of elderly subjects were already in an activated state that could not be upregulated by external stimulation. Results also showed that the age-related signal transduction changes were more important than phenotype in the CD4+ and CD8+ T subpopulations. These observations suggested that age-related molecular and biochemical changes have a more significant influence on T cell functions than T cell phenotype.

- T lymphocytes of elderly subjects are already in an activated state.
- Signal transduction changes are more related to age than to the phenotype in the CD4+ and CD8+ T subpopulations.
- T cell subpopulations state of differentiation may support their specific role but not their functions with aging.


Depression is the most prevalent mental disorder in people living with HIV. Our study involved 371 participants in outpatient treatment for HIV in hospitals in northern Portugal. Participants were referred to the study by the attending physician/nurse, and data were collected through an individual interview at a single evaluation moment. Participants were mostly male (70%), with an average age of 46.63 years (SD = 11.77), and a known diagnosis of HIV for an average of 10.13 years (SD = 6.42). Severe depressive symptoms were identified in 18% of participants. We identified several significant predictors of depressive symptoms: being female, being in a situation of social exclusion, having adverse experiences throughout life, infection by sexual contact in a stable marital relationship, daily concerns regarding health, negative family relationships, and dissatisfaction with social support. Findings suggest the need to include regular mental health assessments and referral for specialized psychological support services.


This is a protocol for a Cochrane Review (Intervention). The objectives are as follows: To assess the clinical effectiveness and safety of statins, ezetimibe, fibrates, or fish oil for treating dyslipidaemia in HIV-infected patients receiving highly active antiretroviral therapy. Clinical effectiveness will be measured in terms of prevention (primary and secondary) of cardiovascular events (Fatal or non-fatal myocardial infarction, stroke and angina).


Background: Metabolic and cardiovascular diseases (CVD) represent a major problem in HIV infection. The aim of this study was to evaluate the relationship of HIV infection and antiretroviral therapy (ART) with circulating levels of two adipokines (Lipocalin-2 and Fatty Acid Binding Protein-4, FABP-4), known to be associated with adipose tissue dysfunction and cardiovascular disease in the general population. Methods: We enrolled 40 non-obese HIV-infected patients and 10 healthy controls of similar age and Body
Mass Index (BMI). Body composition, metabolic syndrome, lipid profile, 10-years CVD risk score, and adipokines levels were compared between groups. ART-regimen status (naive, non-nucleoside reverse transcriptase inhibitors - NNRTIs - and protease inhibitors - PIs) association with adipokines levels was tested with linear regression models.; Results: HIV patients showed a worse metabolic profile than controls. Lipocalin-2 levels were higher in HIV-infected subjects (+53%; p = 0.007), with a significant trend (p = 0.003) for higher levels among subjects taking NNRTIs. Association of lipocalin-2 with fat-mass and BMI was modulated by ART regimens, being positive among subjects treated with NNRTIs and negative among those treated with PIs ("ART-regimens-by-BMI" interaction p = 0.0009). FABP-4 levels were correlated with age, fat mass, BMI, lipid profile and CVD risk (all R ≥ 0.32, p < 0.05), but not influenced by HIV-status (+20%; p = 0.12) or ART-regimen (p = 0.4).; Conclusions: Our data confirm that HIV-infection is associated with adipose tissue inflammation, as measured by Lipocalin-2 levels, and ART does not attenuate this association. While FABP-4 is a marker of worse metabolic and CVD profile independently of HIV status or ART regimen, lipocalin-2 could represent a useful marker for HIV- and ART-related adipose tissue dysfunction.;


Black and Latino men who have sex with men (BLMSM) are disproportionately infected with HIV; they comprised 66% of HIV diagnoses among men who have sex with men (MSM) in the United States in 2015. Risk factors for HIV infection among BLMSM include a high community prevalence of diagnosed and undiagnosed HIV/STDs, and dense sex partner networks. Perceptions of HIV risk among BLMSM were explored to inform HIV prevention efforts. During 2011-2012, semistructured interviews were conducted with BLMSM in New York City. Using computer-assisted thematic analyses (NVivo), transcribed interview responses to questions regarding HIV risk for main themes were examined. Interview data were available for 108 BLMSM: 86% Black, 13% Latino, 26% aged 18-24 years, 59% self-identified as "gay," and 33% self-identified as "bisexual." The main emergent theme was stigma. Subthemes related to stigma included: (a) homophobia in the Black and Latino community, (b) fear of losing support from family and friends, and (c) lack of support leading to low self-esteem. Addressing the stigma felt by BLMSM may be an important strategy to facilitate improved HIV prevention efforts, HIV care and treatment, and to decrease HIV-related disparities.


Background: Major depressive disorder (MDD) is a common psychiatric complication of HIV/AIDS. While considerable research has been undertaken to understand the psychosocial risk factors of MDD, there is a paucity of data on its biological risk factors including immunological factors. To address this we undertook a study to investigate the association between MDD and pro-inflammatory cytokines and acute phase proteins among persons living with HIV/AIDS (PLWHA) in Uganda. We collected clinical and laboratory data on 201 PLWHA attending two HIV clinics in central and southwestern Uganda. Clinical data included DSM-IV based MDD diagnosis, while laboratory data included the concentrations of IL-6, TNF-α and CRP measured using ELISA. Multiple logistic linear regression analysis was used to determine which proteins were independently significantly associated with MDD controlling for study site, sex, age and highest educational attainment. Results: The prevalence of MDD was 62/201 (30.8%). Adjusting for confounders, the odds of MDD increased with increasing levels of IL-6 [each unit increase in IL-6 titres was associated with an aOR = 0.98 (95% CI, 0.97-0.99); p < 0.001]. Participants with low levels of TNF-α were at reduced risk of MDD compared to participants with no TNF-α [those with a TNF-α of 1- <50 pg/ml titres had an aOR = 0.35(95% CI, 0.10-1.16)], but as the level of TNF-α increased, the risk of MDD increased, and in particular participants with high levels of TNF-α (of 500 or above) were at a significantly increased risk of MDD [e.g. those with a TNF-α of 500- < 1000 pg/ml titres had an aOR = 3.98 (95% CI, 1.29-12.33)] compared to participants with no TNF-α. There was no evidence that MDD was associated with the level of CRP titres [aOR = 0.95 (0.78-1.15); p = 0.60].Conclusion: In this study, the pro-inflammatory proteins IL-6 and TNF-α were significantly associated with MDD, while CRP was not. [ABSTRACT FROM AUTHOR]

Objective: To summarize evidence on the rates and drivers of progression from normoglycemia to prediabetes and/or diabetes mellitus (hereafter ‘diabetes’) in antiretroviral treatment (ART)-exposed HIV-infected people.; Methods: We searched EMBASE, PubMed, Web of Science, and Global Index Medicus to identify articles published from 1 January 2000 to 30 April 2017. A random-effects model produced a summary estimate of the incidence across studies and heterogeneity was assessed using Cochrane’s Q statistic.; Results: We included 44 studies, whose methodologic quality was high with only 10 (30%) medium-quality studies and none of low quality. There was substantial heterogeneity between studies in estimates of the incidence of diabetes and prediabetes. The pooled incidence rate of overt diabetes and prediabetes were 13.7 per 1,000 person-years of follow-up (95%CI: 13-20; I² = 98.1%) among 396,496 person-years and 125 per 1,000 person-years (95% CI: 0-123; I² = 99.4) among 1,532 person-years, respectively. The major risk factors for diabetes and prediabetes were aging, family history of diabetes, Black or Hispanic origin, overweight/obesity, central obesity, lipodystrophy/lipoatrophy, dyslipidaemia, metabolic syndrome, increased baseline fasting glycemia, and certain ART regimens.; Conclusion: These data highlight the important and fast increasing burden of diabetes and prediabetes among the ART-exposed HIV-infected population. More research is needed to better capture the interplay between prediabetes/diabetes and ART in HIV-infected patients, considering the increasing number of ART-exposed patients subsequent to the World Health Organization’s recommendation of initiating ART at HIV infection diagnosis regardless of CD4-count and age.;


For persons living with HIV, health-related quality of life (HRQOL) may be threatened by physical and mental conditions but may be protected by positive psychological traits. We performed an exploratory look at the risk and protective factors for HRQOL in older adults living with HIV. Cross-sectional analyses of baseline data from the Rush Center of Excellence on Disparities in HIV and Aging (CEDHA), a community-based cohort of persons ages >/=50 living with HIV (n = 176) were performed. Analyses examined the relationship between risk/protective factors and two outcomes (i.e., self-reported health status [SRHS] and the healthy days index [HDI]). Having good/excellent health was associated with being a non-smoker (p = 0.002), greater purpose in life (p = 0.006), higher education (p = 0.007), fewer depressive symptoms (p = 0.004), fewer disabilities (p = 0.000), and less loneliness (p = 0.002) in bivariate analyses. Males (p = 0.03) and African Americans/Blacks (p = 0.03) reported higher HDI. Fewer depressive symptoms (p = 0.000), disabilities (p = 0.002), adverse life events (p = 0.0103), and loneliness (p = 0.000) were associated with higher HDI in bivariate analyses. In a logistic regression model, greater purpose in life, fewer disabilities, and being a non-smoker were associated with better SRHS after adjusting for covariates. For African Americans/Blacks, having fewer depressive symptoms and disabilities were associated with higher HDI after adjusting for covariates. Disabilities, depression, smoking status, race/ethnicity, and purpose in life were significantly associated with HRQOL. Findings support the need for research to examine the influence of cultural interpretations of life quality and focus on promoting physical function, smoking cessation, and psychological wellness in persons aging with HIV.


The population of people living with HIV (PLWH) is growing older with an estimated 4 million over the age of 50 years, a figure which has doubled since the introduction of effective antiretroviral therapy (ART) and which is increasing globally. Despite effective ART, PLWH still experience excess morbidity and mortality compared to the general population with increased prevalence of age-related, non-AIDS illnesses (NAI) such as cardiovascular disease, malignancies, cognitive impairment and reduced bone mineral density, which impact disability and everyday functioning. This review will discuss the challenges presented by comorbidities in ageing PLWH and discuss the aetiology and management of age-related illnesses in this vulnerable population.


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Research has shown that pre-exposure prophylaxis (PrEP) is effective for preventing HIV infection. We developed the Targeted PrEP Implementation Program (TPIP), an 18-month project that involved five statewide agencies, to assess the extent to which PrEP could be implemented in "real world" clinical settings. The target population was men who have sex with men at high risk for HIV infection. Data were collected from a variety of sources. Implementing PrEP statewide required facilitating provider capacity, developing resources, and identifying/addressing potential barriers. TPIP focused on three key questions: (a) Can providers identify and retain appropriate candidates for PrEP? (b) Can PrEP participants adhere to daily medication? (c) Can PrEP be delivered as part of a comprehensive/integrated plan? There were 171 participating clients, most of whom successfully incorporated PrEP into their daily routines. After addressing initial barriers, we found that PrEP could be routinely delivered as part of a comprehensive prevention plan.


Background. Continued racial/ethnic health disparities were recently described as "the most serious and shameful health care issue of our time." Although the 2014 US Affordable Care Act-mandated national insurance coverage expansion has led to significant improvements in health care coverage and access, its effects on life expectancy are not yet known. The Veterans Health Administration (VHA), the largest US integrated health care system, has a sustained commitment to health equity that addresses all 3 stages of health disparities research: detection, understanding determinants, and reduction or elimination. Despite this, racial disparities still exist in the VHA across a wide range of clinical areas and service types. Objectives. To inform the health equity research agenda, we synthesized evidence on racial/ethnic mortality disparities in the VHA. Search Methods. Our research librarian searched MEDLINE and Cochrane Central Registry of Controlled Trials from October 2006 through February 2017 using terms for racial groups and disparities. Selection Criteria. We included studies if they compared mortality between any racial/ethnic minority and nonminority veteran groups or between different minority groups in the VHA (PROSPERO# CRD42015015974). We made study selection decisions on the basis of prespecified eligibility criteria. They were first made by 1 reviewer and checked by a second and disagreements were resolved by consensus (sequential review). Data Collection and Analysis. Two reviewers sequentially abstracted data on prespecified population, outcome, setting, and study design characteristics. Two reviewers sequentially graded the strength of evidence using prespecified criteria on the basis of 5 key domains: study limitations (study design and internal validity), consistency, directness, precision of the evidence, and reporting biases. We synthesized the evidence qualitatively by grouping studies first by racial/ethnic minority group and then by clinical area. For areas with multiple studies in the same population and outcome, we pooled their reported hazard ratios (HRs) using random effects models (StatsDirect version 2.8.0; StatsDirect Ltd., Altrincham, England). We created an evidence map using a bubble plot format to represent the evidence base in 5 dimensions: odds ratio or HR of mortality for racial/ethnic minority group versus Whites, clinical area, strength of evidence, statistical significance, and racial group. Main Results. From 2840 citations, we included 25 studies. Studies were large (n ≥ 10 000) and involved nationally representative cohorts, and the majority were of fair quality. Most studies compared mortality between Black and White veterans and found similar or lower mortality for Black veterans. However, we found modest mortality disparities (HR or OR = 1.07, 1.52) for Black veterans with stage 4 chronic kidney disease, colon cancer, diabetes, HIV, rectal cancer, or stroke; for American Indian and Alaska Native veterans undergoing noncardiac major surgery; and for Hispanic veterans with HIV or traumatic brain injury (most low strength). Author's Conclusions. Although the VHA’s equal access health care system has reduced many racial/ethnic mortality disparities present in the private sector, our review identified mortality disparities that have persisted mainly for Black veterans in several clinical areas. However, because most mortality disparities were supported by single studies with imprecise findings, we could not draw strong conclusions about this evidence. More disparities research is needed for American Indian and Alaska Native, Asian, and Hispanic veterans overall and for more of the largest life expectancy gaps. Public Health Implications. Because of the relatively high prevalence of diabetes in Black veterans, further research to better understand and reduce this mortality disparity may be prioritized as having the greatest potential impact. However, other mortality disparities affect thousands of veterans and cannot be ignored.

Background Data on the association between HIV stigma and drug use are scarce, but some research suggests that internalized HIV stigma may be associated with increased drug use and that this association may be at least partially mediated by emotion dysregulation. We sought to test this hypothesis with event-level data to more accurately tease out the co-occurrence of these phenomena.

Methods We utilized multivariate multilevel analysis to test an autoregressive cross-lagged path model of the direct and indirect effects of internalized HIV stigma and emotion dysregulation on non-prescription stimulant drug use in a sample of 52 HIV-positive gay and bisexual men who completed a 21-day, twice-daily ecological momentary assessment study.

Results As hypothesized, we observed significant concurrent effects of internalized HIV stigma on emotion dysregulation as well as autoregressive associations of internalized HIV stigma and emotion dysregulation with themselves across the day. Furthermore, findings revealed direct effects of internalized HIV stigma on later emotion dysregulation and increased likelihood of stimulant use, but no direct effect of emotion dysregulation on stimulant use.

Conclusions Internalized HIV stigma appears to exert a direct risk-enhancing effect on the likelihood of stimulant drug use and does not appear to do so through emotion dysregulation. Future research is needed to more carefully examine distinct affective experiences and regulation strategies to better understand what mechanism links internalized HIV stigma with drug use behaviors.


Objective: Open-label data suggest that intravenous immunoglobulin (IVIG) might improve lowerextremity strength in human immunodeficiency virus (HIV)-associated myelopathy (HIVM), a rare but debilitating neurologic complication of HIV. We sought to determine the feasibility of testing the efficacy of IVIG for HIVM more rigorously. Design: We conducted a randomized, double-blind, placebocontrolled feasibility trial of IVIG for HIVM, using dynamometry as an outcome measure (Clinical Trial No. NCT01561755). Setting: The study took place in an academic medical center in New York, New York Participants: Only 12 participants were enrolled in four years; critical impediments to the study were the rarity of patients with new HIVM diagnoses and prior exposure to IVIG in patients with an established diagnosis. Measurements: Dynamometry of hip flexion, knee flexion, and ankle dorsiflexion were measured; the HIV Dementia Motor Score (HDMS); and the two-minute timed walk test were utilized. Results: Recruitment was the major feasibility issue. Dynamometry was generally well-tolerated, had good test-retest reliability (r=0.71-0.86, p<0.02 for all muscle groups), and good inter-item reliability as judged by the correlations between the muscle groups (r=0.76-0.81, p=0.001-0.005). Dynamometry was valid and clinically meaningful based on its correlations with the HDMS and the two-minute timed walk test. Conclusion: We conclude that an adequately powered clinical trial of IVIG for HIVM would likely require a prolonged recruitment period and multiple participating sites. Lower limb dynamometry is a useful outcome measure for HIVM, which might also be useful in other HIV-related gait disorders.


HIV infection has evolved from a fatal to a treatable condition, leading to an increase in the rate of elderly People Living with HIV (PLWH). However, little is known about the psychosocial burden of elderly PLWH. Thus, the aim of this longitudinal multi-
center cohort study was to investigate whether elderly PLWH experience more anxiety and depression and reduced health related quality of life (HRQOL) compared to elderly patients with other chronic conditions. PLWH were compared to diabetes patients (DM) and patients with minor health conditions (MHC), e.g. patients with hypertension or allergic conditions. All patients were over 50 years old. Anxiety and depression (HADS) as well as HRQOL (SF-36) were assessed at baseline and after 12 months. 218 PLWH, 249 DM and 254 MHC were included. At baseline, the study groups did not differ in anxiety, depression, and physical HRQOL. However, PLWH indicated lower mental HRQOL than DM and MHC patients (p = 0.001). We did not obtain any moderating effects showing a differential effect of patient characteristics on anxiety, depression, and HRQOL in the three patient groups. At follow-up, the level of anxiety, depression, and HRQOL did not change significantly. The prevalence of anxiety ranged between 27 and 35%, and that of depression between 17 and 28%. Thus, the results of our investigation tentatively suggest that the psychosocial adaptation to HIV among elderly PLWH resembles those of other chronic diseases. There may be some subtle impairments, though, as PLWH experienced lower mental HRQOL.


Despite the availability of effective antiretroviral therapies, cognitive impairment (CI) remains prevalent in HIV-infected (HIV+) individuals. Evidence from primarily cross-sectional studies, in predominantly male samples, implicates monocyte- and macrophage-driven inflammatory processes linked to HIV-associated CI. Thus, peripheral systemic inflammatory markers may be clinically useful biomarkers in tracking HIV-associated CI. Given sex differences in immune function, we focused here on whether mean and intra-individual variability in inflammatory marker-predicted CI in HIV+ and HIV- women. Seventy-two HIV+ (36 with CI) and 58 HIV- (29 with CI) propensity-matched women participating in the Women's Interagency HIV Study completed a neuropsychological battery once between 2009 and 2011, and performance was used to determine CI status. Analysis of 13 peripheral immune markers was conducted on stored biospecimens at three time points (7 and 3.5 years before neuropsychological data collection and concurrent with data collection). HIV+ women showed alterations in 8 immune markers compared to HIV- women. The strongest predictors of CI across HIV+ and HIV- women were lower mean soluble tumor necrosis factor receptor I (sTNFRI) levels, higher mean interleukin (IL)-6 levels, and greater variability in C-reactive protein (CRP) and matrix metalloproteinase (MMP)-9 (p values < 0.05). Stratified by HIV, the only significant predictor of CI was greater variability in CRP for both HIV+ and HIV- women (p values < 0.05). This variability predicted lower executive function, attention/working memory, and psychomotor speed in HIV+ but only learning in HIV- women (p values < 0.05). Intra-individual variability in CRP levels over time may be a good predictor of CI in predominantly minority low-socioeconomic status midlife women.


OBJECTIVE: Increasing numbers of children with HIV are surviving to adolescence and encountering multiple clinical and social consequences of long-standing HIV infection. We aimed to investigate the association between HIV and disability, social functioning and school inclusion among 6- to 16-year-olds in Zimbabwe. METHODS: HIV-infected children receiving antiretroviral therapy from a public-sector HIV clinic and HIV-uninfected children attending primary care clinics in the same catchment area were recruited. Standardised questionnaires were used to collect socio-demographic, social functioning and disability data. Multivariable logistic regression was used to assess the relationship between HIV status and disability and functioning. RESULTS: We recruited 202 HIV-infected and 285 HIV-uninfected children. There was no difference in age and gender between the two groups, but a higher proportion of HIV-infected children were orphaned. The prevalence of any disability was higher in HIV-infected than uninfected children (37.6% vs. 18.5%, P < 0.001). HIV-infected children were more likely to report anxiety (adjusted odds ratio (aOR) 4.4; 95% CI 2.4, 8.1), low mood (aOR 4.2; 2.1, 8.4) and difficulty forming friendships (aOR 14.8; 1.9, 116.6) than uninfected children. Children with HIV also reported more missed school days, repeating a school year and social exclusion in class. These associations remained apparent when comparing children with HIV and disability to those with HIV but no disabilities. CONCLUSIONS: Children with HIV commonly experience disabilities, and this is associated with social and educational exclusion. Rehabilitation and support services are needed to facilitate educational attainment and social participation in this group.

w w w . H I V - A G . o r g


People living with HIV (PLWH) are aging and many suffer with multimorbidities, making caregiving a relevant and important area of study. The purpose of our study was to understand the occurrence and role of informal caregivers in the current stage of the HIV epidemic. We conducted a Web-based survey with 1,373 PLWH to assess: how many had an informal, unpaid caregiver; the type of relationship with the informal caregiver; and the number of hours the caregiver provided support each day. Among respondents, 333 had an informal caregiver. Blacks, those with low income, individuals who ever had an AIDS diagnosis, those with basic cellphone service, and those living with other comorbid conditions were significantly more likely to have an informal caregiver. Given the demographic profile of those PLWH who were most likely to have caregivers, further study is needed to understand the needs of both caregivers and care recipients.


Depression, global neurocognitive (GNC) function, and substance use disorders (SUDs) are each associated with medication adherence in persons living with HIV (PLWH). Because somatic symptoms can inflate depression scores in PLWH, the role of nonsomatic depressive symptomatology (NSDS) should be considered in adherence. However, the combined roles of NSDS, GNC function, and current SUDs in predicting combined antiretroviral therapy (cART) adherence remain poorly understood. Forty PLWH (70% Latina/o; 30% non-Hispanic White) completed psychiatric/SUD, neurocognitive, and self-report cART adherence evaluations. Higher NSDS was associated with suboptimal adherence (p < .01), but optimal and suboptimal adherers did not differ in GNC function or current SUDs. Only NSDS was associated with suboptimal adherence, after accounting for GNC function and SUDs (p = .01). NSDS uniquely predicted self-reported adherence, beyond GNC function and current SUDs among ethnically diverse PLWH. Methodological issues between present and prior studies should also be considered.


Background: Concentrations of tenofovir (TFV) in hair and tenofovir diphosphate (TFV-DP) in dried blood spots (DBSs) as measures of cumulative exposure have been primarily studied in younger, HIV-uninfected individuals taking preexposure HIV prophylaxis. Data on these measures among older HIV-infected individuals are limited. Methods: We evaluated longitudinal TFV and TFV-DP concentrations in hair and DBS, respectively, from HIV-infected adults. Multivariable model variables included age group (18-35 and 60 years and older), creatinine clearance (CrCl), hematocrit (TFV-DP), and gray hair color (TFV). Results: Baseline hair TFV and DBS TFV-DP were moderately correlated [r = 0.5 (0.2 to 0.7); P = 0.001] across both age groups [younger (N = 23) and older (N = 22)]. In adjusted models, CrCl was associated with increases of 15.9% (7.4% to 25.0%); P = 0.006, and 5.7% (20.2% to 11.9%); P = 0.057 for TFV in hair and TFV-DP in DBS, respectively, for every 20-mL/min CrCl decrease. Although older age (versus younger age) was univariately associated with increased TFV hair levels, older age was not significantly associated with higher concentrations in hair [21.4% (226.7% to 32.7%); P = 0.93] or DBS [4.0% (214.1% to 25.9%); P = 0.68] after adjustment. Similarly, gray color was not significantly associated with higher TFV levels in hair [27.6% (211.1% to 83.0%); P = 0.18] in adjusted models. In both adjusted and unadjusted models of TFVDP levels in DBS, a 1% hematocrit increase was associated with a 3.3% (0.2% to 6.5%) TFV-DP increase (P = 0.04). Conclusions: Cumulative drug exposure measures (hair and DBS) were comparable in younger and older HIV-infected individuals on TFV-based therapy after adjustment for renal function. [ABSTRACT FROM AUTHOR]

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OBJECTIVE: Inflammation is key risk factor for several conditions in the elderly. However, the relationship between inflammation and frailty is still unclear. We investigated whether higher dietary inflammatory index (DII) scores were associated with higher incidence of frailty in a cohort of North Americans. DESIGN: Longitudinal, with a follow-up of 8 years. SETTING: Osteoarthritis Initiative. PARTICIPANTS: A total of 4421 participants with, or at high risk of, knee osteoarthritis. MEASUREMENTS: DII scores were calculated using the validated Block Brief 2000 Food-Frequency Questionnaire and categorized into sex-specific quartiles. Frailty was defined as 2 out of 3 of the criteria of the Study of Osteoporotic Fracture study \((\text{ie, weight loss, inability to rise from a chair 5 times, and poor energy})\). The strength of the association between baseline DII score and incident frailty was assessed through a Cox’s regression analysis, adjusted for potential baseline confounders, and reported as hazard ratios. RESULTS: A total of 4421 community-dwelling participants \((2564 \text{ female participants; mean age: 61.3 years})\) without frailty at baseline were identified from the Osteoarthritis Initiative. During 8 years of follow-up, 356 individuals developed frailty \((8.2\%)\). Using Cox’s regression analysis, adjusting for 11 potential confounders, participants with the highest DII score \((\text{quartile 4})\) had a significantly higher risk of experiencing frailty \((\text{hazard ratio } 1.37; 95\% \text{ confidence interval } 1.01-1.89; \text{ P} = .04)\) compared with participants with the lowest DII score \((\text{quartile 1})\). The association between DII score and frailty was significant only in men. CONCLUSIONS: Higher DII scores, indicating a more proinflammatory diet, are associated with higher incidence of frailty, particularly in men.


Objective: To analyze the knowledge, religious beliefs and the adoption of preventive measures against HIV/AIDS of non-Catholic elderly women. Method: A qualitative study, carried out in religious institutions of a municipality in the state of Ceará, Northeast Brazil, with 78 elderly women. Of these, 64 were evangelicals, seven spiritualists and seven Jehovah's Witnesses. A semi-structured interview script was used followed by thematic content analysis of participants' responses. Results: After analyzing the empirical data, three categories were elaborated: the first presented the knowledge they had about AIDS; the second, highlighted the beliefs attributed to people with HIV/AIDS; and the third, presented the preventive measures to HIV/AIDS adopted by them. Final considerations: There were participants with knowledge gaps and failure to use preventive measures against HIV/AIDS. They suggested that religious institutions can be venues for lectures on HIV/AIDS prevention.


Background: Urinary tract infections remain an important yet underinvestigated clinical problem among HIV infected patients. Here we analyze factors associated with its occurrence and the spectrum of bacterial pathogens identified in the group of patients.
patients followed at the HIV Out-Patient Clinic in Warsaw. Methods: Clinic database collected all medical information on patients routinely followed since 1994 to 2015. All patients with available urine culture were included into analyses, only the first culture was included. In statistical analyses logistic regression models were used to identify factors associated with positive culture. Results: In total 608 patients had urine culture performed, 176 (28.9%) were females and 432 (71.1%) were males, 378 (62.2%) registered in care before/in 2007, 258 (42.4%) infected through homosexual contact. Median baseline lymphocyte CD4+ count was 385 (IQR:204–565) cells/µl and median nadir lymphocyte CD4+ count 197 (86–306) cells/µl. One hundred and eighteen patients were actively infected with HCV, as defined by positive real-time PCR. In total 141 (23.2%) patients had positive urine culture, the most common bacterial pathogen was E.coli (58.2%) and E. faecalis (12.8%). Patients with urinary tract infection were more likely to be female (51.8% vs. 22.1%, p<0.0001), infected through other than homosexual mode (80.1% vs. 50.7%, p<0.0001), with lower nadir CD4 count (139 vs. 221 cells/µl, p<0.0001) and lower baseline HIV RNA (4.02 vs. 4.35 log copies/ml, p = 0.01) and less likely to be HCV RNA positive (26.9% vs. 49.2%, p = 0.01). In multivariate regression model being registered before/in 2007 (OR = 2.10; [95%CI: 1.24–3.56]), infected through other than homosexual mode (2.05;[1.18–3.56]) and female gender (2.14;[1.33–3.44]) were increasing and higher nadir CD4+ count decreasing (0.92;[0.85–0.99]) the odds of urinary tract infection. Conclusions: We have identified that almost one third of patients had urinary tract infections with non-typical bacterial pathogens. Population with increased odds of urinary tract infections are women, patients infected through other than homosexual contacts and those registered before 2007.

[ABSTRACT FROM AUTHOR]


As people living with HIV (PLWH) live longer, increased understanding of individuals' values and perceptions of successful aging can assist health providers in working with PLWH to set meaningful goals as they age. The purpose of this qualitative study was to understand how PLWH define successful aging and their perceptions of contributors to successful aging. Fourteen men and ten women over the age of 50 years (mean age 57 years; mean time since diagnosis 18 years) participated in individual interviews. Interviews were analyzed using directed content analysis. Six themes emerged: accepting limitations, staying positive, maintaining social supports, taking responsibility, living a healthy lifestyle, and engaging in meaningful activities. The participants emphasized individual control. This highlights the importance of working with PLWH to understand their values and aspirations, and create patient-centered goals. From a research perspective this reinforces calls to include the subjective experiences of older adults in developing successful aging criteria.


HIV-positive individuals are at increased risk for kidney disease, including HIV-associated nephropathy, noncollapsing focal segmental glomerulosclerosis, immune-complex kidney disease, and comorbid kidney disease, as well as kidney injury resulting from prolonged exposure to antiretroviral therapy or from opportunistic infections. Clinical guidelines for kidney disease prevention and treatment in HIV-positive individuals are largely extrapolated from studies in the general population, and do not fully incorporate existing knowledge of the unique HIV-related pathways and genetic factors that contribute to the risk of kidney disease in this population. We convened an international panel of experts in nephrology, renal pathology, and infectious diseases to define the pathology of kidney disease in the setting of HIV infection; describe the role of genetics in the natural history, diagnosis, and treatment of kidney disease in HIV-positive individuals; characterize the renal risk-benefit of antiretroviral therapy for HIV treatment and prevention; and define best practices for the prevention and management of kidney disease in HIV-positive individuals.

Introduction: Lymphoid tissue fibrosis may contribute to incomplete immune reconstitution on antiretroviral therapy (ART) via local CD4+ T lymphocyte (CD4) depletion. Hyaluronic acid (HA) increases with fibrotic burden. CXCL4 concentrations increase in response to pro-fibrotic stimuli, but lower CXCL4 concentrations in HIV-infected individuals may reflect successful immune evasion by HIV. We investigated relationships between circulating HA and CXCL4 concentrations and immune reconstitution on ART in HIV-infected Multicenter AIDS Cohort Study participants. Methods: HIV-infected men on ART for >1 year with cryopreserved plasma samples and suppressed post-ART HIV-1 RNA were included. Men with post-ART CD4 <200 cells/mm3 were defined as immunologic non-responders (n = 25). Age-/race-matched men with post-ART CD4 >500 cells/mm3 served as controls (n = 49). HA and CXCL4 concentrations were measured via ELISA. Results: Median pre-ART CD4 was 297 cells/mm3 for non-responders vs 386 cells/mm3 for controls. Median post-ART CD4 was 141 cells/mm3 for non-responders and 815 cells/mm3 for controls. HIV infection duration was 23 years, with median time on ART 13 years for non-responders vs 11 years for controls. Pre-ART HA and CXCL4 concentrations did not vary by eventual immune reconstitution status. Post-ART HA concentrations tended to be higher (85 vs 36 ng/mL, p = 0.07) and CXCL4 concentrations were lower (563 vs 1459 ng/mL, p = 0.01) among non-responders. Among men with paired pre-/post-ART samples, non-responders had greater HA increases and CXCL4 decreases than controls (HA: 50 vs 12 ng/mL, p = 0.04; CXCL4: -1258 vs -405 ng/mL, p = 0.01). Conclusions: Higher circulating concentrations of HA and lower concentrations of CXCL4 are associated with failure of immune reconstitution on ART. [ABSTRACT FROM AUTHOR]


Objective: Aging people living with HIV (PLWH) face an increased burden of comorbidities, including chronic obstructive pulmonary disease (COPD). The impact of COPD on mortality in HIV remains unclear. We examined associations between markers of COPD and mortality among PLWH and uninfected study participants.; Design: Longitudinal analysis of the Examinations of HIV-Associated Lung Emphysema (EXHALE) cohort study.; Methods: EXHALE includes 196 PLWH and 165 uninfected smoking-matched study participants who underwent pulmonary function testing and computed tomography (CT) to define COPD and were followed. We determined associations between markers of COPD with mortality using multivariable Cox regression models, adjusted for smoking and the Veterans Aging Cohort Study (VACS) Index, a validated predictor of mortality in HIV.; Results: Median follow-up time was 6.9 years; the mortality rate was 2.7/100 person-years among PLWH and 1.7/100 person-years among uninfected study participants (P = 0.11). The VACS Index was associated with mortality in both PLWH and uninfected study participants. In multivariable models, pulmonary function and CT characteristics defining COPD were associated with mortality in PLWH: those with airflow obstruction (forced expiratory volume in 1s/forced vital capacity <0.7) had 3.1 times the risk of death [hazard ratio 3.1 (95% confidence interval 1.4-7.1)], compared with those without; those with emphysema (>10% burden) had 2.4 times the risk of death [hazard ratio 2.4 (95% confidence interval 1.1-5.5)] compared with those with ≤10% emphysema. In uninfected subjects, pulmonary variables were not significantly associated with mortality, which may reflect fewer deaths limiting power.; Conclusion: Markers of COPD were associated with greater mortality in PWLH, independent of the VACS Index. COPD is likely an important contributor to mortality in contemporary PLWH.;


Oral preexposure prophylaxis (PrEP) has been proven to be a safe and effective means of preventing HIV. The purpose of our literature review was to examine primary care provider knowledge and attitudes about prescribing PrEP. PubMed, CINAHL, Web of Science, and Scopus were searched and additional articles were identified through other sources, yielding 11 articles that met inclusion criteria. Overall, there was high variability among providers regarding attitudes, knowledge, and prescriptive practices related to PrEP. PrEP continues to be an underutilized HIV prevention intervention and more research focusing on provider-specific factors is warranted.


Frailty is recognized as a cornerstone of geriatric medicine. It increases the risk of geriatric syndromes and adverse health outcomes in older and vulnerable populations. Although multiple screening instruments have been developed and validated to
improve feasibility in clinical practice, frequent lack of agreement between frailty instruments has slowed broad implementation of these tools. Despite this, interventions to improve frailty-related health outcomes developed to date include exercise, nutrition, multicomponent interventions, and individually tailored geriatric care models. Possible strategies to prevent frailty include lifestyle or behavioral interventions, proper nutrition, and increased activity levels and social engagement.


Objective: To examine the effect of a lifestyle behavior intervention (SystemCHANGE) on physical activity and diet quality among sedentary people living with HIV (PLHIV). All participants expressed a desire to improve lifestyle health behaviors.; Methods: One-hundred and six HIV+ adults were randomized to either the intervention (six, in-person, standardized group sessions focusing on improving lifestyle behaviors) or a control condition (general advice on AHA diet and exercise guidelines). All participants wore an ActiGraph accelerometer and completed 24-hour dietary recalls at baseline, 3 and 6 months. Generalized estimating equations were used to examine intervention effects. The primary activity outcome was time spent in moderate-to-vigorous physical activity, and the primary dietary outcome was Healthy Eating Index.; Results: Mean age was 53 years; 65% were male and 86% African American. Approximately 90% attended at least half of the sessions and 60% attended 5 or more sessions. The intervention did not significantly improve our primary lifestyle behavior endpoints (p ≥ 0.05); however, intervention participants consumed fewer carbohydrates-primarily sugar-sweetened beverages-per day and lost 0.732 kg body weight compared to a 0.153 weight gain in the control group (p=0.03).; Conclusion: Among sedentary PLHIV at high risk for CVD, the SystemCHANGE intervention reduced daily carbohydrate intake and body weight, but did not increase physical activity or improve overall diet quality. Future work should identify fundamental personal, interpersonal, and contextual factors that will increase physical activity and improve overall diet quality among this population, and integrate these factors into tailored, lifestyle interventions for aging PLHIV.;


Safe sexual behaviors and anti-retroviral use help prevent HIV transmission. In this cross-sectional study, we assessed correlates of anti-retroviral (ART) status and transmission risk (a constructed variable) among a convenience sample of n = 1041 HIV-positive women (pre-intervention) enrolled in an evidence-based intervention at four CBOs. Multinomial logistic regression models were used. Younger women and those diagnosed with HIV in the last 5 years more often reported that they had not been prescribed ART. Self-reported non-adherence to ART was less frequently reported among women who were older, had a higher HIV knowledge, and those with attitudes/beliefs supportive of condom use. The highest-risk transmission group (condomless sex with HIV-negative/unknown partner and not prescribed or non-adherent to ART) was associated with younger age, attitudes/beliefs less supportive of condom use, and low self-efficacy discussing condom use. Our findings inform HIV prevention efforts among similar populations of HIV-positive women enrolled in interventions at CBOs.


Background Adults over age 65 represent the fastest growing population in the US. Decline in cognitive abilities is a hallmark of advanced age and is associated with loss of independence and dementia risk. There is a pressing need to develop effective interventions for slowing or reversing the cognitive aging process. While certain forms of cognitive training have shown promise in this area, effects only sometimes transfer to neuropsychological tests within or outside the trained domain. This paper describes a NIA-funded Phase III adaptive multisite randomized clinical trial, examining whether transcranial direct current stimulation (tDCS) of frontal cortices enhances neurocognitive outcomes achieved from cognitive training in older adults experiencing age-related cognitive decline: the Augmenting Cognitive Training in Older Adults study (ACT).

Methods ACT will enroll 360 participants aged 65 to 89 with age-related cognitive decline, but not dementia. Participants will undergo cognitive training intervention or education training-control combined with tDCS or sham tDCS control. Cognitive training
employs a suite of eight adaptive training tasks focused on attention/speed of processing and working memory from Posit Science BrainHQ. Training control involves exposure to educational nature/history videos and related content questions of the same interval/duration as the cognitive training. Participants are assessed at baseline, after training (12 weeks), and 12-month follow-up on our primary outcome measure, NIH Toolbox Fluid Cognition Composite Score, as well as a comprehensive neurocognitive, functional, clinical and multimodal neuroimaging battery.

Significance The findings from this study have the potential to significantly enhance efforts to ameliorate cognitive aging and slow dementia.


Although a significant increase in life expectancy for people with human immunodeficiency virus was reported last spring, experts in the U.S. caution that the results are not a cause for complacency. Efforts to develop a vaccine and a cure remain essential, as do efforts to develop interventions that may improve adherence. [ABSTRACT FROM AUTHOR]


Using NYC HIV surveillance data, we estimated the annual median age of persons living with diagnosed HIV (PLWDH) and the proportion of PLWDH over 50 years old in NYC between 2008 and 2015, and described the characteristics, retention in care and viral suppression status among PLWDH in NYC in 2015, by age (<50 vs. >/=50 years old). The median age of PLWDH in NYC increased from 46.4 years (interquartile range [IQR]: 39.4, 53.2) in 2008 to 50.2 years (IQR: 39.8, 57.5) in 2015, and the proportion of PLWDH over 50 years old increased from 35.9% in 2008 to 50.6% in 2015. In 2015, by race/ethnicity, whites had the highest proportion over 50 years old (57.0%) and Asian/Pacific Islanders had the lowest (36.2%); by transmission risk, men who have sex with men were the lowest (40.0%) and injection drug users were the highest (76.1%). A large and increasing proportion of PLWDH over 50 years old presents challenges for HIV-infected individuals and healthcare system. Better social support services for HIV-infected individuals and additional training for medical and public health staff are needed.


Introduction: The population of aging adults living with Human Immunodeficiency Virus (HIV) is growing worldwide and evidence suggests that frailty occurs prematurely among them. In turn, frailty has been associated with cognitive decline. It is unknown, however, if people with both frailty and HIV-infection have higher risk of cognitive impairment compared with non-frail HIV-infected persons. Therefore, the main objective of this study was to determine the association between the phenotype of frailty and HIV-associated neurocognitive disorders (HAND) among adults aged 50 years or older living with HIV/AIDS.

Material and Methods: A cross-sectional study was conducted on 206 adults living with HIV receiving care in a university-affiliated tertiary care hospital in Mexico City. Frailty was defined as per the Fried criteria. The presence of HAND was established according to the Antinori criteria: HIV-associated asymptomatic neurocognitive impairment (ANI), HIV-associated mild neurocognitive disorder (MND), or cognitively non-impaired. Multinomial logistic regression models were used to test the independent association between frailty and HAND adjusting for potential confounders.

Results: Mean age of participants was 60.5 ± 6.3 years and 84.9% were male. Prevalence of HAND and frailty phenotype was 66.0% and 2.9%, respectively. The unadjusted analysis showed that both prefrail and frail statuses were associated with MND but not with ANI. However, after adjustment, the association with MND remained significant only among prefrail participants and no longer for frail persons (RR = 5.7, 95% CI 1.09 to 29.82; p = .039 and RR = 18.3, 95% CI 0.93 to 362.6; p = .056, respectively). Discussion: Prefrailty is associated with symptomatic neurocognitive disorders in older adults living with HIV. The spectrum of the frailty phenotype in this already vulnerable population should serve as an indicator of concomitant cognitive decline.;

Binary classification problems are ubiquitous in health and social sciences. In many cases, one wishes to balance two competing optimality considerations for a binary classifier. For instance, in resource-limited settings, an human immunodeficiency virus prevention program based on offering pre-exposure prophylaxis (PrEP) to select high-risk individuals must balance the sensitivity of the binary classifier in detecting future seroconverters (and hence offering them PrEP regimens) with the total number of PrEP regimens that is financially and logistically feasible for the program. In this article, we consider a general class of constrained binary classification problems wherein the objective function and the constraint are both monotonic with respect to a threshold. These include the minimization of the rate of positive predictions subject to a minimum sensitivity, the maximization of sensitivity subject to a maximum rate of positive predictions, and the Neyman-Pearson paradigm, which minimizes the type II error subject to an upper bound on the type I error. We propose an ensemble approach to these binary classification problems based on the Super Learner methodology. This approach linearly combines a user-supplied library of scoring algorithms, with combination weights and a discriminating threshold chosen to minimize the constrained optimality criterion. We then illustrate the application of the proposed classifier to develop an individualized PrEP targeting strategy in a resource-limited setting, with the goal of minimizing the number of PrEP offerings while achieving a minimum required sensitivity. This proof of concept data analysis uses baseline data from the ongoing Sustainable East Africa Research in Community Health study. Copyright (c) 2017 John Wiley & Sons, Ltd.