Annotated Bibliography
2018
HIV and Aging
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This listing contains journal articles published in 2018
(some are dated 2019 but were published in 2018).

Several references occur more than once if they are listed under multiple subheads.
All texts cited are derived from on-line searches. Abstracts are listed when provided by the search.
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Bone Health


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.


OBJECTIVES: Several studies have involved antiretroviral therapy in the pathogenesis of low bone mineral density (BMD), while others have not confirmed this association. In this study we analyze the impact of HIV status, traditional risk factors and antiretroviral therapy in BMD in an HIV-infected population living in Madrid. MATERIAL AND METHODS: We performed a cross-sectional analysis of 107 individuals infected with HIV and exposed to antiretroviral treatment to estimate the prevalence of decreased BMD. Bone mineral density of lumbar spine and femoral neck was measured by dual-energy X-ray absorptiometry. In a multivariate analysis variables related with HIV status, antiretroviral drugs and traditional risk factors were included. RESULTS: Low BMD was diagnosed in 63 participants (58.9%), including osteoporosis in 11 (10%). At least one cause of osteoporosis was identified in 43 patients (40%), with a deficiency of vitamin D in 86 (89%) and secondary hyperparathyroidism in 30 (28%). In multivariate analysis, increasing age, a treatment based on boosted PI and tenofovir DF, and previous exposure to tenofovir were identified as independent risk factors for a decreased BMD in both lumbar spine and femoral neck. CONCLUSIONS: We have confirmed a high prevalence of reduced BMD, which is favoured by ritonavir-boosted PI and TDF. Bone safety should continue to be evaluated in clinical trials and cohort studies in order to demonstrate that the new drugs offer additional advantages regarding the impact on BMD.
Background & objectives: Data on bone mineral density (BMD) and sarcopenia are scant from young females with HIV. This study was conducted to determine occurrence, predictors and impact of body composition alterations on osteoporosis in pre-menopausal women with HIV. Methods: A total of 214 females with serologically documented HIV infection were screened, of whom 103 pre-menopausal women, 25-45 yr age, clinically stable, having at least one year follow up data, underwent hormonal and dual-energy X-ray absorptiometry analysis for BMD and body composition. Seventy five matched controls were also evaluated. Results: Females with HIV had significantly lower BMD and. Z: -score at lumbar spine (LS), total femur, neck of femur (NOF), and radius ultra-distal (UD) compared to controls. Osteoporosis at least at one site was observed in 34.95 per cent patients, compared to eight per cent in controls (P<0.001). Most common site of osteoporosis in females with HIV was radius UD (24.27%), followed by radius 33 per cent (17.48%), radius total (15.53%) and greater trochanter, NOF and LS (6.80% each). HIV patients had significantly lower bone mineral content, lean mass (LM), fat per cent, android (A) fat, gynoid (G) fat, and A/G ratio. LM and fat mass (FM) were -15.65 and -11.54 per cent lower in HIV patients, respectively. Osteoporosis patients had significantly higher use of antiretroviral therapy and lower LM, FM and fat per cent. On logistic regression, LM followed by A/G ratio and BMI were the best predictors of osteoporosis. Sarcopenia was observed in 17.5 per cent patients. Interpretation & conclusions: Our results showed that osteoporosis and sarcopenia were significant problems in young women with HIV. HIV was associated with greater LM loss, which was critical for bone health. Sarcopenia may predict low BMD in HIV.


A meta-analysis was conducted to evaluate the prevalence of osteopenia/osteoporosis in human immunodeficiency virus (HIV)-infected individuals. The prevalence of osteopenia/osteoporosis in HIV-infected and antiretroviral therapy (ART)-treated individuals was significantly higher than respective controls. Evidence regarding bone loss within first year of HIV infection or ART initiation was preliminary. Purpose The aim of the study is to systematically review published literature on the prevalence of osteopenia/osteoporosis and its associated risk factors in HIV-infected individuals. Methods A literature search was conducted from 1989 to 2015 in six databases. Full text, English articles on HIV-infected individuals >= 18 years, which used dual X-ray absorptiometry to measure BMD, were included. Studies were excluded if the prevalence of osteopenia/osteoporosis was without a comparison group, and the BMD/T-score were not reported. Results Twenty-one cross sectional and eight longitudinal studies were included. The prevalence of osteopenia/osteoporosis was significantly higher in both HIV-infected [odds ratio (OR) = 2.4 (95% CI: 2.0, 2.8) at lumbar spine, 2.6 (95% CI: 2.2, 3.0) at hip] and ART-treated individuals [OR = 2.8 (95% CI: 2.0, 3.8) at lumbar spine, 3.4 (95% CI: 2.5, 4.7) at hip] when compared to controls. PI-treated individuals had an OR of 1.3 (95% CI: 1.0, 1.7) of developing osteopenia/osteoporosis compared to controls. A higher proportion of tenofovir-treated individuals (52.6%) had lower BMD compared to controls (42.7%), but did not reach statistical significance (p = 0.248). No significant difference was found in the percent change of BMD at the lumbar spine, femoral neck, or total hip from baseline to follow-up between HIV-infected, PI-treated, tenofovir-treated, and controls. Older age, history of bone fracture, low BMI, low body weight, being Hispanic or Caucasian, low testosterone level, smoking, low CD4 cell count, lipodystrophy, low fat mass, and low lean body mass were associated with low BMD. Conclusions The prevalence of
osteopenia/osteoporosis in HIV-infected and antiretroviral therapy (ART)-treated individuals was two times more compared to controls. However, evidence concerning bone loss within the first year of HIV infection and ART initiation was preliminary.


Background and purpose — While development in hip fracture incidence and mortality is well examined, none has yet looked at the temporal trends regarding prevalence of co-morbidities. Therefore we investigated changes in incidence of first hip fracture, co-morbidity prevalence, 30 day- and 1-year mortality in hip fracture patients in the Danish population during the period 1999 to 2012. Patients and methods — Patients >18 years admitted with a fractured hip in Denmark between 1996 and 2012 were identified with data for the period 1999-2012 being analyzed regarding prevalence of co-morbidities, incidence, and mortality. Results — 122,923 patients were identified. Incidence in the whole population declined but sex-specific analysis showed no changes for men. For the whole study population, 30-day and 1-year mortality remained unchanged. Age at time of first hip fracture also remained unchanged. Of the included co-morbidities a decrease in prevalence of malignancy and dementia in women was found while there was an increase in the prevalence of all remaining co-morbidities, except hemi- or paraplegia for both sexes, rheumatic diseases for women, and for men diabetes with complications, myocardial infarction, AIDS/HIV, and malignancy. Interpretation — While hip fracture incidence declined for women it was unchanged for men; likewise, 30-day and 1-year mortality rates together with age at first fracture remained unchanged. When these results are compared with the relatively large increase in the prevalence of co-morbidities, it does not seem likely that the increased disease burden is affecting either the incidence or the mortality.


With advances in combination antiretroviral therapy (cART), people living with HIV are now surviving to experience aging. Evidence suggests that individuals living with HIV are at greater risk for low bone mineral density (BMD), osteoporosis, and fractures. Better understanding of the pathophysiology of bone health in women living with HIV (WLWH) is important for treatment strategies. The goal of this study was to explore new biological factors linked to low BMD in WLWH. Standardized BMD measures of WLWH were compared to reference values from an unselected population of women from the same geographical region of the same age range. Linear regression analysis was used to assess relationships among health-related characteristics, cellular aging (measured by leukocyte telomere length; LTL), cART, and BMD of WLWH. WLWH (n = 73; mean age 43 ± 9 years) had lower BMD Z-scores at the lumbar spine (LS) (mean difference = -0.39, p < 0.001) and total hip (TH) (-0.29, p = 0.012) relative to controls (n = 290). WLWH between 50 and 60 years (n = 17) had lower Z-scores at the LS (p = 0.008) and TH (p = 0.027) compared to controls (n = 167). Among WLWH, LS BMD was significantly associated with LTL (R² = 0.09, p = 0.009) and BMI (R² = 0.06, p = 0.042). Spinal BMD was adversely affected in WLWH. Reduction of LTL was strongly associated with lower BMD and may relate to its pathophysiology and premature aging in WLWH.

Background: We characterized associations between frailty and incidence of cardiovascular disease (CVD), diabetes mellitus (DM), bone disease and mortality within a cohort of aging persons with HIV (PWH). Methods: Participants underwent frailty evaluations using the Fried's frailty assessment at baseline and then annually. Frailty was defined as having >/=3 frailty criteria. Clinical outcomes of mortality, incident CVD events, DM, and bone disease events were recorded throughout the study period (baseline to most recent study or clinic visit, or date of clinical outcome occurrence, whichever came first). Poisson regression models evaluated associations between baseline frailty, change in frailty score over 48 weeks, and each clinical outcome. Results: Among 821 men and 195 women (median age 51 years), 62 (6%) were frail at baseline. Frailty scores increased in one or more components among 194 participants (19%) from baseline to 48 weeks. Baseline frailty was associated with an increased risk of incident CVD and DM with a trend towards a significant association with incident bone events. Among the components of frailty, slow gait speed was associated with incident DM and borderline-associated with incident CVD. An increase in frailty from baseline to week 48 was associated with mortality, but not with the other clinical outcomes. Conclusions: Baseline frailty was associated with multiple adverse health outcomes (incident CVD, DM and bone disease), while increase in frailty score was associated with mortality among PWH engaged in care. Incorporation of frailty assessments into the routine care of PWH may assist in improvement of functional status and risk stratification for age-related chronic diseases.


BACKGROUND: The life expectancy of HIV-infected individuals has dramatically improved with potent antiretroviral therapies. However, organ-specific toxicities of some antiretrovirals and persistent inflammation and immune activation due to residual virus replication account for a high burden of age-associated comorbidities in the HIV population. METHODS: The prevalence of overt cardiovascular, renal and bone diseases as well as their major risk factors were cross-sectionally examined during the year 2014 in the VACH cohort, a large nationwide population of HIV-infected individuals in Spain. RESULTS: A total of 10,897 HIV-infected patients were examined. Seventy-one point four percent were male and the mean age was 48 years. Mean time since HIV diagnosis was 15.8 years and mean time on antiretroviral therapy was 13.1 years. The proportion of patients with undetectable viral load was 87.1%, whereas 65.7% had CD4 counts>500 cells/mm(3). Overall, cardiovascular, renal and bone disease were recorded in 4.7%, 5.9% and 2.8%, respectively. The prevalence of major risk factors was as follows: smoking 51.3%, alcohol abuse 7.8%, overweight/obesity 42.2%, diabetes 19.9%, dyslipidaemia 72.6%, hypertension 25.6%, and osteoporosis 11.1%. In the subset of patients older than 55 years-old (18%), all figures for overt disease and their major risk factors were significantly greater. CONCLUSION: Major age-related medical conditions and most of their risk factors are highly prevalent in HIV-infected individuals on long-term antiretroviral therapy in Spain. Preventive actions, including careful selection of antiretroviral agents, should be prioritized in the ageing HIV population.


Introduction: Tenofovir disoproxil fumarate (TDF) has been associated with greater incidences of bone complications, which might be modified by some concomitantly administered antiretrovirals, possibly by their effect on tenofovir concentrations. We compared bone adverse outcomes among treatment-naïve HIV-infected US veterans initiating efavirenz (EFV)-containing TDF/emtricitabine (FTC) regimens versus those initiating non-EFV-containing TDF/FTC regimens. Methods: Using national Veterans Health Administration clinical and administrative data sets, we identified a cohort of treatment-naïve HIV-infected veterans without bone disease who initiated therapy with TDF/FTC plus EFV, rilpivirine, elvitegravir/cobicistat, or ritonavir-boosted protease inhibitors in 2003-2015. The primary
composite adverse bone outcome was the unadjusted incidence rate (IR) of osteoporosis, osteopenia, or fragility fracture (any hip, wrist, or spine fracture). To account for selection bias and confounding, we used inverse probability of treatment-weighted Cox proportional hazards regression models to calculate adjusted hazard ratios (HRs) for each outcome associated with EFV + TDF/FTC versus each non-EFV-containing TDF/FTC regimen. Results: Of 33,048 HIV-positive veterans, 7161 initiated a TDF/FTC-containing regimen (mean age, 50 years; baseline CD4 < 200 cells/mm3, 33.3%; HIV-1 RNA > 100,000 copies/ml, 22.3%; mean follow-up, 13.0 months). Of these, 4137 initiated EFV- and 3024 non-EFV-containing regimens. Veterans initiating EFV-versus non-EFV-containing TDF/FTC regimens had a lower IR of the composite bone outcome (29.3 vs. 41.4 per 1000 patient-years), with significant risk reductions for this outcome [HR, 0.69; 95% confidence interval (CI), 0.58-0.83] and fragility fracture (HR, 0.59; 95% CI, 0.44-0.78). Conclusion: EFV + TDF/FTC is associated with a lower risk of adverse bone outcomes compared with other TDF-containing regimens in the VHA. Funding: Bristol-Myers Squibb. [ABSTRACT FROM AUTHOR]


The article reflects on a study providing evidence of osteoclasts as a reservoir for human immunodeficiency virus (HIV) and the direct damaging effects of HIV infection on bone resorption. It illustrates the indirect bone effect of HIV, either through disruption of T cell costimulation of B cells or through a suppressive effect on B cells. It also demonstrates the direct bone effect of HIV by infecting circulating osteoclast precursors, enhancing their differentiation and migration to bones.


OBJECTIVE: The aim of this work was to investigate determinants of structural myocardial abnormalities in persons living with human immunodeficiency virus (PLWH). METHODS AND RESULTS: We reviewed archived transthoracic echocardiograms (TTEs) performed on PLWH at Duke University Medical Center from 2001 to 2012. The primary outcomes were presence of left ventricular hypertrophy (LVH) or diastolic dysfunction (DD). TTEs for 498 human immunodeficiency virus-infected persons were reviewed (median age 44 years, 38% female, 72% black, 34% with hypertension, 15% with diabetes). Among those with usable images, LVH was detected in 174 of 473 persons (37%) according to LV mass criteria and in 99 of 322 persons (31%) according to American Society of Echocardiography LV mass index criteria. Definite DD was detected in 18 of 224 persons (8%). LVH was more common in PLWH with a CD4 count </= 200 cells/mm(3) proximal to TTE (adjusted OR 1.68, 95% CI 1.08-2.62), CD4 nadir </= 200 cells/mm(3) (adjusted OR 1.63, 95% CI 1.04-2.54) and less common in persons with viral suppression (OR 0.46, 95% CI 0.27-0.80). Lower CD4 nadirs (P=.002) and proximal CD4 counts (P=.002) were also associated with DD. CONCLUSIONS: Persons with a history of advanced human immunodeficiency virus-associated immune suppression are at higher risk of LVH and DD than infected persons with preserved immune function.


We conducted a cross-sectional secondary analysis of baseline data from the SATURN-HIV study (N = 147; 78% male, 68% Black, median body mass index [BMI] 26.72 kg/m(2), 13% with osteopenia, HIV-1 RNA < 1,000 copies/mL, stable antiretroviral therapy [ART]) to explore the relationship between physical activity (PA) and bone mineral density
We measured self-reported minutes of PA and BMD in the overall sample and subgroups based on national recommendations (>\geq 150 minutes/week). Forty-one (28%) participants met recommended PA levels. Higher intensity PA was associated with higher BMD at the total hip (r = 0.27, p = .09; n = 41; 28%) and lumbar spine (r = 0.32, p < .05), and predicted higher BMD at the hip (p < .01; controlling for age, BMI, ART). Lumbar spine BMD did not retain significance in the regression model. Moderate-to-high intensity PA could prevent or mitigate excessive bone loss in people living with HIV.


Cancer


OBJECTIVE: Little is known about cervical cancer screening and results patterns among HIV-infected (HIV+) women in real-world healthcare settings. We characterized two periods of screening opportunity. DESIGN: Retrospective cohort. SETTING: US safety-net healthcare system in Dallas County, Texas. PARTICIPANTS: We analyzed data from electronic medical records (EMR) of 1490 HIV+ women receiving care 2010-2014. MAIN OUTCOME MEASURES: At baseline, we categorized a woman's Pap status 15 months prior to index date as under-screened (vs. screened), and cytology result (normal vs. abnormal). Then, we examined screening completion and results, and colposcopy uptake and results after an abnormal screen, in the subsequent 15-month period. RESULTS: More than half of women (56%) had no evidence of a Pap test (i.e. under-screened) at baseline. Under-screened women were more likely to be older (50-64 years), have diabetes, and unknown viral load; they were less likely to be Black, Hispanic, have Medicaid, recently pregnant, have a HIV clinic visit, or a CD4 cell count at least 200 cells/mul. Nearly half of under-screened women (46%, n = 383) remained under-screened in the subsequent 15 months. Among women under-screened at baseline who later completed screening and follow-up during the study period, 21 high-grade dysplasia and three cancers were diagnosed. Overall, 40% of women did not receive colposcopy when needed, with most failures to follow-up occurring in women who were under-screened at baseline. CONCLUSION: Most HIV+ women receiving care in a safety-net system did not receive sufficient screening for cervical cancer and remained at exceptionally high risk of developing high-grade dysplasia.


OBJECTIVE: Nonadherence reduces the effectiveness of behavioral change regimens for promoting health and decreasing morbidities and mortality. Such is the case with endocrine therapies, which lower the likelihood of recurrence in the approximately 70% of women with hormone receptor-positive breast cancers. This investigation tests a model of contributors to objective adherence. METHOD: Women with breast cancer receiving their 1st endocrine therapy prescription (N = 130) were recruited from a large community oncology breast clinic. Participants completed three interview and questionnaire sessions at prescription initiation, one month and four months later. Questionnaires addressed patients' experience with cancer and included measures of coping (COPE and Emotional Approach Coping), social support (Interpersonal Support Evaluation List), and depressive symptoms (Center for Epidemiologic Studies Depression Scale). At the initial appointment, participants were provided a Medication Event Monitoring System (MEMS) cap to assess adherence; the MEMS cap was collected at the 4-month follow-up appointment. RESULTS: Structural equation modeling offered partial support for a mediational model, chi2(68, N = 130) = 77.47, p = .202, root-mean-square error of approximation = .03, comparative fit index = .97, standardized root-mean-square residual = .06.
Greater social support at prescription initiation was associated with lower depressive symptoms 1 month later, which in turn were associated with higher objective adherence (MEMS) four months after study entry, controlling for significant covariates (p < .05). Use of avoidance-oriented coping was not statistically significantly related to depressive symptoms (p > .05). CONCLUSIONS: This model informs theory regarding medication adherence as well as intervention development for women prescribed adjuvant endocrine therapy. (PsycINFO Database Record


OBJECTIVES: To describe the current state of cancer screening and uptake for lesbian, gay, bisexual, and transgender (LGBT) persons and to propose cancer screening considerations for LGBT persons. DATA SOURCES: Current and historic published literature on cancer screening and LGBT cancer screening; published national guidelines. CONCLUSION: Despite known cancer risks for members of the LGBT community, cancer screening rates are often low, and there are gaps in screening recommendations for LGBT persons. We propose evidence-based cancer screening considerations derived from the current literature and extant cancer screening recommendations. IMPLICATIONS FOR NURSING PRACTICE: The oncology nurse plays a key role in supporting patient preventive care and screening uptake through assessment, counseling, education, advocacy, and intervention. As oncology nurses become expert in the culturally competent care of LGBT persons, they can contribute to the improvement of quality of care and overall well-being of this health care disparity population.


Purpose People with HIV infection have an elevated risk of anal cancer. However, recent calendar trends are incompletely described, and which population subgroups might benefit from cancer screening is unknown. Methods We used linked data from HIV and cancer registries in nine US areas (1996 to 2012). We calculated standardized incidence ratios to compare anal cancer incidence in people with HIV infection with the general population, used Poisson regression to evaluate anal cancer incidence among subgroups of people with HIV and to assess temporal trends, and estimated the cumulative incidence of anal cancer to measure absolute risk. Results Among 447,953 people with HIV infection, anal cancer incidence was much higher than in the general population (standardized incidence ratio, 19.1; 95% CI, 18.1 to 20.0). Anal cancer incidence was highest among men who have sex with men (MSM), increased with age, and was higher in people with AIDS than in those without AIDS (ie, HIV only; adjusted incidence rate ratio, 3.82; 95% CI, 3.27 to 4.46). Incidence among people with HIV increased steeply during 1996 to 2000 (annual percentage change, 32.8%; 95% CI, -1.0% to 78.2%), reached a plateau during 2001 to 2008, and declined during 2008 to 2012 (annual percentage change, -7.2%; 95% CI, -14.4% to 0.6%). Cumulative incidence after a 5-year period was high for MSM with HIV only age 45 to 59 or >/= 60 years (0.32% to 0.33%) and MSM with AIDS age 30 to 44, 45 to 59, or >/= 60 years (0.29% to 0.65%). Conclusion Anal cancer incidence is markedly elevated among people with HIV infection, especially in MSM, older individuals, and people with AIDS. Recent declines may reflect delayed benefits of HIV treatment. Groups with high cumulative incidence of anal cancer may benefit from screening.

Immunological parameters that influence susceptibility to virus-associated cancers in HIV-seronegative individuals are unclear. We conducted a case-control cohort study of immunological parameters associated with development of incident virus-associated cancers among 532 HIV-seronegative men who have sex with men (MSM) enrolled in the Multicenter AIDS Cohort Study (MACS) with median (IQR) 21 (8-26) years of follow-up. Thirty-two incident virus-associated cancers (anal cancer, non-Hodgkin lymphoma, liver cancer, other cancers with etiologies linked to human papillomavirus, Epstein-Barr virus, hepatitis B virus, or human herpesvirus-8) were identified among 3,408 HIV-seronegative men in the MACS during 1984-2010. Cases were matched for demographics, smoking, and follow-up to 500 controls without cancer. Mixed-effects and Cox regression models were used to examine associations between nadir or recent CD4, CD8, and white blood cell (WBC) counts or CD4:CD8 ratios and subsequent diagnosis of virus-associated cancers. Men with incident virus-associated cancers had lower CD4 and WBC counts over a 6-year window prior to diagnosis compared to men without cancer (p = 0.001 and 0.03, respectively). Low CD4 cell count and nadir, CD4 count-nadir differential, and CD4:CD8 ratio nadir were associated with increased 2-year risk of incident virus-associated cancers in models adjusted for demographics and smoking (hazard ratios 1.2-1.3 per 100 or 0.1 unit decrease, respectively; p < 0.01). Other associated factors included heavy smoking and past or current hepatitis B virus infection. These findings show that low CD4 cell counts, CD4 nadir, and CD4:CD8 cell ratios are independent predictors for subsequent risk of virus-associated cancers in HIV-seronegative MSM.


Background: Anal high-grade dysplasia (HSIL) ablation may reduce the incidence of invasive cancer, but few data exist on HSIL treatment efficacy and natural regression without treatment. Methods: An open-label, randomized, multi-site clinical trial of HIV-infected adults age 27 or older with 1-3 biopsy-proven anal HSIL (index HSIL) without prior history of HSIL treatment with infrared coagulation. Participants were randomized 1:1 to ablation of anal HSIL with infrared coagulation (treatment group) or no HSIL treatment (active monitoring). Participants were followed every three months with high-resolution anoscopy. Treatment group participants underwent anal biopsies of suspected new or recurrent HSIL. Active monitoring arm participants only underwent biopsies at month 12. The primary endpoint was complete clearance of index HSIL at Month 12. Results: We randomized 120 participants. Complete index HSIL clearance occurred more frequently in the treatment group as compared to active monitoring group (62% vs. 30%; risk difference, 32%; 95% CI, 13%-48%; P<0.001). Complete or partial clearance (complete clearance of >/=1 index HSIL) occurred more commonly in the treatment group (82% vs. 47%; risk difference, 35%; 95% CI, 16%-50%; P<0.001). Having a single index lesion was significantly associated with complete clearance as compared to having 2-3 index lesions (RR, 1.96; 95% CI, 1.22-3.10). The most common adverse events related to treatment were mild or moderate anal pain and bleeding. No serious adverse events were deemed related to treatment or study participation. Conclusion: Infrared coagulation ablation of anal HSIL results in more clearance of HSIL compared to observation alone.


As HIV-seropositive individuals live longer, they are more likely to acquire conditions seen in the general population. Excluding AIDS-defining malignancies, HIV-seropositive individuals are more likely to develop cancer than individuals in the general population. In order to better inform future screening and prevention efforts in this population, we compared the geographic distribution and location characteristics of HIV-seropositive and HIV-
seronegative cancer cases in South Carolina (SC). To do this we obtained linked HIV and cancer data from the SC enhanced HIV/AIDS Reporting System and Central Cancer Registry. Location-related information on SC residents (e.g., employment status, income levels, race of householder, and educational attainment) was obtained from the 2000 US Census. Hotspot analyses were used to analyze the geographic distribution of HIV-seropositive and HIV-seronegative cancer cases using the Getis-Ord Gi* statistic. Poisson regression analyses assessed if county demographic and geographic characteristics were associated with HIV-positive cancer case rates.


BACKGROUND: The incidence of AIDS-defining cancers (ADCs) has decreased markedly in the era of highly active antiretroviral therapy (HAART). The occurrence of two ADCs is rare in people living with HIV or AIDS (PWHA) who are severely immunosuppressed or have incomplete virologic suppression. CASE PRESENTATION: We report a case of dual primary ADCs, especially NHL followed by KS, in a 70-year-old HIV-infected man who was on antiretroviral therapy and had successful virologic suppression. During HAART, he presented with generalized myalgia and abdominal pain. Multiple liver masses were detected and a biopsy revealed Burkitt's lymphoma. After three cycles of anticancer chemotherapy with a favorable response, he was diagnosed with cytomegalovirus retinitis and the anticancer chemotherapy was discontinued. Despite successful virologic suppression with HAART, human herpes virus-8 associated Kaposi's sarcoma was diagnosed in his right thigh. He underwent radiation therapy. CONCLUSION: These findings suggest that multiple ADCs can occur in PWHA who are receiving HAART and have successful virologic suppression. Healthcare providers caring for PWHA should maintain vigilance for the development of a broad spectrum of cancers.


OBJECTIVE: Lung cancer is the leading cause of non-AIDS-defining cancer deaths among HIV-infected individuals. Although lung cancer screening with low-dose computed tomography (LDCT) is endorsed by multiple national organizations, whether HIV-infected individuals would have similar benefit as uninfected individuals from lung cancer screening is unknown. Our objective was to determine the benefits and harms of lung cancer screening among HIV-infected individuals. DESIGN: We modified an existing simulation model, the Lung Cancer Policy Model, for HIV-infected patients. DATA SOURCES: Veterans Aging Cohort Study, Kaiser Permanente Northern California HIV Cohort, and medical literature. TARGET POPULATION: HIV-infected current and former smokers. TIME HORIZON: Lifetime. PERSPECTIVE: Population. INTERVENTION: Annual LDCT screening from ages 45, 50, or 55 until ages 72 or 77 years. MAIN OUTCOME MEASURES: Benefits assessed included lung cancer mortality reduction and life-years gained; harms assessed included numbers of LDCT examinations, false-positive results, and overdiagnosed cases. RESULTS OF BASE-CASE ANALYSIS: For HIV-infected patients with CD4 cell count at least 500 cells/mul and 100% antiretroviral therapy adherence, screening using the Centers for Medicare & Medicaid Services criteria (age 55-77, 30 pack-years of smoking, current smoker or quit within 15 years of screening) would reduce lung cancer mortality by 18.9%, similar to the mortality reduction of uninfected individuals. Alternative screening strategies utilizing lower screening age and/or pack-years criteria increase mortality reduction, but require more LDCT examinations. LIMITATIONS: Strategies assumed 100% screening adherence. CONCLUSION: Lung cancer screening reduces mortality in HIV-infected patients with CD4 cell count at least 500
cells/mul, with a number of efficient strategies for eligibility, including the current Centers for Medicare & Medicaid Services criteria.


Background: Cancer causes significant morbidity and mortality among HIV patients in the US due to extended life expectancy with access to effective antiretroviral therapy. Low, detectable HIV RNA has been studied as a risk factor for adverse health outcomes, but its clinical impact on cancer risk remains unclear. The objective of this study was to determine whether HIV RNA <1,000 copies/mL six months after starting therapy was associated with 10-year first cancer risk. Methods: We followed 7,515 HIV therapy initiators from a US-based multicenter clinical cohort from 1998 to 2014. We used nonparametric multiple imputation to account for viral loads that fell below assay detection limits, and categorized viral loads six months after therapy initiation into four groups: <20, 20–199, 200–999, and >999 copies/mL. We calculated estimates of the cumulative incidence of cancer diagnosis, accounting for death as a competing event. Inverse probability of exposure and censoring weights were used to control for confounding and differential loss to follow up, respectively. Results: Crude 10-year first cancer risk in the study sample was 7.03% (95% CI: 6.08%, 7.98%), with the highest risk observed among patients with viral loads between 200 and 999 copies/mL six months after ART initiation (10.7%). After controlling for baseline confounders, 10-year first cancer risk was 6.90% (95% CI: 5.69%, 8.12%), and was similar across viral load categories. Conclusion: Overall risk of first cancer was not associated with incomplete viral suppression; however, cancer remains a significant threat to HIV patients after treatment initiation. As more HIV patients gain access to treatment in the current “treat all” era, occurrences of incomplete viral suppression will be observed more frequently in clinical practice, which supports continued study of the role of low-level HIV RNA on cancer development. [ABSTRACT FROM AUTHOR]


Background: Cancer risk is increased in people living with HIV (PLWH). Improved survival has led to an aging of PLWH. We evaluated the cancer risk in older PLWH (age >/=50 years). Methods: We included data from the HIV/AIDS Cancer Match Study (1996-2012) and evaluated risk of Kaposi sarcoma (KS), non-Hodgkin lymphoma (NHL), Hodgkin lymphoma, and cervical, anal, lung, liver, oral cavity/pharyngeal, breast, prostate, and colon cancers in older PLWH compared to the general population by calculating the standardized incidence ratios (SIRs) and excess absolute risks (EARs). Cancer risk by time since HIV diagnosis was estimated using Poisson regression. Results: We identified 10,371 cancers among 183,542 older PLWH. Risk was significantly increased for KS (SIR=103.34), NHL (SIR=3.05), Hodgkin lymphoma (SIR=7.61), and cervical (SIR=2.02), anal (SIR=14.00), lung (SIR=1.71), liver (SIR=2.91), and oral cavity/pharyngeal (SIR=1.66) cancers, and reduced for breast (SIR=0.61), prostate (SIR=0.47), and colon (SIR=0.63) cancers. SIRs declined with age for all cancers; however, EARs increased with age for anal, lung, liver, and oral cavity/pharyngeal cancers. Cancer risk was highest for most cancers within 5 years after HIV diagnosis; risk decreased with increasing time since HIV diagnosis for KS, NHL, lung cancer, and Hodgkin lymphoma. Conclusions: Cancer risk is elevated among older PLWH. Although SIRs decrease with age, EARs are higher for some cancers, reflecting a greater absolute excess in cancer incidence among older PLWH. High risk in the first 5 years after HIV diagnosis for some cancers highlights the need for early HIV diagnosis and rapid treatment initiation.

There is a growing population of older women living with HIV/AIDS (WLWHA). Breast cancer is a common cancer in women worldwide, but the global number of breast cancers in WLWHA is not known. We estimated, for each UN sub-region, the number and age distribution of WLWHA who were diagnosed with breast cancer in 2012, by combining IARC-GLOBCAN estimates of age-country specific breast cancer incidence with corresponding UNAIDS HIV prevalence. Primary analyses assumed no HIV-breast cancer association, and a breast cancer risk reduction scenario was also considered. Among 16.0 million WLWHA aged 15+ years, an estimated 6,325 WLWHA were diagnosed with breast cancer in 2012, 74% of whom were in sub-Saharan Africa, equally distributed between Eastern, Southern and Western Africa. In most areas, 70% of HIV-positive breast cancers were diagnosed under age 50. Among all breast cancers (regardless of HIV status), HIV-positive women constituted less than 1% of the clinical burden, except in Eastern, Western and Middle Africa where they comprised 4-6% of under age 50 year old breast cancer patients, and in Southern Africa where this patient subgroup constituted 26 and 8% of breast cancers diagnosed under and over age 50 respectively. If a deficit of breast cancer occurs in WLWHA, the global estimate would reduce to 3,600. In conclusion, worldwide, the number of HIV-positive women diagnosed with breast cancer was already substantial in 2012 and with an expected increase within the next decade, early detection and treatment research targeted to this population are needed.

cancer


Background: Viral suppression is a primary marker of HIV treatment success. Persons with HIV are at increased risk for AIDS-defining cancer (ADC) and several types of non-AIDS-defining cancer (NADC), some of which are caused by oncogenic viruses. Objective: To determine whether viral suppression is associated with decreased cancer risk. Design: Prospective cohort. Setting: Department of Veterans Affairs. Participants: HIV-positive veterans (n = 42 441) and demographically matched uninfected veterans (n = 104 712) from 1999 to 2015. Measurements: Standardized cancer incidence rates and Poisson regression rate ratios (RRs; HIV-positive vs. uninfected persons) by viral suppression status (unsuppressed: person-time with HIV RNA levels >/=500 copies/mL; early suppression: initial 2 years with HIV RNA levels <500 copies/mL; long-term suppression: person-time after early suppression with HIV RNA levels <500 copies/mL). Results: Cancer incidence for HIV-positive versus uninfected persons was highest for unsuppressed persons (RR, 2.35 [95% CI, 2.19 to 2.51]), lower among persons with early suppression (RR, 1.99 [CI, 1.87 to 2.12]), and lowest among persons with long-term suppression (RR, 1.52 [CI, 1.44 to 1.61]). This trend was strongest for ADC (unsuppressed: RR, 22.73 [CI, 19.01 to 27.19]; early suppression: RR, 9.48 [CI, 7.78 to 11.55]; long-term suppression: RR, 2.22 [CI, 1.69 to 2.93]), much weaker for NADC caused by viruses (unsuppressed: RR, 3.82 [CI, 3.24 to 4.49]; early suppression: RR, 3.42 [CI, 2.95 to 3.97]; long-term suppression: RR, 3.17 [CI, 2.78 to 3.62]), and absent for NADC not caused by viruses. Limitation: Lower viral suppression thresholds, duration of long-term suppression, and effects of CD4+ and CD8+ T-cell counts were not thoroughly evaluated. Conclusion: Antiretroviral therapy resulting in long-term viral suppression may contribute to cancer prevention, to a greater degree for ADC than for NADC. Patients with long-term viral suppression still had excess cancer risk. Primary Funding Source: National Cancer Institute and National Institute on Alcohol Abuse and Alcoholism of the National Institutes of Health.
INTRODUCTION: We present a case-control study of non-AIDS-defining cancers (NADCs) in a cohort of HIV-infected patients where we value the incidence, survival and prognostic factors of mortality. METHODS: All NADCs diagnosis conducted from 2007 to 2011 in 7 hospitals were collected prospectively, with a subsequent follow up until December 2013. A control group of 221 HIV patients without a diagnosis of cancer was randomly selected. RESULTS: Two hundred and twenty-one NADCs were diagnosed in an initial cohort of 7,067 HIV-infected patients. The most common were: hepatocellular carcinoma 20.5%, lung 18.7%, head and neck 11.9% and anal 10.5%. The incidence rate of NADCs development was 7.84/1,000 people-year. In addition to aging and smoking, time on ART (OR 1.11; 95% CI 1.05-1.17) and PI use (OR 1.72; 95% CI 1.0-2.96) increased the risk of developing a NADC. During follow-up 53.42% died, with a median survival time of 199.5 days. In the analysis of the prognostic factors of mortality the low values of CD4 at tumour diagnosis (OR 0.99; 95% CI 0.99-1.0; P=.033), and the previous diagnosis of AIDS (OR 2.06; 95% CI 1.08-3.92) were associated with higher mortality. CONCLUSIONS: Predictors of NADCs in our cohort were age, smoking, CD4 lymphocytes and time on ART. Mortality is high, with NADC risk factors being low CD4 count and previous diagnosis of AIDS.


Background: Persons living with HIV (PLWH) have an elevated risk for certain types of cancer. With modern antiretroviral therapy, PLWH are aging and cancer rates are changing. Objective: To project cancer incidence rates and burden (number of new cancer diagnoses) among adult PLWH in the United States through 2030. Design: Descriptive. Setting: HIV/AIDS Cancer Match Study to project cancer rates and HIV Optimization and Prevention Economics model to project HIV prevalence. Participants: HIV-infected adults. Measurements: Projected cancer rates and burden among HIV-infected adults in the United States by age during 2006 to 2030 for AIDS-defining cancer (ADC) - that is, Kaposi sarcoma, non-Hodgkin lymphoma, and cervical cancer - and certain types of non-AIDS-defining cancer (NADC). All other cancer types were combined. Results: The proportion of adult PLWH in the United States aged 65 years or older is projected to increase from 8.5% in 2010 to 21.4% in 2030. Age-specific rates are projected to decrease through 2030 across age groups for Kaposi sarcoma, non-Hodgkin lymphoma, cervical cancer, lung cancer, Hodgkin lymphoma, and other cancer types combined, and among those aged 65 years or older for colon cancer. Prostate cancer rates are projected to increase. The estimated total cancer burden in PLWH will decrease from 8150 cases in 2010 (2730 of ADC and 5420 of NADC) to 6690 cases in 2030 (720 of ADC and 5980 of NADC). In 2030, prostate cancer (n = 1590) and lung cancer (n = 1030) are projected to be the most common cancer types. Limitation: Projections assume that current trends in cancer incidence rates, HIV transmission, and survival will continue. Conclusion: The cancer burden among PLWH is projected to shift, with prostate and lung cancer expected to emerge as the most common types by 2030. Cancer will remain an important comorbid condition, and expanded access to HIV therapies and cancer prevention, screening, and treatment is needed. Primary Funding Source: National Cancer Institute.


Cervical cancer rates are disproportionately high among women living with the human immunodeficiency virus (WLHIV). Cervical cancer is preventable through HPV screening, regular Pap tests, and early cancer detection. Evidence indicates that HPV and cervical cancer screening are suboptimal among WLHIV, who face a myriad of access barriers. Considering that screening is an effective first-line defense to cervical cancer, we conducted a scoping review with the aim of gaining a better understanding about: (1) the knowledge and perceptions of HPV and cervical cancer screening among WLHIV; and (2) the acceptability of self-sampling for HPV among WLHIV. We searched five electronic databases for peer-reviewed articles that were published in English within the last ten years, reported on studies with HIV-positive women who were aged 16 or older, and satisfied the topics of the review. A total of 621 articles were found. After accounting for duplicates and unmet criteria, 17 articles and 1 abstract, reporting on studies in the United States and Africa, were included in this review. The review highlighted that most WLHIV had inadequate knowledge of HPV transmission and cervical cancer prevention, which influenced their perceptions of risk and susceptibility. Screening barriers included misconceptions about Pap tests, fear of diagnosis of serious illness, perceived pain, embarrassment, bodily modesty, and limited access to female health care providers. This review also affirms that self-sampling is an acceptable and promising screening option for WLHIV. Implications for policy, research, and practice are discussed.


Skin cancers—including basal cell carcinoma, squamous cell carcinoma, and melanoma—impose high incidence and morbidity in older persons. As life expectancy continues to increase in persons living with HIV (PLWH), this population may face an increased risk of non-AIDS-defining malignancies, such as skin cancers. We conducted a systematic review on skin cancer risks in PLWH, ages 50 years or older, as compared with age-matched, HIV-uninfected persons. Four studies met criteria and were included. No statistically significant associations were demonstrated between HIV infection and skin cancers in older persons. For those with a history of basal or squamous cell carcinoma, HIV infection was associated with higher risks of subsequent squamous cell carcinoma. Future studies are needed to elucidate and reduce morbidity of primary and multiple skin cancers to promote successful aging in PLWH.

**Cardiovascular Disease**


**BACKGROUND:** Incident heart failure (HF) is increased in persons with human immunodeficiency virus (PHIV). Protease inhibitors (PIs) are associated with adverse cardiac remodeling and vascular events; however, there are no data on the use of PIs in PHIV with HF. **OBJECTIVES:** This study sought to compare characteristics, cardiac structure, and outcomes in PHIV with HF who were receiving PI-based versus non-PI (NPI) therapy. **METHODS:** This was a retrospective single-center study of all 394 antiretroviral therapy-treated PHIV who were hospitalized with HF in 2011, stratified by PI and NPI. The primary outcome was cardiovascular (CV) mortality, and the secondary outcome was 30-day HF readmission rate. **RESULTS:** Of the 394 PHIV with HF (47% female, mean age 60 +/- 9.5 years, CD4 count 292 +/- 206 cells/mm(3)), 145 (37%) were prescribed a PI, whereas 249 (63%) were prescribed NPI regimens. All PI-based
antiretroviral therapy contained boosted-dose ritonavir. PHIV who were receiving a PI had higher rates of hyperlipidemia, diabetes mellitus, and coronary artery disease (CAD); higher pulmonary artery systolic pressure (PASP); and lower left ventricular ejection fraction. In follow-up, PI use was associated with increased CV mortality (35% vs. 17%; p < 0.001) and 30-day HF readmission (68% vs. 34%; p < 0.001), effects seen in all HF types. Predictors of CV mortality included PI use, CAD, PASP, and immunosuppression. Overall, PIs were associated with a 2-fold increased risk of CV mortality. CONCLUSIONS: PI-based regimens in PHIV with HF are associated with dyslipidemia, diabetes, CAD, a lower left ventricular ejection fraction, and a higher PASP. In follow-up, PHIV with HF who are receiving a PI have increased CV mortality and 30-day HF readmission.


OBJECTIVE: The objective of this study was to determine how baseline blood pressure and incident hypertension related to antiretroviral therapy (ART) initiation, HIV-related inflammation and mortality in HIV-infected adults in a low-income country. METHODS: We conducted long-term follow-up of HIV-infected adults who had participated in a trial of early vs. delayed initiation of ART in Port-au-Prince, Haiti. Between 2005 and 2008, 816 HIV-infected adults were randomized to early (N = 408) vs. delayed ART (when CD4 cell count <200 cells/mul or AIDS-defining condition; N = 408). Blood pressure was measured every 3 months. Hypertension was diagnosed according to the Joint National Committee (JNC-7) guidelines. Biomarkers of inflammation and coagulation were measured from banked enrolment plasma samples. Survival analyses were performed using Stata 14. RESULTS: The median age at enrolment was 39 years. The median follow-up time was 7.3 years. The hypertension incidence rate was 3.41 per 100 person-years, and was similar in early and delayed ART groups. In multivariable models, independent predictors of incident hypertension were older age, higher BMI and plasma interleukin (IL)-6 levels (adjusted hazard ratio, aHR = 1.23, P < 0.001). Systolic pressure more than 140 mmHg at enrolment was associated with increased mortality (aHR = 2.47, P = 0.03) as was systolic pressure less than 90 mmHg (aHR = 2.25, P = 0.04). Prevalent and incident hypertension were also significantly associated with mortality. CONCLUSION: In a large prospective study of HIV-infected adults, we found a high incidence of hypertension associated with HIV-related inflammation. Baseline hypertension conferred a more than two-fold increased risk of death. Among HIV-infected adults in low-income countries, hypertension should be considered a serious threat to long-term survival.


BACKGROUND: The objective of this investigation was to detect evidence of the synergism in the effects of HIV-1 and drug abuse on brain function that has been hypothesized but rarely shown. The investigation incorporated several noteworthy improvements in the approach. It used urine toxicology tests to exclude participants complicated by recent methadone use and illicit drug use. Also, it defined drug abuse on a scale that considered symptom severity. Most importantly, it examined inter-trial variability in brain activity as a potentially more sensitive indicator of group differences and functional impairment than the across-trial average. METHODS: 173 participants were assigned to groups defined by their HIV-1 serostatus and Drug Abuse Screening Test score (DAST < vs. > = 6). They completed a simple letter discrimination task including rare target and rare nontarget stimuli. Event-related electroencephalographic responses and key press responses were measured on each trial. During a separate assessment, posturographic measures were recorded. RESULTS: The inter-trial standard deviation of P300-like activity was superior to the mean amplitude of this activity in differentiating the groups. Unlike the mean, it revealed synergistic statistical effects of HIV and drug abuse. It also correlated significantly with static ataxia. CONCLUSIONS: Inter-trial variability in P300-like activity
is a useful marker for detecting subtle and episodic disruptions in brain function. It demonstrates greater sensitivity than the mean amplitude for detecting differences across groups. Also, as a putative indicator of a disruption in the attentional monitoring of behavior, it predicts subtle impairments in gross motor function.


RATIONALE: The epidemiology and prognostic impact of increased pulmonary pressure among HIV-infected individuals in the antiretroviral therapy era is not well described. OBJECTIVES: To examine the prevalence, clinical features, and outcomes of increased echocardiographic pulmonary pressure in HIV-infected and -uninfected individuals. 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. MEASUREMENTS AND MAIN RESULTS: PASP was reported in 2,831 HIV-infected and 5,465 HIV-uninfected veterans (follow-up [mean +/- SD], 3.8 +/- 2.6 yr). As compared with uninfected veterans, HIV-infected veterans with HIV viral load greater than 500 copies/ml (odds ratio, 1.27; 95% confidence interval [CI], 1.05-1.54) and those with CD4 cell count less than 200 cells/mul (odds ratio, 1.28; 95% CI, 1.02-1.60) had a higher prevalence of PASP greater than or equal to 40 mm Hg. As compared with uninfected veterans with a PASP less than 40 mm Hg, HIV-infected veterans with a PASP greater than or equal to 40 mm Hg had an increased risk of death (adjusted hazard ratio, 1.78; 95% CI, 1.57-2.01). This risk persisted even among participants without prevalent comorbidities (adjusted hazard ratio, 3.61; 95% CI, 2.17-6.01). The adjusted risk of mortality in HIV-infected veterans was higher at all PASP values than in 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 than 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 pulmonary hypertension in HIV-infected individuals.


Background: African Americans are disproportionately affected by both HIV and hypertension. Failure to modify risk factors for cardiovascular disease and chronic kidney disease such as hypertension among HIV-infected patients may attenuate the benefits conferred by combination antiretroviral therapy. In the general population, African Americans with hypertension are less likely to have controlled blood pressure than whites. However, racial differences in blood pressure control among HIV-infected patients are not well studied. Methods: We conducted a cross-sectional study evaluating racial differences in hypertension prevalence, treatment, and control among 1,664 patients attending the University of Alabama at Birmingham HIV Clinic in 2013. Multivariable analyses were performed to calculate prevalence ratios (PR) with 95% confidence intervals (CI) as the measure of association between race and hypertension prevalence and control while adjusting for other covariates. Results: The mean age of patients was 47 years, 77% were male and
54% African-American. The prevalence of hypertension was higher among African Americans compared with whites (49% vs. 43%; p = 0.02). Among those with hypertension, 91% of African Americans and 93% of whites were treated (p = 0.43). Among those treated, 50% of African Americans versus 60% of whites had controlled blood pressure (systolic blood pressure <140 mmHg and diastolic blood pressure <90 mmHg) (p = 0.007). After multivariable adjustment for potential confounders, prevalence of hypertension was higher among African Americans compared to whites (PR 1.25; 95% CI 1.12–1.39) and prevalence of BP control was lower (PR 0.80; 95% CI 0.69–0.93). Conclusions: Despite comparable levels of hypertension treatment, African Americans in our HIV cohort were less likely to achieve blood pressure control. This may place them at increased risk for adverse outcomes that disproportionately impact HIV-infected patients, such as cardiovascular disease and chronic kidney disease, and thus attenuate the benefits conferred by combination antiretroviral therapy.


Antiretroviral therapy (ART) has been associated with a shift in the epidemiology of human immunodeficiency virus (HIV)-associated cardiomyopathy from a phenotype of primarily left ventricular (LV) systolic dysfunction to LV diastolic dysfunction (DD). Patients with HIV receiving ART have higher rates of DD compared with age-matched control subjects and develop DD at a younger age. However, little is known about the natural history and pathogenesis of DD in virally suppressed HIV-infected patients. Current evidence suggests that immune processes modulate the risk for cardiac involvement in HIV-infected persons. Ongoing inflammation appears to have myocardial effects, and accelerated myocardial fibrosis appears to be a key mediator of HIV-induced DD. The Characterizing Heart Function on Antiretroviral Therapy (CHART) study aims to systematically investigate determinants, mechanisms, and consequences of DD in HIV-infected patients. We will compare ART-treated virally suppressed HIV-infected individuals with and without DD and HIV-individuals with DD regarding (1) systemic inflammation, myocardial stress, and subclinical myocardial necrosis as indicated by circulating biomarkers; (2) immune system activation as indicated by cell surface receptors; (3) myocardial fibrosis according to cardiac magnetic resonance examination; (4) markers of fibrosis and remodeling, oxidative stress, and hypercoagulability; (5) left atrial function according to echocardiographic examination; (6) myocardial stress and subclinical necrosis as indicated by circulating biomarkers; (7) proteomic and metabolic profiles; and (8) phenotype signatures derived from clinical, biomarker, and imaging data.


PURPOSE: Despite higher rates of modifiable risk factors for cardiovascular disease (CVD) in gay and bisexual men, few studies have examined sexual orientation differences in CVD among men. The purpose of this study was to examine sexual orientation differences in modifiable risk factors for CVD and CVD diagnoses in men. METHODS: A secondary analysis of the National Health and Nutrition Examination Survey (2001-2012) was conducted. Multiple imputation was performed for missing values. Differences across four distinct groups were analyzed: gay-identified men, bisexual-identified men, heterosexual-identified men who have sex with men (MSM), and heterosexual-identified men who denied same-sex behavior (categorized as exclusively heterosexual). Multiple logistic regression models were run with exclusively heterosexual men as the reference group. RESULTS: The analytic sample consisted of 7731 men. No differences between heterosexual-identified MSM and exclusively heterosexual men were observed. Few differences in health behaviors were noted, except that, compared to exclusively heterosexual men, gay-identified men reported lower binge drinking (adjusted odds ratio [AOR] 0.58, 95% confidence interval [CI] = 0.37-0.85). Bisexual-identified men...
had higher rates of mental distress (AOR 2.39, 95% CI = 1.46-3.90), obesity (AOR 1.69, 95% CI = 1.02-2.72), elevated blood pressure (AOR 2.30, 95% CI = 1.43-3.70), and glycosylated hemoglobin (AOR 3.01, 95% CI = 1.38-6.59) relative to exclusively heterosexual men. CONCLUSIONS: Gay-identified and heterosexual-identified MSM demonstrated similar CVD risk to exclusively heterosexual men, whereas bisexual-identified men had elevations in several risk factors. Future directions for sexual minority health research in this area and the need for CVD and mental health screenings, particularly in bisexual-identified men, are highlighted.


Human Immunodeficiency Virus (HIV) infection affects 36.7 million people worldwide, it accounted for 1.1 million deaths in 2015. The advent of combined antiretroviral therapy (cART) has been associated with a decrease in HIV-related morbidity and mortality. However, there are increasing concerns about long-lasting effects of chronic inflammation and immune activation, leading to premature aging and HIV-related mortality. Cardiovascular diseases, especially coronary artery disease, are among the leading causes of death in HIV-infected patients, accounting for up to 15% of total deaths in high income countries. Furthermore, as cART availability expands to low-income countries, the burden of cardiovascular related mortality is likely to rise. Hence, over the next decade HIV-associated cardiovascular disease burden is expected to increase globally. In this review, we summarize our understanding of the pathogenesis and risk factors associated with HIV infection and cardiovascular disease, in particular coronary artery disease.


Context: Epicardial fat envelopes the coronary vessel adventitia without fascial separation, thus pathologic inflammation in the fat may promote the growth of atherosclerotic plaque in coronary arteries in an 'outside-in' fashion. Epicardial fat is quantitatively increased in HIV compared to un-infected people. Aims: 1. To assess Epicardial Adipose tissue (EAT) byComputed tomography (CT) in PLHIV receiving first line ART (antiretroviral therapy) 2. To correlate EAT with metabolic risk parameters. Material and Methods: 215 HIV-infected patients aged >18 years on first line ART were included in the cross sectional study. EAT thickness were measured by CT scan. Metabolic parameters were measured based on metabolic syndrome criteria. Statistical Analysis Used: Data analysis was done using IBM SPSS version ver. 21. Probability value of less than 0.5 was taken as significant. Ethical Issues: The study was carried out after obtaining approval from the Institutional Ethical Committee (IEC), Regional Institute of Medical Sciences, Imphal. Results: Half of the patients were found to have EAT thickness of 8.1-9 mm and 12.6% of cases had EAT of >9 mm. Mean epicardial thickness was 8.3 mm +/- 0.7 mm for whole population. Triglyceride and high density lipoprotein (HDL) were also found to have positive correlation with EAT thickness (rp= 0.364, P = 0.04 and rp= 0.343, P = 0.05 respectively). Conclusion: Epicardial adipose tissue thickness is increased in PLHIV receiving highly active anti retroviral therapy (HAART) and positively co-related with parameters of metabolic syndrome such as waist circumference, HDL cholesterol and triglyceride level.
Starting in 2006, respondents in the biennial U.S. Health and Retirement Study were asked to submit biomarkers every other wave and were notified of several results. Rates of undiagnosed high blood pressure and diabetes according to these biomarkers were 1.5% and 0.7%, respectively. An intent-to-treat analysis suggests that collection and notification had small effects on the average respondent and may have reduced health care utilization. Among respondents who received notification of potentially dangerous biomarker levels, subsequent rates of new diagnosis and associated pharmaceutical usage increased by 20 to 40 percentage points, an order of magnitude above baseline. High blood glucose A1C was associated with a 2.2% drop in weight and an increase in exercise among respondents without a previous diagnosis of diabetes. Notifications appear also to have altered health behaviors by spouses, suggesting household responses to health maintenance. Biomarker collection seems to have altered circumstances for an interesting minority of HRS respondents.


BACKGROUND: There is persistent confusion as to whether abacavir (ABC) increases the risk of myocardial infarction (MI), and whether such risk differs by type 1 (T1MI) or 2 (T2MI) MI in adults with HIV. METHODS: Incident MIs in North American Cohort Collaboration on Research and Design participants were identified from 2001 to 2013. Discrete time marginal structural models addressed channeling biases and time-dependent confounding to estimate crude hazard ratio (HR) and adjusted hazard ratio (aHR) and 95% confidence intervals; analyses were performed for T1MI and T2MI separately. A sensitivity analysis evaluated whether Framingham risk score (FRS) modified the effect of ABC on MI occurrence. RESULTS: Eight thousand two hundred sixty-five adults who initiated antiretroviral therapy contributed 29,077 person-years and 123 MI events (65 T1MI and 58 T2MI). Median follow-up time was 2.9 (interquartile range 1.4-5.1) years. ABC initiators were more likely to have a history of injection drug use, hepatitis C virus infection, hypertension, diabetes, impaired kidney function, hyperlipidemia, low (<200 cells/mm) CD4 counts, and a history of AIDS. The risk of the combined MI outcome was greater for persons who used ABC in the previous 6 months [aHR = 1.84 (1.17-2.91)]; and persisted for T1MI [aHR = 1.62 (1.01)] and T2MI [aHR = 2.11 (1.08-4.29)]. FRS did not modify the effect of ABC on MI (P = 0.14) and inclusion of FRS in the MSM did not diminish the effect of recent ABC use on the combined outcome. CONCLUSIONS: Recent ABC use was associated with MI after adjustment for known risk factors and for FRS. However, screening for T1MI risks may not identify all or even most persons at risk of ABC use-associated MIs.


BACKGROUND: The number of adults with heart failure (HF) and HIV infection is increasing. These patients may benefit from palliative care (PC). OBJECTIVES: Determine the association between HIV infection, other HIV characteristics, and PC among hospitalized patients with HF in the Veterans Health Administration (VHA). DESIGN: Nested case-control study of patients with HF hospitalized from 2003 to 2015 and enrolled in the Veterans Aging Cohort
Study. SETTING/PATIENTS: Two hundred and ten hospitalized patients with HF who received PC matched to 1042 patients with HF who did not receive PC, by age, discharge date, and left ventricular ejection fraction. MEASUREMENTS: Palliative care use was the primary outcome. Independent variables included HIV infection identified by International Classification of Diseases Ninth Revision code and further characterized as the primary diagnosis for hospitalization, unsuppressed HIV-1 RNA, CD4 counts <200 cells/mm(3), and other covariates. We examined associations between independent variables and PC using conditional logistic regression. RESULTS: The sample was 99% male, mean age was 64 years (standard deviation +/-10), 54% of cases and 59% of controls were black, and 30% of cases and 31% of controls were HIV-infected. In adjusted models, HIV as the primary diagnosis for hospitalization (odds ratio [OR]: 3.69, 95% confidence interval [CI]: 1.30-10.52), unsuppressed HIV-1 RNA (OR: 2.62, 95% CI: 1.31-5.24), and CD4 counts <200 cells/mm(3) (OR: 3.47; 1.78-6.77), but not HIV infection (OR: 0.79, 95% CI: 0.55-1.13), were associated with PC. CONCLUSIONS: HIV characteristics indicative of severe disease are associated with PC for hospitalized VHA patients with HF. Increasing access to PC for patients with HF and HIV is warranted.


OBJECTIVES: The increased survival of HIV-infected individuals has resulted in a premature aging of this population, with the consequent development of premature age-related comorbidities and risk factors. We aimed to describe the prevalence of age-related comorbidities and cardiovascular risk factors in older adults with HIV infection on antiretroviral therapy (ART). METHODS: A retrospective cross-sectional study was undertaken in a cohort of HIV patients aged >/=50 years on ART in September 2016 in Spain. The prevalence of comorbidities (liver cirrhosis, respiratory diseases, cancer, cardiovascular, diabetes, and kidney and bone disorders) and risk factors (smoking, dyslipidemia, and arterial hypertension) was captured. RESULTS: Among the 339 patients included in the study, any comorbidity was present in 52%, the most common being cirrhosis (19%), chronic lung disease (13%), and diabetes mellitus (11%). Over three quarters (78%) had any risk factor: dyslipidemia (55%) and smoking (44%). A higher prevalence of cardiovascular disease was seen in patients >/=60 years in comparison to those aged 50-59 years (23% vs 8%, p = 0.001). Of all study patients, 44% took more than three drugs in addition to their ART, while 29% received no additional pharmacological interventions. CONCLUSIONS: Comorbidities and risk factors for chronic diseases are very common in HIV-infected patients aged >/=50 years and increase with age, so they should be early considered in the clinical management of these patients. It is important to encourage healthy lifestyles to prevent comorbidities and to control risk factors. Concomitant treatments with ART should be carefully monitored to prevent drug interactions, adverse effects, and patient adherence failures.


Abstract: Introduction: There is paucity of data related to potential gender differences in the use of interventions to prevent and treat cardiovascular disease (CVD) among HIV-positive individuals. We investigated whether such differences exist in the observational D:A:D cohort study. Methods: Participants were followed from study enrolment until the earliest of death, six months after last visit or February 1, 2015. Initiation of CVD interventions [lipid-lowering drugs (LLDs), angiotensin-converting enzyme inhibitors (ACEIs), anti-hypertensives, invasive cardiovascular procedures (ICPs) were investigated and Poisson regression models calculated whether rates were lower among women than men, adjusting for potential confounders. Results: Women (n = 12,955) were generally at lower CVD risk than men (n = 36,094). Overall, initiation rates of CVD interventions were lower in women than men; LLDs: incidence rate 1.28 [1.21, 1.35] vs. 2.40 [2.34, 2.46]; ACEIs: 0.88 [0.82, 0.93] vs. 1.43 [1.39, 1.48]; anti-hypertensives: 1.40 [1.33, 1.47] vs.
1.72 [1.68, 1.77] and ICPs: 0.08 [0.06, 0.10] vs. 0.30 [0.28, 0.32], and this was also true for most CVD interventions when exclusively considering periods of follow-up for which individuals were at high CVD risk. In fully adjusted models, women were less likely to receive CVD interventions than men (LLDs: relative rate 0.83 [0.78, 0.88]; ACEIs: 0.93 [0.86, 1.01]; ICPs: 0.54 [0.43, 0.68]), except for the receipt of anti-hypertensives (1.17 [1.10, 1.25]). Conclusion: The use of most CVD interventions was lower among women than men. Interventions are needed to ensure that all HIV-positive persons, particularly women, are appropriately monitored for CVD and, if required, receive appropriate CVD interventions.

[ABSTRACT FROM AUTHOR]


The purpose of the study was to determine the incidence of cardiovascular disease (CVD) among people living with human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (PLWHA) in Taiwan. PLWHA were identified from the Taiwan Centers for Disease Control HIV Surveillance System between 2000 and 2014. To examine the effect of active antiretroviral therapy (HAART) on CVD incidence, incidence densities and standardised incidence rates (SIRs) of CVD were calculated after stratifying PLWHA by HAART. Of 26,272 PLWHA (mean age, 32.3 years) identified, 73.4% received HAART. Compared with general population, SIRs (95% confidence interval) were higher for incident coronary artery disease (1.11 (1.04-1.19)), percutaneous coronary intervention (1.32 (1.18-1.47)), coronary artery bypass surgery (1.47 (1.29-1.66)), sudden cardiac death (3.01 (2.39-3.73)), heart failure (1.50 (1.31-1.70)) and chronic kidney disease (1.95 (1.81-2.10)), but was lower for incident atrial fibrillation (0.53 (0.37-0.73)). Considering the effect of HAART on incident CVD, the SIRs for all-cause, ischaemic and haemorrhagic stroke were higher in PLWHA who did not receive HAART, but were lower in PLWHA who received HAART. PLWHA had higher risks of incident coronary artery disease, percutaneous coronary intervention, coronary artery bypass surgery, sudden cardiac death, heart failure and chronic kidney disease. HAART reduces risks of incident CVD in PLWHA.


HIV infection is a risk factor for cardiovascular disease (CVD). This risk is accentuated by certain combination antiretroviral therapies (cARTs), independent of their effects on lipid metabolism and insulin sensitivity. We sought to define potential mechanisms for this association through systematic review of clinical and preclinical studies of CVD in the setting of HIV/cART from the English language literature from 1989 to March 2018. We used PubMed, Web of Knowledge and Google Scholar, and conference abstracts for the years 2015-March 2018. We uncovered three themes: (1) a critical role for the HIV protease inhibitor (PI) ritonavir and certain other PI-based regimens. (2) The importance of platelet activation. Virtually all PIs, and one nucleoside reverse transcriptase inhibitor, abacavir, activate platelets, but a role for this phenomenon in clinical CVD risk may require additional postactivation processes, including: release of platelet transforming growth factor-beta1; induction of oxidative stress with production of reactive oxygen species from vascular cells; suppression of extracellular matrix autophagy; and/or sustained proinflammatory signalling, leading to cardiac fibrosis and dysfunction. Cardiac fibrosis may underlie an apparent shift in the character of HIV-linked CVD over the past decade from primarily left ventricular systolic to diastolic dysfunction, possibly driven by cART. (3) Recognition of the need for novel interventions. Switching from cART regimens based on PIs to contemporary antiretroviral agents...
such as the integrase strand transfer inhibitors, which have not been linked to clinical CVD, may not mitigate CVD risk assumed under prior cART. In conclusion, attention to the effects of specific antiretroviral drugs on platelet activation and related profibrotic signalling pathways should help: guide selection of appropriate anti-HIV therapy; assist in evaluation of CVD risk related to novel antiretrovirals; and direct appropriate interventions.


BACKGROUND: Bilirubin may protect against cardiovascular disease (CVD) by reducing oxidative stress. Whether elevated bilirubin reduces the risk of CVD events among HIV(+) individuals and if this differs from uninfected individuals remain unclear. We assessed whether bilirubin independently predicted the risk of CVD events among HIV(+) and uninfected participants in VACS (Veterans Aging Cohort Study). METHODS AND RESULTS: We conducted a prospective cohort study using VACS participants free of baseline CVD. Total bilirubin was categorized by quartiles. CVD as well as acute myocardial infarction, heart failure, and ischemic stroke events were assessed. Cox regression was used to evaluate hazard ratios of outcomes associated with quartiles of total bilirubin in HIV(+) and uninfected people after adjusting for multiple risk factors. There were 96,381 participants (30,427 HIV(+) ); mean age was 48 years, 48% were black, and 97% were men. There were 6,603 total incident CVD events over a mean of 5.7 years. In adjusted models, increasing quartiles of baseline total bilirubin were associated with decreased hazards of all outcomes (hazard ratio, 0.86; 95% confidence interval, 0.80-0.91). Among HIV(+) participants, results persisted for heart failure, ischemic stroke, and total CVD, but nonsignificant associations were observed for acute myocardial infarction. CONCLUSIONS: VACS participants (regardless of HIV status) with elevated bilirubin levels had a lower risk of incident total CVD, acute myocardial infarction, heart failure, and ischemic stroke events after adjusting for known risk factors. Future studies should investigate how this apparently protective effect of elevated bilirubin could be harnessed to reduce CVD risk or improve risk estimation among HIV(+) individuals.


OBJECTIVES: Contemporary data from country-wide cohorts are needed to reveal trends in the occurrence of acute myocardial infarction (AMI) in people living with HIV (PLWH). We analysed time trends in the standardized incidence rate (sIR) of AMI in PLWH in Spain from 2004 to 2015, and compared them with trends in the general population. METHODS: A longitudinal study in a nationwide contemporary multicentre HIV-infected cohort was carried out. Data on all incident AMI events were collected, and age- and sex-standardized IRs calculated. To analyse the IR of AMI in the general population, the national rates of hospital discharges for AMI per 100,000 inhabitants stratified for age and sex from 2004 to 2015 were obtained using the morbidity report data from the National Statistics Institute. A Poisson regression model was fitted to assess the effect of covariates of interest on AMI occurrence. RESULTS: The sIRs of AMI in 2004-2015 were 237.92 [95% confidence interval (CI) 225.95-249.90] and 66.75 (95% CI: 23.49-110.01) per 100,000 patient-years in male and female PLWH, respectively. There was a decrease in the sIR of AMI in male PLWH from 279.02 (95% CI: 265.46-292.59) per 100,000 person-years in 2004-2009 to 222.13 (95% CI: 210.83-233.42) per 100,000 person-years in 2010-2015. Compared with the general population, the sIR ratio was 1.41 (95% CI: 1.26-1.55) in 2004-2009, and 1.28 (95% CI: 1.15-1.43) in 2010-2014. AMI occurrence was associated with older age (P < 0.066 for each 10-year age stratum >/= 35-years compared with the 25-34 year stratum), higher plasma HIV RNA (P < 0.001), lower CD4 count (P < 0.04 for CD4 strata > 350 cells/µL compared with the 0-100 cells/µL stratum), and the period 2004-2009 (P < 0.001). CONCLUSIONS: There has been a decreasing incidence of AMI in PLWH in Spain, associated with improving immune and virological status, but the incidence of AMI has remained higher than in the general population.

**BACKGROUND:** Effective combined antiretroviral therapy (cART) has improved life expectancy among people living with HIV-1 infection. Treated HIV-1 infection increases the prevalence of metabolic syndrome (MS). Despite sub-Saharan Africa having among the highest rates of HIV-1 infection, the effects of MS in HIV-1-infected individuals on cardiovascular risk is poorly explored. The aim of the study was to assess whether MS and/or HIV-1 treatment correlates with large elastic artery stiffness in HIV-1-infected patients treated with first-line cART. **METHODS:** The study sample comprised of 102 subjects free of cardiovascular disease and major risk factors divided into two groups based on HIV-1 infection, treatment, and MS status: HIV-1(+)/cART(+)/MS(+) (n = 12); HIV-1(+)/cART(-)/MS(+) (n = 16); HIV-1(-)/ MS(+) (n = 10); HIV-1(+)/cART(+)/MS(-) (n = 42); HIV-1(+)/cART(-)/MS(-) (n = 32); HIV-1(-)/ MS(-) (n = 39). MS was established according the International Diabetes Federation definition. Large artery stiffness was measured using applanation tonometry to assess aortic pulse wave velocity (aPWV) and aortic augmentation index at heart rate of 75 bpm (AIX@HR75). cART included lamivudine/zidovudine and nevirapine or efavirenz. **RESULTS:** The prevalence of MS in the HIV-1-infected patients was 28%. There were no significant differences in aPWV in the non-MS groups. However, in subjects with MS, aPWV was significantly higher in the HIV-1 cART patients (9.0 +/- 1.9 m/s) compared with both controls (7.5 +/- 1.8 m/s; P = 0.018) and untreated HIV-1 patients (7.7 +/- 1.3 m/s; P = 0.023), and these differences remained after adjustment for blood pressure and sex. Aortic PWV was significantly elevated (P = 0.009) in HIV-1 cART patients with MS compared to their counterparts without MS. Untreated HIV-1 patients with MS also demonstrated increased aPWV compared to their counterparts without MS (P = 0.05). Aortic AIX@HR75 was, on average, ~ 5% higher in HIV-1 cART patients with MS (28.3 +/- 62% compared with untreated HIV-1 patients with MS (23.5 +/- 9%; P = 0.075). Sub-group multivariate analysis identified MS as an independent predictor of increased aPWV in HIV-1 cART patients. **CONCLUSIONS:** Our study established that presence of MS in HIV-1 patients on treatment was associated with increased aPWV and hence increased arterial stiffness in sub-Saharan African HIV-1 patients on first-line cART.


**OBJECTIVE:** The aim of this work was to investigate determinants of structural myocardial abnormalities in persons living with human immunodeficiency virus (PLWH). **METHODS AND RESULTS:** We reviewed archived transthoracic echocardiograms (TTEs) performed on PLWH at Duke University Medical Center from 2001 to 2012. The primary outcomes were presence of left ventricular hypertrophy (LVH) or diastolic dysfunction (DD). TTEs for 498 human immunodeficiency virus-infected persons were reviewed (median age 44 years, 38% female, 72% black, 34% with hypertension, 15% with diabetes). Among those with usable images, LVH was detected in 174 of 473 persons (37%) according to LV mass criteria and in 99 of 322 persons (31%) according to American Society of Echocardiography LV mass index criteria. Definite DD was detected in 18 of 224 persons (8%). LVH was more common in PLWH with a CD4 count <= 200 cells/mm(3) proximal to TTE (adjusted OR 1.68, 95% CI 1.08-2.62), CD4 nadir <= 200 cells/mm(3) (adjusted OR 1.63, 95% CI 1.04-2.54) and less common in persons with viral suppression (OR 0.46, 95% CI 0.27-0.80). Lower CD4 nadirs (P=.002) and proximal CD4 counts (P=.002) were also associated with DD. **CONCLUSIONS:** Persons with a history of advanced human immunodeficiency virus-associated immune suppression are at higher risk of LVH and DD than infected persons with preserved immune function.

INTRODUCTION: We evaluated cardiovascular disease (CVD) risk associated with darunavir treatment and examined the demographic/clinical characteristics of darunavir users based on data from Janssen-sponsored clinical trials, post-marketing pharmacovigilance databases, and administrative claims databases. METHODS: First, selected CVD events [myocardial infarction, stroke, sudden death, invasive cardiovascular procedures (coronary artery angioplasty or bypass, or carotid endarterectomy)] were analyzed in 19 Janssen-sponsored phase 2-4 studies (incidence rates estimated from pooled data; 95% confidence intervals derived from Poisson distribution). Second, analyses were conducted to identify spontaneously reported CVD events in post-marketing pharmacovigilance databases and evaluate disproportional reporting of CVD events for darunavir (using Empirical Bayesian Geometric Mean scores). Third, baseline demographic/clinical characteristics of human immunodeficiency virus-1 (HIV-1)-infected patients in general and new users of darunavir and atazanavir were explored using three US administrative claims databases. RESULTS: Among 19 Janssen-sponsored clinical trials (treatment durations </= 6 years), the CVD event rate (95% CI) per 1000 person-years (pooled population; n = 5713) was 6.15 (2.91-11.89), and was lower for patients who used once-daily darunavir/ritonavir 800/100 mg [0.71 (0.16-3.05); n = 1326] versus twice-daily darunavir/ritonavir 600/100 mg [9.21 (4.94-16.04); n = 3058]. Trend analysis of post-marketing pharmacovigilance data showed that cumulative CVD event reporting rates for darunavir users (any dose) generally declined over time. Spontaneously reported CVD events were not disproportionately reported with darunavir versus other protease inhibitors. Compared with the general HIV-1-infected population and atazanavir users, higher proportions of darunavir users were male, older, and had comorbidities associated with CVD risk based on results from US administrative claims databases. CONCLUSIONS: This comprehensive review of Janssen-sponsored clinical trial, post-marketing, and epidemiological data does not suggest that CVD should be considered an important risk for users of darunavir.


BACKGROUND: Since the introduction of Antiretroviral Therapy (ART), the life expectancy and health quality for patients infected with Human Immunodeficiency Virus (HIV) have significantly improved. Nevertheless, as a result of not only the deleterious effects of the virus itself and prolonged ART, but also the effects of aging, cardiovascular diseases have emerged as one of the most common causes of death among these patients. OBJECTIVE: The purpose of this review is to explore the new insights on the spectrum of Cardiovascular Disease (CVD) in HIV infection, with emphasis on the factors that contribute to the atherosclerotic process and its role in the development of acute coronary syndrome in the setting of infection. METHODS: A literature search using PubMed, ScienceDirect and Web of Science was performed. Articles up to Mar, 2017, were selected for inclusion. The search was conducted using MeSH terms, with the following key terms: [human immunodeficiency virus AND (cardiovascular disease OR coronary heart disease) AND (antiretroviral therapy AND (cardiovascular disease OR coronary heart disease))]. RESULTS: Clinical cardiovascular disease tends to appear approximately 10 years before in infected individuals, when compared to the general population. The pathogenesis behind the cardiovascular, HIV-associated complications is complex and multifactorial, involving traditional CVD risk factors, as well as factors associated with the virus itself - immune activation and chronic inflammation - and the metabolic disorders related to ART regimens. CONCLUSION: Determining the cardiovascular risk among HIV-infected patients, as well as targeting and treating conditions that predispose to CVD, are now emerging concerns among physicians.


With the advent and widespread use of antiretroviral therapy (ART), the epidemiology of cardiomyopathy and heart failure (HF) associated with HIV infection is changing. Near-normal life expectancy in contemporary HIV-infected
populations has been associated with prolonged exposure to increased cardiometabolic burden and chronic immune activation and systemic inflammation. Therefore, the pre-ART phenotype of HIV-associated cardiomyopathy with overt left ventricular systolic dysfunction and poor prognosis has been replaced over time by cardiomyopathy with a more insidious course, more frequent ischemic background, and highly prevalent left ventricular diastolic dysfunction. Patients with HIV are more prone to development of coronary artery disease and development of HF after myocardial infarction. The role of ongoing immune activation and systemic inflammation, despite highly active ART (HAART), appears to be central in this process. The role of HAART toxicity is controversial, as HAART itself appears to be protective for the development of HF, but recent data suggest that protease inhibitors might adversely affect the course of HIV-associated HF. Because of these unique features, the optimal therapeutic approach for HIV-associated cardiomyopathy remains unknown. The current therapeutic approaches are an extrapolation from noninfected populations. Importantly, the significance of the highly prevalent diastolic abnormalities among HIV-infected patients is not known. Therefore, further research is needed to identify its prognostic implications. Considering the prevalence of structural and functional cardiac abnormalities in HIV-infected persons and the lack of evidence on how to best screen and treat these patients, systematic research on this topic is a public health priority.


Understanding why persons with HIV (PWH) have accelerated atherosclerosis and its sequelae, including coronary artery disease (CAD) and myocardial infarction (MI), is necessary to provide appropriate care to a large and aging HIV population. In this review, we delineate the diverse pathophysiologies underlying HIV-associated CAD and discuss how these are implicated in the clinical manifestations of CAD among PWH. Several factors contribute to HIV-associated CAD, with chronic inflammation and immune activation likely representing the primary drivers. Increased monocyte activation, inflammation, and hyperlipidemia present in chronic HIV infection also mirror the pathophysiology of plaque rupture. Furthermore, mechanisms central to plaque erosion, such as activation of toll-like receptor 2 and formation of neutrophil extracellular traps, are also abundant in HIV. In addition to inflammation and immune activation in general, PWH have a higher prevalence than uninfected persons of traditional cardiovascular risk factors, including dyslipidemia, hypertension, insulin resistance, and tobacco use. Antiretroviral therapies, while clearly necessary for HIV treatment and survival, have had varied effects on CAD, but newer generation regimens have reduced cardiovascular toxicities. From a clinical standpoint, this mix of risk factors is implicated in earlier CAD among PWH than uninfected persons; whether the distribution and underlying plaque content of CAD for PWH differs considerably from uninfected persons has not been definitively studied. Furthermore, the role of cardiovascular risk estimators in HIV remains unclear, as does the role of traditional and emerging therapies; no trials of CAD therapies powered to detect clinical events have been completed among PWH.

HIV-infected adults have greater risks for atherosclerosis, thrombosis, and coronary artery disease than uninfected persons. Persistent inflammation and immune activation appear to be the primary drivers of these elevated risks and may lead to coronary artery disease manifesting earlier and in somewhat different manner than for uninfected persons. More studies are needed to better define the pathophysiology, clinical course, and effective therapies for HIV-related coronary artery disease.

OBJECTIVES: to compare the prevalence of target-organ damage (TOD), defined as carotid plaque, or intima media thickness, cIMT, >0.9 mm, and that of increased renal resistive index (RRI), among HIV-1-infected patients and uninfected hypertensive patients (HT-non HIV). METHODS: HIV-infected patients aged >/= 18 years and virologically suppressed were matched with pair-age, sex and BMI HT-non HIV. Patients on antihypertensive treatment were excluded. All patients' cIMT and RRI were evaluated with ultrasonography. Data were analysed throughout Chi2 test, analysis of variance and logistic regression. RESULTS: Fifty-nine HIV-infected patients were enrolled (71% men) and matched with 59 HT-non HIV. No differences were found in cIMT values (p=0.827) and in the prevalence of TOD between HIV-infected patients and HT-non HIV (36% vs 38%, p = 0.79). Among HIV-infected patients, those hypertensive had significantly higher prevalence of TOD (46% vs 21%, P< 0.05) and higher cIMT (0.747 +/- 0.104 vs 0.654 +/-0.100 mm, p = 0.0185). Patients with TOD were older (p = 0.004) and more frequently current smokers (p= 0.022). At the logistic regression analysis, TOD was significantly related to age (p=0.04, 95%CI 1.0-1.1) and smoke, current (p=0.178, 95%CI 1.2-12.8) or previous (p=0.04, 95%CI 1.0-7.2). Mean RRI were identical for both HIV-1 infected and uninfected patients (0.60, SD+/-.04 and 0.60, SD+/-.05, respectively, p=0.996). CONCLUSIONS: In our study TOD was associated to hypertension, older age and smoke, but not to HIV serostatus itself, confirming the major importance of traditional risk factors and the need of risk assessment and cardiovascular prevention measures in HIV-infected patients.


Background HIV-infected individuals are at increased risk for both sarcopenia and cardiovascular disease. Whether an association between low muscle mass and subclinical coronary artery disease (CAD) exists, and if it is modified by HIV serostatus, are unknown.

Methods We performed cross-sectional analysis of 513 male MACS participants (72% HIV-infected) who underwent mid-thigh computed tomography (CT) and non-contrast cardiac CT for coronary artery calcium (CAC) during 2010–2013. Of these, 379 also underwent coronary CT angiography for non-calcified coronary plaque (NCP) and obstructive coronary stenosis ≥50%. Multivariable-adjusted Poisson regression was used to estimate prevalence risk ratios of associations between low muscle mass (<20th percentile of the HIV-uninfected individuals in the sample) and CAC, NCP and obstructive stenosis.

Results The prevalence of low thigh muscle mass was similar by HIV serostatus (20%). There was no association of low muscle mass with CAC or NCP. However, low thigh muscle mass was significantly associated with a 2.5-fold higher prevalence of obstructive coronary stenosis, after adjustment for demographics and traditional CAD risk factors [PR 2.46 (95% CI 1.51, 4.01)]. This association remained significant after adjustment for adiposity, inflammation, and physical activity. There was no significant interaction by HIV serostatus (p-interaction = 0.90).

Conclusions In this exploratory analysis, low thigh muscle mass was significantly associated with subclinical obstructive coronary stenosis. Additional studies involving larger sample sizes and prospective analyses are needed to confirm the potential utility of measuring mid-thigh muscle mass for identifying individuals at increased risk for obstructive CAD who might benefit from more aggressive risk factor management.

BACKGROUND: Among people living with HIV, cardiovascular risk could be markedly reduced through lifestyle improvement. However, to date behavioral cardiovascular risk factors (other than tobacco smoking) have been poorly investigated among them. Additionally, although co-occurrence of risk factors might amplify the deleterious effects of each risk factor, little is known about such risk factors clustering in this population. We aimed to examine levels, determinants and clustering of the major behavioral cardiovascular risk factors in the French HIV-infected population, in order to better target individuals with high risk profiles. METHODS: The ANRS-Vespa2 survey was conducted among a national representative sample of HIV-infected people followed at hospital in France in 2011. Frequency and co-occurrence of tobacco smoking, alcohol intake, low physical activity and obesity were assessed in the HIV-infected population, overall and in each of the distinctive socio-epidemiological group composing it (men who have sex with men, intravenous drug users, sub-Saharan African migrants, non-African heterosexuals). Individual characteristics associated with each of these indicators were investigated using multivariable Poisson regression models. RESULTS: The 2537 participants (median time since HIV-diagnosis: 12 years) included 39.4% men who have sex with men, 11.0% intravenous drug users, 23.5% sub-Saharan African migrants and 26.1% non-African heterosexuals. Overall, 29.4% were regular smokers, 13.8% were heavy drinkers, 14.8% lacked physical activity and 8.6% were obese. Half of the participants reported at least one risk factor with co-occurrence observed in 13.8% of the sample. However, those figures varied markedly across the groups. Main risk factors profiles were 1) regular smoking, heavy drinking, low physical activity alone or combined among intravenous drug users and men who have sex with men, 2) obesity and low physical activity usually alone among sub-Saharan African migrant women, 3) occurrence of the four risk factors separately or sometimes combined among sub-Saharan African migrant men and non-African heterosexuals. These risk factors were correlated with lower socioeconomic status and poorer health status. CONCLUSIONS: Those findings highlight the need to focus on all behavioral cardiovascular risk factors and co-occurrence (and not only on tobacco smoking) in HIV-infected people and to implement preventive approach tailored to the specific needs of the different socio-epidemiological groups.


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 seven HIV+ adults were randomized to either the intervention (6, 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 with a 0.153 weight gain in the control group (P = 0.03). CONCLUSIONS: Among sedentary PLHIV at high risk of cardiovascular disease, 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.

BACKGROUND: Lifestyle physical activity (ie, moderate physical activity during routine daily activities most days of the week) may benefit human immunodeficiency virus (HIV)-positive adults who are at high risk for cardiovascular disease. OBJECTIVE: The aims of this study were to describe lifestyle physical activity patterns in HIV-positive adults and to examine the influence of lifestyle physical activity on markers of cardiovascular health. Our secondary objective was to compare these relationships between HIV-positive adults and well-matched HIV-uninfected adults. METHODS: A total of 109 HIV-positive adults and 20 control participants wore an ActiGraph accelerometer, completed a maximal graded cardiopulmonary exercise test, completed a coronary computed tomography, completed anthropomorphic measures, and had lipids and measures of insulin resistance measured from peripheral blood. RESULTS: Participants (N = 129) had a mean age of 52 +/- 7.3 years, 64% were male (n = 82), and 88% were African American (n = 112). On average, HIV-positive participants engaged in 33 minutes of moderate-to-vigorous physical activity per day (interquartile range, 17-55 minutes) compared with 48 minutes in controls (interquartile range, 30-62 minutes, P = .05). Human immunodeficiency virus-positive adults had poor fitness (peak oxygen uptake [VO2], 16.8 +/- 5.2 mL/min per kg; and a ventilatory efficiency, 33.1 [4.6]). A marker of HIV disease (current CD4+ T cell) was associated with reduced peak VO2 (r = -0.20, P < .05) and increased insulin resistance (r = 0.25, P < .01) but not with physical activity or other markers of cardiovascular health (P >/= 0.05). After controlling for age, gender, body mass index, and HIV status, physical activity was not significantly associated with peak VO2 or ventilatory efficiency. CONCLUSION: Human immunodeficiency virus-positive adults have poor physical activity patterns and diminished cardiovascular health. Future longitudinal studies should examine whether HIV infection blunts the beneficial effects of physical activity on cardiovascular health.


The clinical status of human immunodeficiency virus (HIV) infection has changed dramatically with the introduction of combined antiretroviral therapy (cART). Patients with HIV are now living long enough to be susceptible to chronic illnesses, such as coronary disease and non-ischemic cardiomyopathy, which can be consequences of the cART treatment itself. Cardiovascular diseases are a major source of morbidity and mortality in HIV-positive patients. Increasingly, such patients may be candidates for the full range of surgical interventions, including coronary bypass, valve surgery and heart transplantation. There has been a shift from offering palliative procedures such as pericardial window and balloon valvuloplasty, to more conventional and durable surgical therapies in HIV-positive patients. We herein provide an overview of the contemporary outcomes of cardiac surgery in this complex and unique patient population. We review some of the ethical issues around the selection and surgical care of HIV-positive patients. We also discuss strategies to best protect the surgical treatment team from the risks of HIV transmission. Finally, we highlight the need for involvement of dedicated infectious disease professionals in a multidisciplinary Heart Team approach, aiming at the comprehensive care of these unique and complex patients.

With the use of combination antiretroviral therapy, patients with human immunodeficiency virus (HIV) are now living long enough to develop cardiovascular diseases. In most cases, patients are candidates for the full range of surgical intervention, including transplantation. We provide an overview of the unique considerations and outcomes of revascularization, valvular, and heart failure surgery in HIV-positive patients. We discuss the need for multidisciplinary Heart Teams for the comprehensive care of this complex patient population.

Diabetes

BACKGROUND: Antiretroviral therapy dramatically reduced HIV-related morbidity and mortality, prolonging the lifespan of HIV-infected patients. Greater duration of infection and exposure to antiretroviral therapy makes these patients susceptible to traditional cardio-metabolic risk factors and pathologies. The optimal diagnostic protocol for Diabetes Mellitus in these patients is still controversial. Haemoglobin A1c (HbA1c) has been shown to underestimate glycaemia levels and the oral glucose tolerance test (OGTT) has been shown to reveal cases of glucose metabolism disturbances in patients with normal fasting glucose. Thus, this study aimed to determine the prevalence of prediabetes and diabetes in a population of HIV-infected patients undergoing combined antiretroviral therapy, using three different diagnostic methods (fasting glucose, OGTT and HbA1c), to determine the agreement between the different methods and the characteristics associated with each one. METHODS: This study analyzed 220 HIV-infected patients on antiretroviral therapy. Patient characteristics were collected using a standardized protocol. Disturbances of glucose homeostasis were defined by the ADA 2017 criteria. Patients were characterized according to the presence or absence of clinical lipodystrophy, and distributed into four different categories, according to the presence, or absence of either clinical lipoatrophy, or abdominal prominence. Insulin resistance was assessed by HOMA-IR and QUICKI indexes. Agreement between the diagnostic methods was assessed by Cohen's kappa coefficient. RESULTS: There were no patients diagnosed with diabetes with HbA1c. 5.9% prevalence was obtained when OGTT was used, and 3.2% prevalence when fasting glucose was used. Prediabetes had a prevalence of 14.1% when using HbA1c, 24.1% when using OGTT, and 20% when using fasting glucose. In all three methods, glucose homeostasis disturbances were associated with older age and higher resistance to insulin. Regarding other characteristics, associations varied between the three methods. The agreement between them was fair, or slight. CONCLUSIONS: We observed that HbA1c was the method that diagnosed the least amount of cases and that OGTT was the one that diagnosed the most cases. Accordingly, our results indicate that HbA1c underestimated glycaemia levels in this population and that the use of OGTT might allow an earlier diagnosis of glucose homeostasis disturbances, potentially making it possible to avoid severe complications of DM.


BACKGROUND: Type 2 diabetes (T2D) has a reported greater prevalence and poorer treatment outcomes in people living with HIV (PLWH) than comparable HIV-uninfected cohorts. We conducted a cross-sectional study to delineate the factors driving T2D in PLWH in an ethnically diverse cohort, and additionally observed how these have changed over time. SETTING: We studied a diverse HIV cohort in London to determine the prevalence and risk factors for T2D, and compared them to a cohort studied 10 years previously. METHODS: Patients were classified as normoglycaemic (fasting glucose <6.0 mmol/l) or dysglycaemic (≥=6.0 mmol/l). The relative contribution to dysglycaemia of modifiable and fixed factors, including demographics, anthropometrics, comorbidities, immune status, and HIV therapy, were analysed using univariate and logistic regression analyses. RESULTS: T2D prevalence was 15.1% in 2015 with a relative risk of 2.4 compared to the general population. The prevalence compared to 6.8% ten years earlier. The 2015 versus the 2005 cohort was significantly older (median age 49 (42-57) years versus 41 (IQR 35-47), p<0.001), had a higher BMI (27.4 (23.3-29.9) versus 24.9 (22.4-28.0) kg/m2 respectively, p = 0.019) and hypertensive (37.9% versus 19.6 respectively, p<0.001). The strongest predictors of dysglycaemia in the 2015 cohort were hepatic steatosis and hypertension, odds ratios (OR) and 95% confidence intervals (CI) 6.74 (3.48-13.03) and 2.92 (1.66-5.16) respectively, and also HIV-related factors of weight gain following antiretroviral initiation and longer known duration of HIV infection (OR 1.07 (1.04-1.11) and 1.06 (1.02-1.10) respectively). CONCLUSIONS: The alarmingly high prevalence of T2D in HIV requires improved screening, targeted to older patients and those with a longer duration of exposure to antiretrovirals. Effective diabetes prevention and management strategies are needed urgently to reduce this risk; such interventions should target both
conventional risk factors, such as abdominal obesity, and HIV-specific risk factors such as weight gain following initiation of antiretrovirals.


This systematic review and meta-analysis tries to determine whether there is an association between the use of protease inhibitors (PIs) and the incidence of diabetes mellitus (DM) and/or metabolic syndrome (MS) in HIV-infected patients. A systematic literature search was performed using MEDLINE/PubMed, CENTRAL, LILACS, and EMBASE. Included articles were observational studies published on or prior to November 2015 that met specific inclusion criteria. Pooled relative risks (RRs) and hazard ratios (HRs) were calculated. Nine articles met the inclusion criteria, describing 13,742 HIV patients. Use of PIs was associated with the development of MS (RR: 2.11; 95% CI 1.28-3.48; p-value 0.003). No association between the use of PIs and development of DM was found: the HR for the incidence of DM among patients using PIs was 1.23 (95% CI 0.66-2.30; p-value: 0.51) and the RR was 1.25 (95% CI 0.99-1.58; p-value 0.06). Use of PIs in HIV-infected patients is associated with an increased risk of MS. No evidence of an increased risk of DM was found. However, because MS is a precursor to DM, it is possible that studies with a longer follow-up duration are needed in order to detect an association between PI use and onset of DM.


Non-communicable diseases (NCDs), including cardiovascular diseases (CVD), hypertension and diabetes together with HIV infection are among the major public health concerns worldwide. Health services for HIV and NCDs require health systems that provide for people's chronic care needs, which present an opportunity to coordinate efforts and create synergies between programs to benefit people living with HIV and/or AIDS and NCDs. This review included studies that reported service integration for HIV and/or AIDS with coronary heart diseases, chronic CVD, cerebrovascular diseases (stroke), hypertension or diabetes. We searched multiple databases from inception until October 2015. Articles were screened independently by two reviewers and assessed for risk of bias. 11,057 records were identified with 7,616 after duplicate removal. After screening titles and abstracts, 14 papers addressing 17 distinct interventions met the inclusion criteria. We categorized integration models by diseases (HIV with diabetes, HIV with hypertension and diabetes, HIV with CVD and finally HIV with hypertension and CVD and diabetes). Models also looked at integration from micro (patient focused integration) to macro (system level integrations). Most reported integration of hypertension and diabetes with HIV and AIDS services and described multidisciplinary collaboration, shared protocols, and incorporating screening activities into community campaigns. Integration took place exclusively at the meso-level, with no micro- or macro-level integrations described. Most were descriptive studies, with one cohort study reporting evaluative outcomes. Several innovative initiatives were identified and studies showed that CVD and HIV service integration is feasible. Integration should build on existing protocols and use the community as a locus for advocacy and health services, while promoting multidisciplinary teams, including greater involvement of pharmacists. There is a need for robust and well-designed studies at all levels - particularly macro-level studies, research looking at long-term outcomes of integration, and research in a more diverse range of countries.

Background: We characterized associations between frailty and incidence of cardiovascular disease (CVD), diabetes mellitus (DM), bone disease and mortality within a cohort of aging persons with HIV (PWH). Methods: Participants underwent frailty evaluations using the Fried's frailty assessment at baseline and then annually. Frailty was defined as having >/=3 frailty criteria. Clinical outcomes of mortality, incident CVD events, DM, and bone disease events were recorded throughout the study period (baseline to most recent study or clinic visit, or date of clinical outcome occurrence, whichever came first). Poisson regression models evaluated associations between baseline frailty, change in frailty score over 48 weeks, and each clinical outcome. Results: Among 821 men and 195 women (median age 51 years), 62 (6%) were frail at baseline. Frailty scores increased in one or more components among 194 participants (19%) from baseline to 48 weeks. Baseline frailty was associated with an increased risk of incident CVD and DM with a trend towards a significant association with incident bone events. Among the components of frailty, slow gait speed was associated with incident DM and borderline-associated with incident CVD. An increase in frailty from baseline to week 48 was associated with mortality, but not with the other clinical outcomes. Conclusions: Baseline frailty was associated with multiple adverse health outcomes (incident CVD, DM and bone disease), while increase in frailty score was associated with mortality among PWH engaged in care. Incorporation of frailty assessments into the routine care of PWH may assist in improvement of functional status and risk stratification for age-related chronic diseases.


Since the introduction of combined antiretroviral therapy (cART) and more effective treatments for AIDS, there has been a dramatic shift from the weight loss and wasting that characterised HIV/AIDS (and still does in countries where cART is not readily available or is initiated late) to healthy weight, or even overweight and obesity at rates mirroring those seen in the general population. These trends are attributable to several factors, including the "return to health" weight gain with reversal of the catabolic effects of HIV-infection following cART-initiation, strategies for earlier cART-initiation in the course of HIV-infection which have prevented many people living with HIV-infection from developing wasting, in addition to exposure to the modern obesogenic environment. Older cART regimens were associated with increased risk of body fat partitioning disorders (lipodystrophy) and cardiometabolic complications including atherothrombotic cardiovascular disease (CVD) and diabetes mellitus. Whilst cART now avoids those medications implicated in causing lipodystrophy, long-term cardiometabolic data on more modern cART regimens are lacking. Longitudinal studies show increased rates of incident CVD and diabetes mellitus with weight gain in treated HIV-infection. Abdominal fat gain, weight gain, and rising body mass index (BMI) in the short-term during HIV treatment was found to increase incident diabetes risk. Rising BMI was associated with increased risk of incident CVD, however the relationship varied depending on pre-cART BMI category. In contrast, a protective association with mortality is evident, predominantly in the underweight and in resource-poor settings, where weight gain reflects access to cART and virological suppression. The question of how to best evaluate, manage (and perhaps constrain) weight gain during HIV treatment is of clinical relevance, especially in the current climate of increasingly widespread cART use, rising overweight, and obesity prevalence and growing metabolic and cardiovascular disease burden in people living with HIV-infection. Large prospective studies to further characterise the relationship between weight gain during HIV treatment and risk of diabetes, CVD and mortality are required.

OBJECTIVE: The use of the diabetes online community (DOC) is growing across all age groups. The aim of this exploratory study was to describe why older adults participated in the DOC, and how DOC users interacted with their healthcare providers. METHODS: Telephone interviews (N=20) were conducted with older adult DOC users (born between 1946 and 1964) living in the United States. Interviews were analyzed using qualitative content analysis adhering to rigor and reproducibility standards. RESULTS: Themes that emerged from the data related to DOC participation included: information to improve self-care, emotional support, belonging to a community, validation of information, cause for concern and interaction with healthcare providers. Participants used the DOC for day to day diabetes management advice and healthcare providers for medical information and care. CONCLUSION: Participants highly valued the DOC and regarded their participation as a way to increase knowledge to improve self-care and reciprocate emotional support with others for diabetes management. The DOC filled gaps in knowledge and support participants were not able to get elsewhere. PRACTICE IMPLICATIONS: The DOC serves as an important source of information and support for individuals with diabetes and may be a cost-effective strategy to augment standard diabetes care.


OBJECTIVES: Data on cardiovascular disease risks among HIV-infected patients taking antiretroviral therapy (ART) over long periods of time are lacking in Sub-Saharan Africa. METHODS: A cross-sectional study was conducted in Chiradzulu, Malawi from December 2015 to June 2016. HIV-infected persons on ART for more than 10 years (patients) and HIV-negative individuals (controls) from selected clinics participated. Following informed consent, a standardized questionnaire, clinical and laboratory examinations were performed. The prevalence of cardiovascular disease risk factors was calculated and stratified by age group. RESULTS: Overall, 379 HIV-infected patients and 356 controls participated. Median time on ART among patients was 11.6 years (interquartile range 10.6-12.4). Within the 30-44, 45-59, and at least 60-year age groups, respectively, the prevalence of hypertension was 10.8, 20.4, and 44.7% among patients and 6.1, 25.8, and 42.9% among controls. Hypertension was previously undiagnosed in 60.3% patients and 37.0% controls with elevated blood pressure. The prevalence of diabetes within the respective age groups was 5.0, 6.4, and 13.2% among patients, and 3.4, 4.2, and 1.7% among controls. HIV-infected patients were more likely to have a glycated hemoglobin at least 6.0% (adjusted odds ratio 1.9; 95% confidence interval 1.1-3.2, \( P = 0.02 \)). Prevalence of low-density lipoprotein cholesterol more than 130 mg/dl within the respective age groups was 8.0, 15.4, and 23.7% among patients and 1.8, 12.5, and 11.8% among controls. CONCLUSION: Noncommunicable diseases were a significant burden in Malawi, with high prevalence of hypercholesterolemia in all survey participants and an especially acute diabetes burden among older HIV infected. Hypertension screening and treatment services are needed among identified high-risk groups to cover unmet needs.


OBJECTIVE: To determine the long-term incidence of glucose disorders in treated HIV infection, associations with traditional and HIV-specific risk factors. METHODS: Observational cohort of 104 men with treated HIV infection and without diabetes, aged 43 +/- 8 years at baseline, with (mean +/- SD) 11.8 +/- 3.5 years follow-up. Ascertainment of glucose status by fasting glucose or, in a subset (n = 33), a 75 g oral glucose tolerance test by 10-12 years follow-up. A subset underwent sequential body composition measures (n = 58) to determine changes in total body and central
abdominal adiposity. RESULTS: The cumulative incidence of glucose disorders was 45.8% (prediabetes 32.3%, diabetes 12.5%), with an incidence rate of 34.5/1000 years of patient follow-up (PYFU) (prediabetes: 24.3/1000 PYFU; diabetes: 10.2/1000 PYFU). Incident glucose disorders were independently associated with higher age (44.9 +/- 8.4 vs. 41.1 +/- 7.5 years, P = 0.027), baseline C-peptide (2.9 +/- 1.3 vs. 2.4 +/- 1.1 ng/ml, P = 0.019) and baseline 2-h glucose (135 +/- 41 vs. 95 +/- 25 mg/dl, P < 0.001). A prior AIDS-defining illness was independently associated with higher follow-up fasting glucose (108 +/- 38 vs. 94 +/- 16 mg/dl, P = 0.007). Abdominal fat gain over 2-4 years was associated with a 3.16-fold increased risk of incident glucose disorders (95% CI 1.30-7.68, P = 0.011). In a subgroup who underwent further oral glucose tolerance testing, 60% had a glucose disorder, the majority not detected by fasting glucose. CONCLUSION: Men with long-term treated HIV infection have high rates of incident glucose disorders associated with modest abdominal fat gain. Directed measures to prevent diabetes in this population are warranted.


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; I = 98.1%) among 396,496 person-years and 125 per 1,000 person-years (95% CI = 0, 123; I = 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, dyslipidemia, metabolic syndrome, increased baseline fasting glycemia, and certain ART regimens. CONCLUSIONS: 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.


OBJECTIVES: As HIV-positive people age, diagnosis and management of comorbidities associated with ageing are of increasing concern. In this study, we aimed to compare the self-reported prevalences of heart disease, stroke, thrombosis and diabetes in older Australian HIV-positive and HIV-negative gay and bisexual men (GBM). METHODS: We analysed data from the Australian Positive & Peers Longevity Evaluation Study (APPLES), a study of a prospectively recruited cross-sectional sample of 228 (51.1%) HIV-positive and 218 (48.9%) HIV-negative GBM, aged >/= 55 years. Regression methods were used to assess the association of HIV status with self-reported comorbidities. RESULTS: Of 446 patients, 389 [200 (51.4%) HIV-positive] reported their disease history. The reported prevalence of comorbidities was higher in the HIV-positive group than in the HIV-negative group: heart disease, 19.5 versus 12.2%; stroke, 7.5 versus 4.2%; thrombosis, 10.5 versus 4.2%; and diabetes, 15.0 versus 9.0%, respectively. In adjusted analyses, HIV-positive GBM had significantly increased odds of reporting heart disease [adjusted odds ratio (aOR) 1.99; P = 0.03] and thrombosis...
In our analysis, HIV status was not significantly associated with either age at diagnosis of heart disease (median 53 years for HIV-positive GBM versus 55 years for HIV-negative GBM; \( P = 0.64 \)) or 5-year cardiovascular disease (CVD) risk estimated using the Framingham risk score. CONCLUSIONS: HIV-positive GBM more commonly reported heart disease and thrombosis compared with their HIV-negative peers. These results further highlight the need to understand the impact of HIV on age-related comorbidities in GBM, to guide optimal screening and treatment strategies to reduce the risk of these comorbidities among the HIV-positive population.


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. 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.


BACKGROUND: Chronic diseases, chiefly cancers and circulatory system diseases (CSDs), have become the leading non-AIDS-related causes of death among HIV-infected people, as in the general population. After our previous report of an excess mortality for several non-AIDS-defining cancers, we now aim to assess whether people with AIDS (PWA) experience also an increased mortality for CSDs and diabetes mellitus (DM), as compared to the non-AIDS general population (non-PWA). METHODS: A nationwide, population-based, retrospective cohort study was conducted including 5285 Italians, aged 15-74 years, who were diagnosed with AIDS between 2006 and 2011. Multiple cause-of-death (MCoD) data, i.e. all conditions reported in death certificates, were retrieved through record-linkage with the National Register of Causes of Death up to 2011. Using MCoD data, sex- and age-standardized mortality ratios (SMRs) with 95% confidence intervals (CIs) were calculated by dividing the observed number of PWA reporting a specific disease among MCoD to the expected number, estimated on the basis of mortality rates (based on MCoD) of non-PWA. RESULTS: Among 1229 deceased PWA, CSDs were mentioned in 201 (16.4%) certificates and DM in 46 (3.7%) certificates among the various causes of death. These values corresponded to a 13-fold higher mortality related to CSDs (95% CI 10.8-14.4) and DM (95% CI: 9.5-17.4) as compared to 952,019 deceased non-PWA. Among CSDs, statistically significant excess mortality emerged for hypertension (23 deaths, SMR = 6.3, 95% CI: 4.0-9.4), ischemic heart diseases (39 deaths, SMR = 6.1, 95% CI: 4.4-8.4), other forms of heart diseases (88 deaths, SMR = 13.4, 95% CI: 10.8-16.5), and cerebrovascular
diseases (42 deaths, SMR = 13.4, 95% CI: 9.7-18.2). The SMRs were particularly elevated among PWA aged < 50 years and those infected through drug injection. CONCLUSIONS: The use of MCoD data disclosed the fairly high mortality excess related to several CSDs and DM among Italian PWA as compared to non-PWA. Study findings also indicate to start preventive strategies for such diseases at a younger age among AIDS patients than in the general population and with focus on drug users.


BACKGROUND: Since the onset of combination antiretroviral therapy use, the incidence of HIV-associated dementia and of HIV encephalitis has fallen dramatically. The present study investigates the extent of white matter hyperintensities (WMHs) among individuals with HIV disease, and factors that predict their presence and their impact on psychomotor speed. METHODS: A total of 322 men participating in the Multicenter AIDS Cohort Study (185 HIV-infected, age: 57.5 +/- 6.0) underwent MRI scans of the brain. T1-weighted magnetization-prepared rapid gradient-echo (MP-RAGE) and T2-weighted Fluid Attenuated Inversion Recovery (FLAIR) images were obtained and processed using an automated method for identifying and measuring WMHs. WMH burden was expressed as the log10 transformed percentage of total white matter. RESULTS: There were no significant associations between WMHs and HIV disease. However, the extent of WMHs was predicted by age more than 60 (beta = 0.17), non-white race (beta = 0.14), glomerular filtration rate (beta = -0.11), and the presence of diabetes (beta = 0.12). There were no interactions between HIV status and age (beta = -0.03) or between age and diabetes (beta = 0.07). However, the interaction between HIV infection and diabetes was significant (beta = 0.26). The extent of WMHs was significantly associated with performance on measures of psychomotor speed (beta = 0.15). CONCLUSION: In today's therapeutic environment, in HIV-infected and HIV seronegative individuals, those factors which affect the cerebrovasculature are the best predictors of WMHs. Diabetes has a specific impact among HIV-infected, but not uninfected, men, suggesting the need for more aggressive treatment even in the prediabetes state, especially as WMHs affect cognitive functions.


The purpose of this study was to exam the impact of type 2 diabetes mellitus (T2DM) on CD4 cell count trends in adults with HIV. In a longitudinal retrospective study in an urban primary care HIV clinic in the southeastern United States from 2010 to 2012, patients with HIV medical charts were audited to obtain their CD4 cell count, diabetes status, weight, and demographic information. Rates of increase of CD4 T cell count (i.e. slopes) were obtained using a linear mixed-effects model. Most of the HIV-T2DM cohort (n = 262) and HIV-only cohort (n = 2399) were African American (76%) and male (77%). The CD4 T cell counts were consistently higher in the HIV-T2DM cohort ( p < .0001). The mean rate of CD4 T cell count increase (mean +/- SE) was 63 +/- 9 cells/microl/year in HIV-T2DM African American women and 28 +/- 7 cells/microl/year in HIV-T2DM African American men ( p = 0.003). In the multivariable slope analysis, the CD4 T cell count increase was significantly faster for HIV-T2DM African American women than for all other patients (mean difference = 30/cells/microl/year, 95% CI: 13-47; p < 0.001). Gender, race/ethnicity, and the diagnosis of diabetes influenced the recovery of CD4 cell counts.

Purpose The purpose of this systematic review of qualitative literature was (1) to identify self-management strategies, (2) to identify women's barriers to self-management, and (3) to compare self-management strategies of diabetes and human immunodeficiency virus (HIV). African American women living with HIV are at high risk for developing diabetes because of genetics, lifestyle, and HIV treatment. Self-management of each of these conditions is critical to decrease morbidity and mortality. Conclusions A literature search resulted in 15 articles: 10 on the topic of HIV and 5 on diabetes. Self-management strategies included spirituality, family and social support, and indulgent self-care. Barriers included depression, stigma, and the role of caregiver. The themes identified for HIV and diabetes self-care barriers and facilitators were exceptionally similar. Themes of spirituality, family support, and indulgent self-care were part of both HIV and diabetes self-care. Women with HIV were less concerned with their independence than women with diabetes, and focused on disclosure of their HIV status and development of a support system.

Frailty


OBJECTIVES: In a clinic-based, treated HIV-infected cohort, we identified individuals with sarcopenia and compared with age, sex and ethnically matched controls; and investigated associated risk factors and health outcomes. DESIGN: Sarcopenia (age-related muscle loss) causes significant morbidity to the elderly, leading to frequent hospitalizations, disability and death. Few have characterized sarcopenia in the HIV-infected who experience accelerated aging. METHODS: Sarcopenia was defined as low muscle mass with weak grip strength and/or slow gait speed using lower 20th percentiles of controls. Multivariate logistic and linear regression analyses were used to explore risk factors and health-related outcomes associated with sarcopenia among HIV-infected individuals. RESULTS: We recruited 315 HIV-infected individuals aged at least 25 years with at least 1-year history of undetectable viral load on treatment (HIV RNA <50 copies/ml). Percentage of sarcopenia in 315 HIV-infected was 8%. Subsequently, 153 of the 315 were paired with age, sex and ethnically matched HIV-uninfected. The percentage of sarcopenia in the HIV-infected (n = 153) compared with uninfected (n = 153) were 10 vs. 6% (P = 0.193) respectively, whereas of those at least 50 years of age among them were 17% vs. 4% (P = 0.049), respectively. Associated risk factors among the HIV-infected include education level, employment status, BMI, baseline CD4 cell count, duration on NRTIs and GGT levels. Identified negative outcomes include mortality risk scores [5.42; 95% CI 1.46-9.37; P = 0.007] and functional disability (3.95; 95% CI 1.57-9.97; P = 0.004). CONCLUSION: Sarcopenia is more prevalent in HIV-infected at least 50 years old compared with matched controls. Our findings highlight associations between sarcopenia with loss of independence and greater healthcare burden among treated HIV-infected individuals necessitating early recognition and intervention.


The life expectancy of people living with HIV (PLHIV) has dramatically improved with effective and well-tolerated antiretroviral therapy. This presents a new challenge in caring for this patient population, with up to 28% of older PLHIV being identified as frail. Studies suggest that the prevalence of frailty is higher in PLHIV compared to the general population, and that the onset of frailty occurs at an earlier age. Frail individuals often present with multiple and non-specific health complaints, fluctuating disability, falls and delirium, and are at higher risk for multiple adverse outcomes, post-operative complications, poor responses to vaccination and functional decline. They tend to require longer hospital admissions, are more likely to require nursing home care, and are at greater risk of mortality. The degree of frailty can fluctuate over time. Limited evidence exists to support the reversal of frailty, but epidemiological evidence suggests that
interventions to assess and manage co-morbidities, reducing risk factors such as smoking, increasing exercise and optimising BMI, and improving personal and community resources, are all likely to reduce the risk of frailty. Physicians who care for PLHIV need to recognise and manage frailty in this patient population. This includes an understanding of: when to intervene aggressively in the management of an older patient with a new HIV diagnosis to delay or prevent permanent debility and frailty; when to acknowledge that the patient has become frail; and the role of geriatric medicine in addressing the specific issues and needs of this patient, such as maximising functional ability, preventing falls, reducing social isolation and improving quality of life.


OBJECTIVE: Use of the frailty index to measure an accumulation of deficits has been proven a valuable method for identifying elderly people at risk for increased vulnerability, disease, injury, and mortality. However, complementary molecular frailty biomarkers or ideally biomarker panels have not yet been identified. We conducted a systematic search to identify biomarker candidates for a frailty biomarker panel. METHODS: Gene expression databases were searched (http://genomics.senescence.info/genes including GenAge, AnAge, LongevityMap, CellAge, DrugAge, Digital Aging Atlas) to identify genes regulated in aging, longevity, and age-related diseases with a focus on secreted factors or molecules detectable in body fluids as potential frailty biomarkers. Factors broadly expressed, related to several "hallmark of aging" pathways as well as used or predicted as biomarkers in other disease settings, particularly age-related pathologies, were identified. This set of biomarkers was further expanded according to the expertise and experience of the authors. In the next step, biomarkers were assigned to six "hallmark of aging" pathways, namely (1) inflammation, (2) mitochondria and apoptosis, (3) calcium homeostasis, (4) fibrosis, (5) NMJ (neuromuscular junction) and neurons, (6) cytoskeleton and hormones, or (7) other principles and an extensive literature search was performed for each candidate to explore their potential and priority as frailty biomarkers. RESULTS: A total of 44 markers were evaluated in the seven categories listed above, and 19 were awarded a high priority score, 22 identified as medium priority and three were low priority. In each category high and medium priority markers were identified. CONCLUSION: Biomarker panels for frailty would be of high value and better than single markers. Based on our search we would propose a core panel of frailty biomarkers consisting of (1) CXCL10 (C-X-C motif chemokine ligand 10), IL-6 (interleukin 6), CX3CL1 (C-X3-C motif chemokine ligand 1), (2) GDF15 (growth differentiation factor 15), FNDC5 (fibronectin type III domain containing 5), vimentin (VIM), (3) regucalcin (RGN/SMP30), calreticulin, (4) PLAU (plasminogen activator, urokinase), AGT (angiotensinogen), (5) BDNF (brain derived neurotrophic factor), progranulin (PGRN), (6) alpha-klotho (KL), FGF23 (fibroblast growth factor 23), FGF21, leptin (LEP), (7) miRNA (micro Ribonucleic acid) panel (to be further defined), AHCHY (adenosynylhomocysteinase) and KRT18 (keratin 18). An expanded panel would also include (1) pentraxin (PTX3), sVCAM/ICAM (soluble vascular cell adhesion molecule 1/Intercellular adhesion molecule 1), defensin alpha, (2) APP (amyloid beta precursor protein), LDH (lactate dehydrogenase), (3) S100B (S100 calcium binding protein B), (4) TGFbeta (transforming growth factor beta), PAI-1 (plasminogen activator inhibitor 1), TGM2 (transglutaminase 2), (5) SRAGE (soluble receptor for advanced glycosylation end products), HMGB1 (high mobility group box 1), C3/C1Q (complement factor 3/1Q), ST2 (Interleukin 1 receptor like 1), agrin (AGRN), (6) IGF-1 (insulin-like growth factor 1), resistin (RETN), adiponectin (ADIPOQ), ghrelin (GHRL), growth hormone (GH), (7) microparticle panel (to be further defined), GpmnB (glycoprotein nonmetastatic melanoma protein B) and lactoferrin (LTF). We believe that these predicted panels need to be experimentally explored in animal models and frail cohorts in order to ascertain their diagnostic, prognostic and therapeutic potential.

Background. Sarcopenia is a geriatric syndrome that leads to a loss of functionality and mortality. Methods. We assessed the prevalence of sarcopenia in HIV-infected patients attended in our HIV Unit who had at least two DXA scans from 2000 to 2016 (1,720 DXA scans from 860 individuals). Sarcopenia was determinate according to appendicular skeletal muscle mass index (ASM) calculated as the ratio between skeletal muscle mass index (SMI) by DXA and height2 (kg/m2). We stratified patients by gender and age (<40, 41-50, and >50 years) and according to the interval between DXAs (≤3, 3-7, 7-10, >10 years). The statistical analysis was performed using SPSS version 19. Results. Median (IQR) age was 52 (47; 57) years, and 76% were male. The median (IQR) time with HIV infection was 8 (3; 15) years. The prevalence of sarcopenia was 25.7% (95% CI, 22.8-28.7), more prevalent in those aged >50 years (27.8%). Stratifying by gender, 43% of women aged >50 years presented sarcopenia compared with 8.8% of men. The frequency of sarcopenia increased from 37.6% to 49.4% when interval between DXA was 7-10 years (n=109), significantly higher in women than in men (p=0.016). In addition to the traditional risk factors, time with HIV infection was associated with sarcopenia [RR 1.780 (95% CI, 1.314-2.411), p=0.001]. Conclusion. The prevalence and progression of sarcopenia in HIV-infected patients were high, mainly among women. Further studies are necessary to assess the best approaches to prevent this condition and its consequences. [ABSTRACT FROM AUTHOR]


Background: Neurocognitive impairment (NCI) is strongly associated with frailty in people living with human immunodeficiency virus (PLWH); the overlap of frailty and NCI and the impact on health outcomes in PLWH are unknown. Methods: PLWH in a longitudinal, observational study of aging completed entry evaluations for frailty and NCI. Outcomes of falls (recurrent) increased limitations in independent activities of daily living (IADL), or mortality were combined. Poisson regression models estimated prevalence ratios (PR) for >/=1 outcome over 2 years. Results: Among 987 participants, the median age at entry was 51 years; 19% were female; the median CD4 count was 616 cells/microL; and HIV-1 RNA was <200 copies/mL in 94%. Most (79%) participants had neither frailty nor NCI; 2% had both; 4% frailty only; and 15% NCI only. Over 2 years of observation, 100 (10%) participants experienced recurrent falls; 175 (18%) had worsening IADL limitations; 17 (2%) died; and 254 (26%) experienced >/=1 poor health outcome. In adjusted models, frailty with NCI was associated with more than double the risk of a poor health outcome (PR 2.65; 95% CI 1.98, 3.54); a significant association was also seen with frailty alone (PR 2.26; 95%CI 1.71, 2.99) and NCI alone (PR 1.73; 95% CI 1.36, 2.20). Conclusions: The presence of frailty with NCI was associated with a greater risk of falls, disability, or death in PLWH than NCI alone. Interventions that target prevention or reversal of both frailty and NCI (such as increased physical activity) may significantly limit poor health outcomes among PLWH.


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 diagnose frailty in PLWH.
**BACKGROUND:** Standard care for HIV clinical practice has started focusing on age-related problems, but despite this recent change physicians involved in HIV care do not often screen HIV patients for frailty. Our aim was to construct three indexes from an HIV clinical database (i.e. Frailty Index, (FI), HIV Index, (HIVI), and Protective Index (PI)) and to assess levels of frailty, HIV severity and demographic and protective lifestyle factors among HIV patients. METHODS AND FINDINGS: We included data from 1612 patients who attended an Italian HIV clinic between September 2016 and December 2017 (mean±SD age: 53.1±8 years, 73.9% men). We used 92 routine variables collected by physicians and other health care professionals to construct three indexes: a 72-item FI (biometric, psychiatric, blood test, daily life activities, geriatric syndromes and nutrition data), a 10-item HIVI (immunological, viral and therapeutics) and a 10-item PI (income, education, social engagement, and lifestyle habits data) (the lower the FI and HIVI scores, and the higher the PI scores, the lower the risk for participants). The FI, HIVI and PI scores were 0.19±0.08, 0.48±0.17 and 0.62±0.13, respectively. Men had higher FI (0.19±0.08 vs 0.18±0.08; p = 0.010) and lower HIVI (0.47±0.18 vs 0.50±0.15; p = 0.038) scores than women. FI and HIVI scores both increased 1.9% per year of age (p < 0.001), whereas the PI decreased 0.2% per year (p < 0.050). In addition, the FI score increased 1.6% and the PI score decreased 0.5% per year of HIV infection (p < 0.001). CONCLUSION: It is feasible to assess levels of frailty, HIV severity and protective lifestyle factors in HIV patients using data from a clinical database. Frailty levels are high among HIV patients and even higher among older patients and those with a long duration of HIV. Future studies need to examine the ability of the three indices to predict adverse health outcomes such as hospitalization and mortality.


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.


The HIV-infected population is aging due to the success of combination antiretroviral therapy, which prolongs survival, as well as the growing number of newly diagnosed cases in adults 50 years old and over. HIV-infected individuals suffer from an accelerated aging due to the persistent and chronic activation of the immune system that leads to immune exhaustion and accelerated immunosenescence, even when on optimal immuno-virological control treatment. The clinical expression of the immunosenescence state is an increased prevalence of aging-related non-HIV associated comorbidities and a rising prevalence of frailty occurring earlier than in the general population. Thus, HIV-infected patients are biologically older than their chronological age, and they suffer from aging-related problems, such as frailty, which should be assessed.


OBJECTIVES: To investigate the association between recurrent AIDS-defining events and a semicompeting risk of death in patients with advanced, multidrug-resistant human immunodeficiency virus infection and to identify individuals at increased risk for these events using a joint frailty model. STUDY DESIGN AND SETTING: Three hundred sixty-eight patients with antiretroviral treatment failure in the Options in Management of Antiretrovirals Trial randomized to two antiretroviral treatment strategies using a 2 x 2 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%), whereas 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.


Background: We characterized associations between frailty and incidence of cardiovascular disease (CVD), diabetes mellitus (DM), bone disease and mortality within a cohort of aging persons with HIV (PWH). Methods: Participants underwent frailty evaluations using the Fried’s frailty assessment at baseline and then annually. Frailty was defined as having >/=3 frailty criteria. Clinical outcomes of mortality, incident CVD events, DM, and bone disease events were recorded throughout the study period (baseline to most recent study or clinic visit, or date of clinical outcome occurrence, whichever came first). Poisson regression models evaluated associations between baseline frailty, change in frailty score over 48 weeks, and each clinical outcome. Results: Among 821 men and 195 women (median age 51 years), 62 (6%) were frail at baseline. Frailty scores increased in one or more components among 194 participants (19%) from baseline to 48 weeks. Baseline frailty was associated with an increased risk of incident CVD and DM with a trend towards a significant association with incident bone events. Among the components of frailty, slow gait speed was associated with incident DM and borderline-associated with incident CVD. An increase in frailty from baseline to week 48 was associated with mortality, but not with the other clinical outcomes. Conclusions: Baseline frailty was associated with multiple adverse health outcomes (incident CVD, DM and bone disease), while increase in frailty score was associated
with mortality among PWH engaged in care. Incorporation of frailty assessments into the routine care of PWH may assist in improvement of functional status and risk stratification for age-related chronic diseases.


OBJECTIVE: To evaluate the association between a frailty index (i.e., scale of accumulated deficits) and neurocognitive functioning among persons living with HIV/AIDS (PLWHA). METHODS: Observational, cross-sectional data were gathered from the University of California, San Diego, HIV Neurobehavioral Research Program from 2002 to 2016. Eight hundred eleven PLWHA aged 18 to 79 years completed comprehensive physical, neuropsychological, and neuromedical evaluations. The frailty index was composed of 26 general and HIV-specific health maintenance measures, and reflects the proportion of accumulated deficits from 0 (no deficits) to 1 (all 26 deficits). Multiple linear regression was used to examine the association between continuous frailty index scores and neurocognitive functioning. RESULTS: Participants had a mean age of 44.6 years (11.2), and were mostly male (86.9%) and white (60.2%) with a mean frailty index of 0.26 (0.11). Over the study period, prevalence of HIV-related components (e.g., low CD4) decreased, while non-HIV comorbidities (e.g., diabetes) increased. There were no changes in the frailty index by study year. Higher frailty index was associated with worse global neurocognitive functioning, even after adjusting for covariates (age, employment, and premorbid intellectual functioning; b = -0.007; 95% confidence interval [CI] = -0.0112 to -0.003; p < 0.001). The cognitive domains of verbal fluency (b = -0.004; 95% CI = -0.006 to -0.002), executive functioning (b = -0.004; 95% CI = -0.006 to -0.002), processing speed (b = -0.005; 95% CI = -0.007 to -0.003), and motor skills (b = -0.006; 95% CI = -0.007 to -0.005) also significantly predicted worse frailty index score (p values <0.001). CONCLUSION: A frailty index can standardize how clinicians identify PLWHA who may be at higher risk of neurocognitive impairment.


OBJECTIVE: This study examined the relative contribution of cognitive status to frailty among older individuals infected with HIV+. DESIGN: Participants included 122 HIV+ individuals [mean age = 57.5 (6.6)] with a median CD4 cell count of 546. Undetectable viral load (<50 copies per mL) was observed in 94% of the sample. The sample was defined as frail (n = 21) and nonfrail (n = 101) according to the Fried phenotype criteria. Cognitive tests included measures of executive function, motor/psychomotor, language, learning, and memory. Performances were converted to standardized scores and averaged to calculate individual domain scores and a global index of cognitive function. METHODS: Logistic and hierarchical regressions were completed to separately determine the associations between clinical, demographic, and cognitive variables with regards to frailty status. RESULTS: Results of the logistic regressions revealed that lower executive function, female sex, and higher symptoms of depression were associated with frailty. The hierarchical analysis revealed no significant contribution of executive function to frailty status after accounting for female sex and symptoms of depression (Nagelkerke R = 0.15). CONCLUSIONS: These results emphasize the importance of sex distribution and mental health in explanatory models of frailty in HIV. Further, interventions targeting symptoms of depression may increase resilience in older HIV+ individuals.


The notion of frailty has evolved for more than 15 years. Although there is no consensus definition, frailty reflects a state of increased vulnerability to adverse health outcomes for individuals of the same chronological age. Two commonly used clinical tools, the frailty index and the frailty phenotype, both measure health-related deficits. The frailty index is a ratio of the number of deficits that an individual has accumulated divided by all deficits measured, whereas the phenotype specifies frailty as represented by poor performance in three of five criteria (i.e., weight loss, exhaustion, weakness, slowness, lack of activity). From human studies, animal models of both approaches have been developed and are beginning to shed light on mechanisms underlying frailty, the influence of frailty on disease expression, and new interventions to attenuate frailty. Currently, back-translation to humans is occurring. As we start to understand subcellular mechanisms involved in damage and repair as well as their response to treatment, we will begin to understand the molecular basis of aging and, thus, of frailty.


Frailty is a geriatric condition characterized by increased vulnerability to physical impairments and limitations that may lead to disabilities and mortality. Although studies in the general population suggest that psychosocial factors affect frailty, less is known about whether similar associations exist among people living with HIV (PLWH). The purpose of this study was to examine psychosocial correlates of frailty among PLWH and HIV-uninfected adults. Our sample included 127 adults (51% PLWH) participating in the Multi-Dimensional Successful Aging among HIV-Infected Adults study at the University of California San Diego (average age 51 years, 80% male, 53% White). Frailty was assessed via the Fried Frailty Index. Psychosocial variables significant in bivariate models were included in principal component analysis to generate factor variables summarizing psychosocial correlates. Multivariate logistic regression models were fit to examine the independent effects of factor variables and their interaction terms with HIV status. In bivariate models, frailty was associated with multiple psychosocial variables, for example, grit, optimism, personal mastery, social support, emotional support. Factor analysis revealed that psychosocial variables loaded on two factors-Positive Resources/Outlook and Support by Others. The multivariate model showed significant main effects of Support by Others and HIV status, and interactive effects HIV X Positive Resources/Outlook, such that Positive Resources/Outlook was negatively associated with frailty for PLWH but not for HIV-uninfected individuals. These analyses indicate that psychosocial factors may be associated with frailty among PLWH. Positive resources and outlook may play a role in frailty prevention. Future longitudinal studies are needed to establish causal links.


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
osteoporotic 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.


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.


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, 8.71, 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.

Summary: A serum biomarker of biological versus chronological age would have significant impact on clinical care. It could be used to identify individuals at risk of early-onset frailty or the multimorbidities associated with old age. It may also serve as a surrogate endpoint in clinical trials targeting mechanisms of aging. Here, we identified MCP-1/CCL2, a chemokine responsible for recruiting monocytes, as a potential biomarker of biological age. Circulating monocyte chemoattractant protein-1 (MCP-1) levels increased in an age-dependent manner in wild-type (WT) mice. That age-dependent increase was accelerated in Ercc1<sup>−/Δ</sup> and Bubr1<sup>H/H</sup> mouse models of progeria. Genetic and pharmacologic interventions that slow aging of Ercc1<sup>−/Δ</sup> and WT mice lowered serum MCP-1 levels significantly. Finally, in elderly humans with aortic stenosis, MCP-1 levels were significantly higher in frail individuals compared to nonfrail. These data support the conclusion that MCP-1 can be used as a measure of mammalian biological age that is responsive to interventions that extend healthy aging. [ABSTRACT FROM AUTHOR]


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 a higher risk of cognitive impairment compared with nonfrail 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. 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 nonimpaired. Multinomial logistic regression models were used to test the independent association between frailty and HAND adjusting for potential confounders. 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 (risk ratio [RR] = 5.7, 95% confidence intervals [CI] 1.09-29.82; p = .039 and RR = 18.3, 95% CI 0.93-362.6; p = .056, respectively). 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.

General / Miscellaneous


Background: Maternal combination antiretroviral therapy (cART) during pregnancy could impact the health of human immunodeficiency virus (HIV)-exposed, HIV-uninfected (HEU) children, because some antiretrovirals cross the placenta and can inhibit telomerase. Our objective was to compare leukocyte telomere length (LTL) in HEU children and HIV-unexposed, HIV-uninfected (HUU) children at birth and in early life and to investigate any relationship with cART exposure. Methods: HEU and HUU children's blood LTL was compared cross-sectionally at birth, and during the first three years of life. Longitudinal HEU LTL dynamics was evaluated over that same period. Results: At birth, the LTL in HEU children (n = 114) was not shorter than that in HUU children (n = 86), but female infants had longer LTL than male infants. Maternal cART (duration or type) showed no association with shorter infant LTL. Among 214 HEU children age- and sex-matched at a 1:1 ratio to HUU children, LTL declined similarly in both groups. In a longitudinal analysis, LTL attrition in HEU children was rapid from birth to 1 year of age and gradual thereafter. Zidovudine prophylaxis did not significantly alter LTL. Conclusions: Our results indicate that from birth to 3 years of age, the LTL in HEU children is not negatively affected by exposure to maternal HIV infection and cART, at least not to the regimens used within this Canadian cohort, a reassuring finding.


Background: Reporting mortality and lost to follow-up (LTFU) by age is essential as older HIV-positive patients might be at risk of long-term effects of living with HIV and/or taking antiretroviral therapy (ART). As age effects might not be linear and might impact HIV outcomes in the oldest more severely, people living with HIV (PLHIV) aged 50-59 years and PLHIV aged >60 years were considered separately. Setting: Seventeen adult HIV/AIDS clinics spread over nine countries in West Africa. Methods: Data were collected within the International Epidemiological Databases to Evaluate AIDS West Africa Collaboration. ART-naive PLHIV-1 adults aged >16 years initiating ART and attending >/=2 clinic visits were included (N=73,525). Age was divided into five groups: 16-29/30-39/40-49/50-59/>/=60 years. The age effect on mortality and LTFU was evaluated with Kaplan-Meier curves and multivariable Cox proportional hazard regressions. Results: At month 36, 5.9% of the patients had died and 47.3% were LTFU. Patients aged >/=60 (N=1,736) and between 50-59 years old (N=6,792) had an increased risk of death in the first 36 months on ART (adjusted hazard ratio=1.66; 95% CI: 1.36-2.03 and adjusted hazard ratio=1.31; 95% CI: 1.15-1.49, respectively; reference: <30 years old). Patients >/=60 years old tend to be more often LTFU. Conclusion: The oldest PLHIV presented the poorest outcomes, suggesting that the PLHIV aged >50 years old should not be considered as a unique group irrespective of their age. Tailored programs focusing on improving the care services for older PLHIV in Sub-Saharan Africa are clearly needed to improve basic program outcomes.


Palm Springs, CA, is a retirement community with the highest prevalence of gay men living with HIV older than 50 years in the United States. Through a community-academic partnership, we explored the major health issues, resiliencies, and priority research topics related to HIV and aging. We conducted five community facilitated focus groups with different stakeholders, including two focus groups with older adults living with HIV, one with their caregivers, one with HIV-focused community-based organizations, and a joint focus group with researchers and HIV care providers. Using the rigorous and accelerated data reduction technique, five major themes emerged, which included long-term side effects of medication, social determinants of health, mental health, resiliencies, and involving community in research. These data are important for developing effective interventions, conducting useful and impactful research, and providing health care providers with the tools and knowledge to provide optimal care.


Many complex diseases or traits are the results of both genetic and environmental factors. The environmental factors affect the human body by modifying its epigenetics, which controls the activity of genomes without mutating it. Viral infection is one of the common environmental factors for complex diseases. For example, the human immunodeficiency virus (HIV) infection can cause acquired immune deficiency syndrome (AIDS), HBV, and HCV infections are associated with hepatocellular carcinoma, and human papillomavirus infection is a causal factor in cervical carcinoma. In this study, to investigate how HIV infection affects DNA methylation, we analyzed the blood DNA methylation data of 485 512 sites in 44 HIV- and 142 HIV + patients. Several advanced computational methods were applied to identify the core distinctive features that were different between the HIV patients and the healthy controls. These methods can be used for differentiating HIV-infected patients from uninfected ones. These core distinctive DNA methylation features were confirmed to be functionally connected to premature aging and abnormal immune regulation, two typical pathological symptoms of HIV infection, revealing the potential regulatory mechanisms of HIV infection on the DNA methylation status of the host cells and provided novel insights on the pathogenesis of HIV infection and AIDS.


BACKGROUND: Despite substantial advances in the era of highly active antiretroviral therapy, HIV-positive persons are at high risk of tobacco-related disease and mortality. This study describes the prevalence and sociodemographic factors associated with current tobacco use among HIV-positive men and women 18 years and older
receiving HIV care in Puerto Rico. METHODS: Data from the 2009 Medical Monitoring Project (MMP) was used. A three-stage sampling design was conducted to obtain annual cross-sectional probability samples of HIV-infected adults in care. Factors associated with current tobacco use were identified using logistic regression models. All analyses were performed using STATA version 11.0. RESULTS: The estimated prevalence of current cigarette use among the population was 29.0% (95% CI: 23.5%-35.2%), daily smoking was reported in 76.7% of them. Multivariate logistic regression models, showed that male drug users (injected and noninjected) were up to nine times more likely to be current smokers (OR = 9.9; 95% CI = 3.1, 31.5) as compared to nonusers. CONCLUSION: Findings highlight the need for smoking cessation strategies in this population, particularly among male HIV+ drug users.


This article analyzes racial health disparities and aging in the context of mass incarceration. It reviews what we know about the impacts of incarceration on individuals, families, and communities, and discusses how mass incarceration might impact racial disparities in health and aging. Given the role of the criminal justice system in the lives of minorities, and the deleterious effects of this contact, racial disparities in aging and health cannot be completely understood without fully understanding the consequences of concentrated mass incarceration in minority communities. [ABSTRACT FROM AUTHOR]


Background: The HIV care cascade has improved in Latin America over the last decade. However, the influence of alcohol and noninjected drug use (NIDU) on cascade outcomes is mostly unknown. This study estimated the association of alcohol and NIDU with retention in care, loss to follow up (LTFU), and virologic failure (VF). Methods: Individuals ≥18 years attending routine HIV clinic visits and completing the Rapid Screening Tool (RST; evaluating NIDU and ART adherence in 7-day recall period) during 2012–13 were followed up to 2015 in the Caribbean, Central and South America network for HIV epidemiology. Adjusted odds ratios (aOR) were calculated for the association of alcohol consumption and NIDU with retention in care by logistic regression; adjusted hazard ratios (aHR) were estimated for the associations with LTFU and VF by Cox regression. Results: Among 3604 individuals, the proportions retained in care for one year were 84%, 79%, 72%, and 69% for patients reporting non-use, alcohol use, NIDU, and both alcohol and NIDU, respectively. For the same patient groups, the proportions LTFU over 18 months were 6%, 8%, 12%, and 13%, respectively. There were 1901 patients (53%) with HIV RNA results; VF proportions were similar between users and nonusers (ranging from 14–16%). After controlling for age, sex, study site, HIV transmission mode, time on ART, AIDS status, and CD4 count, neither alcohol use (aOR = 1.1, CI = 0.9–1.4; aHR = 1.0, CI = 0.8–1.3) nor NIDU (aOR = 1.3, CI = 0.9–1.8; aHR = 1.4, CI = 0.9–2.1) were significantly associated with retention or VF, respectively. However, both alcohol use (aHR = 1.2, CI = 1.02–1.4) and NIDU (aHR = 1.3, CI = 1.00–1.8) were associated with increased LTFU. Conclusion: Alcohol use and NIDU in a 7-day recall period increased the risk of being LTFU during the next 18 months, highlighting the need for routine screening and targeted interventions to keep these individuals in care and on ART. [ABSTRACT FROM AUTHOR]

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.


Despite improvements in its treatment, HIV infection continues to affect Blacks disproportionately. Using National HIV Surveillance System data from 50 U.S. states and the District of Columbia, we examined demographic and epidemiologic differences between U.S.-born and non-U.S.-born Black adults. Of 110,452 Black adults reported with diagnosed HIV during 2008-2014 with complete country of birth information, 11.1% were non-U.S.-born. Non-U.S.-born were more likely to be older, female, have HIV infection attributed to heterosexual contact, have been diagnosed late, and live in the northeastern U.S. region. During 2014, the HIV diagnosis rate among African-born Black females was 1.4 times the rate of U.S.-born Black males, 2 times the rate of African-born Black males, and 5.3 times the rate of U.S.-born Black females. We elucidate the differences between U.S.-born and non-U.S.-born Blacks on which to base culturally appropriate HIV-prevention programs and policies.


The article reports on the services offered by Robert Rogers at Friendship Centers for the Lesbian, gay, bisexual, transgender (LGBT) adult who have lost their partners and have no one for support. They have been shunned by their relatives. The psychological support and medications offered at the facility are discussed.


This systematic review evaluates the association between religion, spirituality and clinical outcomes in HIV-infected individuals. A systematic literature review was conducted for all English language articles published between 1980 and 2016 in relevant databases. Six hundred fourteen studies were evaluated. 15 met inclusion criteria. Ten (67%) studies reported a positive association between religion or spirituality and a clinical HIV outcome. Two (13%) studies failed to detect such an association; and two (13%) demonstrated a negative association. One study (7%) identified features of religiosity and spirituality that had both negative and positive associations with HIV clinical outcomes.
Recognizing the religious or spiritual commitments of patients may serve as an important component of patient care. Further longitudinal studies and interventions might be required to further clarify the potential impact of religion and spirituality on HIV clinical outcomes.


**BACKGROUND:** Body composition alterations, or lipodystrophy, can lead to serious health problems in people living with HIV/AIDS (PLWHA). The objectives of this study are to predict and validate sex-specific anthropometric predictive models for the diagnosis of lipodystrophy in PLWHA. METHODS: A cross-sectional design was employed to recruit 106 PLWHA (men = 65 and women = 41) in Brazil during 2013-2014. They were evaluated using dual-energy X-ray absorptiometry, and 19 regions of body perimeters and 6 skinfold thicknesses were taken. Sex-specific predictive models for lipodystrophy diagnosis were developed through stepwise linear regression analysis. Cross-validations using predicted residual error sum of squares was performed to validate each predictive model. RESULTS: Results support the use of anthropometry for the diagnosis of lipodystrophy in men and women living with HIV/AIDS. A high power of determination with a small degree of error was observed for lipodystrophy diagnosis for men in model six ($r^2 = 0.77$, SEE = 0.14, $r^2_{PRESS} = 0.73$, SEE PRESS = 0.15), that included ratio of skinfold thickness of subscapular to medial calf, skinfold thickness of thigh, formal education years, time of diagnosis to HIV months, and type of combined antiretroviral therapy (cART) (with protease inhibitor "WI/PI = 1" or without protease inhibitor "WO/PI = 0"); and model five for women ($r^2 = 0.78$, SEE = 0.11, $r^2_{PRESS} = 0.71$, SEE PRESS = 0.12), that included skinfold thickness of thigh, skinfold thickness of subcapular, time of exposure to cART months, body circumference of chest, and race (Asian) ("Yes" for Asian race = 1; "No" = 0). CONCLUSIONS: The proposed anthropometric models advance the field of public health by facilitating early diagnosis and better management of lipodystrophy, a serious adverse health effect experienced by PLWHA.


HIV-related immunodeficiency has complex effects on female genital HPV, which include increased risks of infection, multiple types, persistence, reactivation and the risk to develop pre-invasive and invasive disease. Reconstitution of immunity with anti-viral drugs improves cellular immunity, but the risk of HPV-related malignancy remains higher than background incidences and presents at younger ages. Early initiation of antiretroviral therapy (ART) allows improved retention of immune memory through existing antibodies and T-cell clones and improves long-term outcomes. Suggestions of a higher risk to contract HIV if there is existing genital HPV infection are supported and explained by pathophysiological cervical changes, including inflammation. HIV-HPV interactions should influence public health decisions towards prioritising large-scale prepubertal HPV-vaccine roll-out, secondary cervical cancer prevention and early detection programmes for HIV-infected women and early initiation of ART. This chapter will also focus on

Background: Demographic data show an increasingly aging human immunodeficiency virus (HIV) population worldwide. Recent concerns over dolutegravir-related neuropsychiatric toxicity have emerged, particularly amongst older people living with HIV (PLWH). We describe the pharmacokinetics (PK) of dolutegravir (DTG) 50 mg once daily in PLWH aged 60 and older. Additionally, to address calls for prospective neuropsychiatric toxicodynamic data, we evaluated changes in sleep quality and cognitive functioning in this population after switching to abacavir (ABC)/lamivudine (3TC)/DTG over 6 months. Methods: PLWH >/=60 years with HIV-viral load <50 copies/mL on any non-DTG-based antiretroviral combination were switched to ABC/3TC/DTG. On day 28, 24-hour PK sampling was undertaken. Steady-state PK parameters were compared to a published historical control population aged </=50 years. We administered 6 validated sleep questionnaires and neurocognitive (Cogstate) testing pre-switch and over 180 days. Results: In total, 43 participants enrolled, and 40 completed the PK phase. Overall, 5 discontinued (2 due to sleep-related adverse events, 4.6%). DTG maximum concentration (Cmax) was significantly higher in patients >/=60 years old versus controls (geometric mean 4246 ng/mL versus 3402 ng/mL, P = .005). In those who completed day 180 (n = 38), sleep impairment (Pittsburgh Sleep Quality Index) was marginally higher at day 28 (P = .02), but not at days 90 or 180. Insomnia, daytime functioning, and fatigue test scores did not change statistically over time. Conclusions: DTG Cmax was significantly higher in older PLWH. Our data provides clinicians with key information on the safety of prescribing DTG in older PLWH.


OBJECTIVE: Whether older people living with HIV (PLWH) can achieve similar functional benefits with exercise as their uninfected peers and the ideal intensity of exercise needed for these benefits are not known. DESIGN: Sedentary adults (50-75 years) with or without HIV were recruited for 24-weeks of supervised endurance/resistance exercise. After 12 weeks of moderate-intensity exercise, participants were randomized to continue moderate- or advance to high-intensity exercise for an additional 12 weeks. METHODS: Outcomes by serostatus and exercise intensity (moderate, high) were compared using linear and mixed effects regression models and controlled for baseline values or week 12 values. RESULTS: 32 PLWH and 37 controls were enrolled; 27 PLWH (12 moderate/15 high) and 29 controls (15 moderate/14 high) completed 24 weeks. PLWH had significantly poorer physical function across nearly all baseline measures. Both groups had significant improvements in all function measures. From 0-12 weeks, PLWH had significantly greater percent improvements (mean, 95% CI) than controls on VO2 max (5 [0, 10]%); from 13-24 weeks, PLWH had significantly greater percent improvements on stair climb (-5 [-10, -1]%), and 400-MWT (-3 [-5, -0]%; all p < 0.05. An interaction between exercise intensity and HIV serostatus was significant for measures of strength: PLWH randomized to high-intensity gained significantly more strength than moderate-intensity in bench and leg press (6 [0,12]% and 10 [2,17]% greater; both p < 0.05); controls had similar gains regardless of intensity. CONCLUSIONS: Both moderate- and high-intensity exercise resulted in significant improvements in physical function; high-intensity exercise may impart greater strength benefits to PLWH.

Age is the most important single factor associated with chronic diseases and ultimately, death. The mortality rate in humans doubles approximately every eight years, as described by the Gompertz law of mortality. The incidence of specific diseases, such as cancer or stroke, also accelerates after the age of about 40 and doubles at a rate that mirrors the mortality-rate doubling time. It is therefore, entirely plausible to think that there is a single underlying process, the driving force behind the progressive reduction of the organism's health leading to the increased susceptibility to diseases and death; aging. There is, however, no fundamental law of nature requiring exponential morbidity and mortality risk trajectories. The acceleration of mortality is thus the most important characteristics of the aging process. It varies dramatically even among closely related mammalian species and hence appears to be a tunable phenotype. Here, we follow how big data from large human medical studies, and analytical approaches borrowed from physics of complex dynamic systems can help to reverse engineer the underlying biology behind Gompertz mortality law. With such an approach we hope to generate predictive models of aging for systematic discovery of biomarkers of aging followed by identification of novel therapeutic targets for future anti-aging interventions. [ABSTRACT FROM AUTHOR]


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.


The coming-out process for gay and bisexual men (GBM) involves crossing sexual identity development (SID) milestones: (1) self-awareness of sexual attraction to the same sex, (2) self-acceptance of an identity as gay or bisexual, (3) disclosure of this sexual identity to others, and (4) having sex with someone of the same sex. We examined trends in SID milestones by birth cohort in a 2015 U.S. national sample of GBM (n = 1,023). Birth cohort was independent of when men first felt sexually attracted to someone of the same sex (median age 11 to 12). However, with the exception of age of first same-sex attraction, older cohorts tended to pass other milestones at later ages than younger cohorts. Latent class analysis (LCA) of SID milestone patterns identified three subgroups. The majority (84%) began sexual identity...
development with same-sex attraction around the onset of puberty (i.e., around age 10) and progressed to self-identification, same-sex sexual activity, and coming out in that order. The other two classes felt same-sex attraction during teen years (ages 12.5 to 18.0) but achieved the remaining SID milestones later in life. For 13% of men, this was during early adulthood; for 3% of men, this was in middle adulthood. Findings highlight the need to monitor ongoing generational differences in passing SID milestones.


INTRODUCTION: Owing to more effective and less toxic antiretroviral therapy (ART), people living with HIV (PLWH) live longer, a phenomenon expected to grow in the next decades. With advancing age, effectively treated PLWH experience not only a heightened risk for non-infective comorbidities and multimorbidity, but also for geriatric syndromes and frailty. In addition, older adults living with HIV (OALWH) have a higher prevalence of so-called iatrogenic triad described as polypharmacy (PP), potentially inappropriate medication use, and drug-drug interactions. Areas covered: This review will focus the management of ART in OALWH. We will discuss iatrogenic triad and best way to address PP. Special focus will be given to pharmacokinetic and pharmacodynamic aspects of ART in the elderly, evaluation of ART toxicities, and specific ART strategies commonly used in this population. Expert commentary: Research should be focused on recruiting more OALWH, frail individuals in particular, into the clinical trials and specific geriatric outcome need to be considered together with traditional viroimmunological outcomes.


Post-apartheid South Africa has seen an unprecedented rise and fall of mortality in less than two decades as a result of the HIV/AIDS epidemic and the subsequent rollout of free antiretroviral therapy (ART). Since the incidence of both was not equal for rich and poor, it is likely to also have affected disparities in health and survival chances by income. We use large nationwide surveys for 2001, 2007 and 2011 to obtain estimates of average income and mortality at the aggregate level of a municipality, and then to examine changes in mortality - and in inequality in mortality by income horizontal line over time. Using concentration indices to measure health inequality, we demonstrate that both the mean mortality level and absolute inequality in mortality by income rose rapidly until 2006, and declined again sharply since the rollout of free ART. Relative inequalities in mortality by income, however, remained fairly stable over the 2001-2011 period. The analysis of age-sex-specific mortality rates shows that it was in particular for adults aged 18-59 years that mortality and absolute inequality in mortality by income rose rapidly until 2006, and declined again sharply thereafter. These trends were far more pronounced for males than females. This means that the HIV/AIDS epidemic has taken a serious death toll, which was concentrated disproportionately among the poorest segments of the population and especially affected (older) males. While South Africa has been very successful in curbing the overall mortality trend since 2006, large disparities in survival prospects by income, race and gender continue to exist. Targeted efforts are required if it wants to further reduce the very unequal chances of living to old age for richer and poorer population groups of all ages.


Abstract: Introduction: There is paucity of data related to potential gender differences in the use of interventions to prevent and treat cardiovascular disease (CVD) among HIV-positive individuals. We investigated whether such differences exist in the observational D:A:D cohort study. Methods: Participants were followed from study enrolment until the earliest of death, six months after last visit or February 1, 2015. Initiation of CVD interventions [lipid-lowering drugs (LLDs), angiotensin-converting enzyme inhibitors (ACEIs), anti-hypertensives, invasive cardiovascular procedures (ICPs)] were investigated and Poisson regression models calculated whether rates were lower among women than men, adjusting for potential confounders. Results: Women (n = 12,955) were generally at lower CVD risk than men (n = 36,094). Overall, initiation rates of CVD interventions were lower in women than men; LLDs: incidence rate 1.28 [1.21, 1.35] vs. 2.40 [2.34, 2.46]; ACEIs: 0.88 [0.82, 0.93] vs. 1.43 [1.39, 1.48]; anti-hypertensives: 1.40 [1.33, 1.47] vs. 1.72 [1.68, 1.77] and ICPs: 0.08 [0.06, 0.10] vs. 0.30 [0.28, 0.32], and this was also true for most CVD interventions when exclusively considering periods of follow-up for which individuals were at high CVD risk. In fully adjusted models, women were less likely to receive CVD interventions than men (LLDs: relative rate 0.83 [0.78, 0.88]; ACEIs: 0.93 [0.86, 1.01]; ICPs: 0.54 [0.43, 0.68]), except for the receipt of anti-hypertensives (1.17 [1.10, 1.25]). Conclusion: The use of most CVD interventions was lower among women than men. Interventions are needed to ensure that all HIV-positive persons, particularly women, are appropriately monitored for CVD and, if required, receive appropriate CVD interventions.


PURPOSE OF REVIEW: We summarize what is known about neutrophils in HIV infection, focusing on their potential roles in HIV protection, acquisition, and pathogenesis. RECENT FINDINGS: Recent studies have demonstrated that neutrophil-associated proteins and cytokines in genital tissue pre-infection associate with HIV acquisition. However, recent in vivo assessment of highly exposed seronegative individuals and in vitro studies of anti-HIV functions of neutrophils add to older literature evidence that neutrophils may be important in a protective response to HIV infection. Neutrophils are important for containment of pathogens but can also contribute to tissue damage due to their release of reactive oxygen species, proteases, and other potentially harmful effector molecules. Overall, there is a clear evidence for both helpful and harmful roles of neutrophils in HIV acquisition and pathogenesis. Further study, particularly of tissue neutrophils, is needed to elucidate the kinetics, phenotype, and functionality of neutrophils in HIV infection to better understand this dichotomy.


OBJECTIVE: The objective was to develop a multivariable prognostic index for overall mortality over a five-year span integrating classical HIV biomarkers and comorbidities in people living with HIV (PLHIV) aged 60 or older. DESIGN: Prospective multicenter cohort study from the French Dat'AIDS cohort. METHODS: All HIV-1 infected patients aged 60 years or older on 1st January 2008 were included. Sociodemographic data, CD4 cell count, CD4 nadir, HIV viral load, history of comorbidities, hepatitis co-infections and laboratory parameters at baseline were considered as potential prognostic variables. Primary outcome was all-cause mortality. RESULTS: Among 1415 patients included, we derived a score comprising the following predictors: Age (65-74: 1 point; >/=75: 8 points), CD4 cell count (200-349: 3 points; <200: 6 points), non-HIV related cancer (6 points), cardiovascular disease (8 points), estimated glomerular filtration rate (30-59
mL/min/1.73m²: 5 points; <30mL/min/1.73m²: 16 points), cirrhosis (13 points), low body mass index (<18.5 kg/m², 10 points), anemia (6 points). Mean observed score was 7.0 +/- 8.0 and ranged from 0 to 45. Score categories defined 4 risk groups for mortality: low, moderate, high and very high risk (5-year survival probability 0.95 (95%CI[0.93-0.97]), 0.90 (95%CI[0.87-0.92]), 0.77 (95%CI[0.68-0.84]) and 0.54 (95%CI[0.43-0.63]) respectively). The score showed good discrimination (C-statistic = 0.76) and calibration. CONCLUSIONS: We propose a multivariable prognostic score for mortality among PLHIV aged 60 or over, who will become the predominant population in future years in western populations. It could be a useful tool for research, for developing preventive and treatment strategies according to risk group, and for risk assessment by clinicians.


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]


The implementation of highly active antiretroviral therapy has increased the life expectancy of people living with human immunodeficiency virus (HIV), thus reducing the number of deaths from acquired immune deficiency syndrome. Nowadays life expectancy of HIV(+) patients is comparable to those who are not infected. However, due to the use of antiretroviral therapy and the persistent immune activation and inflammation caused by HIV, other negative events may occur including dyslipidaemias, cardiovascular disorders, chronic kidney disease, early ageing, and neurocognitive impairment. It also increases the risk of developing metabolic syndrome and becomes a risk factor for cardiovascular disease: e.g. hypertension, brain stroke, and heart infarct. Comprehensive care of HIV patients with disturbed lipid profile includes lifestyle modifications such as dietary changes along with smoking cessation and has a beneficial effect on the lipid profile (total cholesterol, LDL, HDL, triglyceride levels). Therefore, it can reduce the risk of cardiovascular disease, allows the patients to avoid additional pharmacotherapy, and can eliminate drug-drug interactions with antiretroviral drugs. There are a lot of data showing that early dietary intervention and consistent diet control have a beneficial effect on lipid disorders in HIV-infected patients. Clinicians should be aware of it.
can be gained by people living with HIV from dietary intervention, it is appropriate to include dieticians in a panel of specialists who take care of HIV(+) patients. [ABSTRACT FROM AUTHOR]


RATIONALE: It has long been known that factors of the mind and of interpersonal relationships influence health, but it is only in the last 50 years that an independent scientific field of health psychology appeared, dedicated to understanding psychological and behavioral processes in health, illness, and healthcare. OBJECTIVE AND METHOD: This article (a) reviews important research that answers the question of how human beings can have longer, happier lives; and (b) highlights trends in health psychology featuring articles in Social Science & Medicine as well as other related literature. RESULTS: Since the 1970s, health psychology has embraced a biopsychosocial model such that biological factors interact and are affected by psychological and social elements. This model has illuminated all subjects of health, ranging from interventions to lower stress and/or to improve people's ability to cope with stressors, to mental and physical health. Importantly, a health psychology perspective is behavioral: The majority of chronic diseases of today can be avoided or reduced through healthy lifestyles (e.g., sufficient exercise, proper diet, sufficient sleep). Thus, behavior change is the key target to help reduce the immense public health burden of chronic lifestyle illnesses. Health psychology also focuses on how social patterns influence health behavior and outcomes, in the form of patient-provider interactions or as social forces in communities where people live, work, and play. Health psychology is congenial to other health sciences, especially when allied with ecological perspectives that incorporate factors upstream from individual behavior, such as networks linked to individuals (e.g., peer groups, communities). Over its history, health psychology research has been responsive to societal and medical needs and has routinely focused on understanding health disparities. CONCLUSION: By relying on a strong interdisciplinary approach, research in health psychology provides a remarkably comprehensive perspective on how people can live healthier lives.


With the overarching goals of improving the healthcare of older transgender individuals and of inspiring pertinent clinical research, a session at the 2017 American Association for Geriatric Psychiatry Annual Meeting focused on an interdisciplinary approach to transgender aging. The older the transgender adult, the more likely the individual grew up in a historical context when there was greater social stigma towards their gender identity, even among mental health professionals. In order to provide optimal healthcare to transgender adults, mental health care providers should become familiar with the basic terminology presented in this article. Transgender older adults face greater risks of poor physical health, disability, anxiety and depressive symptoms, victimization, and stigma, and higher rates of smoking, excessive alcohol use, and risky sexual behavior compared with non-transgender older adults. In spite of notable health disparities, some evidence points to resilience among transgender older adults. The mental health professional often serves as the first contact for a patient who is struggling with gender identity. The role of a mental health professional can be divided into five categories: 1) assessment of gender dysphoria; 2) psychoeducation of patients and family members about the diversity of gender identities and various options for alleviating gender dysphoria; 3) referral to and collaboration with other healthcare professionals; 4) treatment of coexisting mental health concerns; 5) advocating for
transgender patients and for the transgender community. Recently, the criteria for medical and surgical transition have been simplified. End-of-life preparations are especially important for transgender individuals.


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.


ObjectivesThanks 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. MethodsWe 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. ResultsA 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). ConclusionsPatients 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.


Background: Care and viral suppression national goals for HIV infection are not being met for many at-risk groups. Assessment of the trends in national outcomes for linkage to care, receipt of care, and viral suppression among these groups is necessary to reduce transmission. Methods: Data reported to the National HIV Surveillance System by December 2016 were used to identify cases of HIV infection among persons aged 13 years and older in one of 17 identified jurisdictions with complete laboratory reporting. We estimated national trends in HIV-related linkage to care, receipt of care and viral suppression using estimated annual percent change from 2012-2015 for various characteristics of interest, overall and stratified by sex and race/ethnicity. Results: Overall, trends in linkage to and receipt of care and viral suppression increased from 2012-2015. Generally, linkage to and receipt of care increased among young black and Hispanic/Latino males, those with infection attributed to male-to-male sexual contact, and those not in stage 3 [AIDS] at HIV diagnosis. All sub-groups showed improvement in viral suppression. Within years, there remains a substantial disparity in receipt of care and viral suppression among racial/ethnic groups. Conclusion: While trends are encouraging, scientifically proven prevention programs targeted to high-risk populations are the foundation for stopping transmission of HIV infection. Frequent testing to support early diagnosis and prompt linkage to medical care, particularly among young men who have male to male sexual contact, black and Hispanic/Latino populations, are key to reducing transmission at all stages of disease.

Kate, A. (2018). 'Unknown horizons' for first to age with HIV; The health complications for this ageing population had not been anticipated: 7.

The health complications for this ageing population had not been anticipated, writes Kate Aubusson. David Crawford is among the first generation getting old with HIV. When Mr Crawford was diagnosed with the virus in 1984, the then-29-year-old thought he'd been given a death sentence. Thirty-three years later, it's more of a chronic disease thanks to the emergence of potent combination antiretrovirals introduced in the mid-90s....


To the extent we can even refer to an American healthcare "system," it functions brilliantly ... to make money. The system is designed to reward executives or major shareholders of pharmaceutical & health insurance companies, healthcare facilities, and related entities. With a rapidly aging population, healthcare will soon surpass a fifth of our economy. Of course, the American healthcare system does not function brilliantly when one considers the perspective of patients and over-extended primary care providers. Prices are growing faster than inflation or wages, healthcare is twice as costly as other comparable nations, and one third is a result of waste, fraud, and abuse. One could argue that good health is incidental and often an unexpected (but welcome!) outcome of the system given trailing national health indicators, disparities, millions of uninsured and underinsured persons, and that medical errors are our nation's third leading cause of death. This current healthcare model is unsustainable and undergoing profound change, irrespective of the American Health Care Act (AHCA) and White House budgetary cuts for health and science research. Changes in payment models, technology, wellness, public health approaches, and data availability have the potential to
meaningfully address social determinants of health and encourage an embrace of a new holistic approach. However, implementing this change will be "complicated," as it will entail a profound reordering of economic, policy, and legal priorities to place the interests of individual and public health first. [ABSTRACT FROM AUTHOR]


The objective of the current study was to measure the adherence of guideline-based evaluation and treatment of hypogonadism by medical specialty. A retrospective review was performed analyzing patients from a single academic institution within the past 10 years. The cohort of 193 men was grouped according to medical specialty of the diagnosing physician (50 urology, 49 primary care, 44 endocrinology, and 50 HIV medicine). Adherence to guidelines was assessed using the Endocrine Society's criteria. Primary care patients were older compared to the rest of the cohort (p < .001) but BMI and cardiovascular risk factors were similar (p = .900). Patients treated by urologists and endocrinologists had the highest percentage of low testosterone findings at initial encounter at 72% (p < .001). Sixty-two percent of urology patients had low LH or FSH compared to 63.6% for endocrinology and 16% for primary care (p < .001). As for brain MRI findings, no urology patients had positive findings (0/9) while eight pituitary adenomas (40%) were found by endocrinologists. Forty-five percent of men treated by urologists received TRT without repeat confirmation, compared to 58% of endocrinologists, 77% of primary care, and 88% of HIV medicine (p < .001). All urology patients had PSA checked before TRT compared to 77.5% of primary care and 61.2% of endocrinology patients (p = .063). Adherence to the guidelines helps prevent undue over-diagnosis and over-treatment of hypogonadism. This study suggests that adherence to guideline-based screening is varied among specialties.


A life-course approach to health encompasses strategies across individuals' lives that optimize their functional ability (taking into account the interdependence of individual, social, environmental, temporal and intergenerational factors), thereby enabling well-being and the realization of rights. The approach is a perfect fit with efforts to achieve universal health coverage and meet the sustainable development goals (SDGs). Properly applied, a life-course approach can increase the effectiveness of the former and help realize the vision of the latter, especially in ensuring health and well-being for all at all ages. Its implementation requires a shared understanding by individuals and societies of how health is shaped by multiple factors throughout life and across generations. Most studies have focused on noncommunicable disease and ageing populations in high-income countries and on epidemiological, theoretical and clinical issues. The aim of this article is to show how the life-course approach to health can be extended to all age groups, health topics and countries by building on a synthesis of existing scientific evidence, experience in different countries and advances in health strategies and programmes. A conceptual framework for the approach is presented along with implications for implementation in the areas of: (i) policy and investment; (ii) health services and systems; (iii) local, multisectoral and multistakeholder action; and (iv) measurement, monitoring and research. The SDGs provide a unique context for applying a holistic, multisectoral approach to achieving transformative outcomes for people, prosperity and the environment. A life-course approach can reinforce these efforts, particularly given its emphasis on rights and equity.

BACKGROUND: Although Taiwan has implemented several important interventions for various HIV-at-risk populations to combat the HIV epidemic, little is known regarding AIDS incidence at presentation and during follow-up among the various HIV-at-risk populations in Taiwan. A better understanding of AIDS incidence trends would help improve patient care and optimize public health strategies aimed at further decreasing HIV-related morbidity and mortality. METHODS: Data from Taiwan Centers for Disease Control-operated Notifiable Diseases Surveillance System and Taiwan National Health Insurance Research Database (1998-2012) was divided into five cohort periods (consecutive 3-year groups). Logistic regression was employed to identify factors associated with AIDS incidence at presentation. Time-dependent Cox regression was used to identify factors associated with AIDS incidence during the follow-up period. RESULTS: Of 22,665 patients [mean age: 32 years; male (93.03%)], 6210 (27.4%) had AIDS incidence over 2 (1.16) [median (interquartile range)] years of follow-up. AIDS developed in </=3 months of HIV diagnosis in 73.6% AIDS patients. AIDS incidence trends at presentation and during follow-up differed according to HIV transmission routes over the five periods: AIDS at presentation increased in the sexual contact groups (P < 0.001 for homosexuals/heterosexuals; 0.648 for bisexuals) but decreased to a nadir in period 3 and then increased slightly in period 5 (P < 0.001) in people who injected drugs (PWIDs). AIDS incidence during the follow-up period increased from period 1 to a peak in period 3 or 4, before declining slightly in period 5, in the sexual contact groups (P < 0.001 for homosexuals/heterosexuals; 0.549 for bisexuals). However, it increased throughout the five periods in PWIDs (P < 0.001). Older age, sexual contact group versus PWIDs, high versus low income level, cohort periods, and HIV diagnosis regions helped predict AIDS at presentation and during follow-up. CONCLUSIONS: Disparities in AIDS incidence trends in various HIV-at-risk populations reflect different sociodemographic variables of HIV exposure and the adopted HIV prevention strategies. This study suggests the urgent need for tailored strategies aimed at specific populations at presentation and during follow-up.


Background: Healthy aging has both a physical and a psychosocial dimension, which justifies the need to better understand older people's psychosocial adjustment. Objectives: To study the psychosocial adjustment process in older people and explore its association with sociodemographic and clinical variables. Methodology: A quantitative, cross-sectional, and exploratory study was conducted with 922 community-dwelling older people aged 64 to 99 years. The following sociodemographic and clinical variables were analyzed: perceived health; positive and negative affect; perceived social support; and medication adherence. Results: Three psychosocial adjustment profiles were identified. The profile with the lowest scores in all indicators, called the worst adjustment, was composed of intermediate-age older people (M = 74.7; SD = 7.08), who also reported more symptoms and diseases. Conclusion: This study suggests the existence of a group of particularly vulnerable older people and highlights the need to develop nursing interventions focused on adaptive resources that can improve their health and psychosocial adjustment. (English) [ABSTRACT FROM Lorusso, J. S., et al. (2018). "Emerging Omics Approaches in Aging Research." Antioxid Redox Signal 29(10): 985-1002.

SIGNIFICANCE: Aging is a complex trait that is influenced by a combination of genetic and environmental factors. Although many cellular and physiological changes have been described to occur with aging, the precise molecular causes of aging remain unknown. Given the biological complexity and heterogeneity of the aging process, understanding the mechanisms that underlie aging requires integration of data about age-dependent changes that occur at the molecular, cellular, tissue, and organismal levels. Recent Advances: The development of high-throughput technologies such as next-generation sequencing, proteomics, metabolomics, and automated imaging techniques provides researchers with new opportunities to understand the mechanisms of aging. Using these methods, millions of biological molecules can be simultaneously monitored during the aging process with high accuracy and specificity. CRITICAL ISSUES: Although the
ability to produce big data has drastically increased over the years, integration and interpreting of high-throughput data to infer regulatory relationships between biological factors and identify causes of aging remain the major challenges. In this review, we describe recent advances and survey emerging omics approaches in aging research. We then discuss their limitations and emphasize the need for the further development of methods for the integration of different types of data. FUTURE DIRECTIONS: Combining omics approaches and novel methods for single-cell analysis with systems biology tools would allow building interaction networks and investigate how these networks are perturbed with aging and disease states. Together, these studies are expected to provide a better understanding of the aging process and could provide insights into the pathophysiology of many age-associated human diseases. Antioxid. Redox Signal. 29, 985-1002.


AIDS Memorial Quilt—The NAMES Project PhD candidate Carleton University, Canada. The NAMES Project AIDS Memorial Quilt—often referred to simply as the AIDS Memorial Quilt—is an enormous quilt that serves [...]


Immunosenescence is characterized by deterioration of the immune system caused by aging which induces changes to innate and adaptive immunity. Immunosenescence affects function and phenotype of immune cells, such as expression and function of receptors for immune cells which contributes to loss of immune function (chemotaxis, intracellular killing). Moreover, these alterations decrease the response to pathogens, which leads to several age-related diseases including cardiovascular disease, Alzheimer’s disease, and diabetes in older individuals. Furthermore, increased risk of autoimmune disease and chronic infection is increased with an aging immune system, which is characterized by a pro-inflammatory environment, ultimately leading to accelerated biological aging. During the last century, sedentarism rose dramatically, with a concomitant increase in certain type of cancers (such as breast cancer, colon, or prostate cancer), and autoimmune disease. Numerous studies on physical activity and immunity, with focus on special populations (i.e., people with diabetes, HIV patients) demonstrate that chronic exercise enhances immunity. However, the majority of previous work has focused on either a pathological population or healthy young adults whilst research in elderly populations is scarce. Research conducted to date has primarily focused on aerobic and resistance exercise training and its effect on immunity. This review focuses on the potential for exercise training to affect the aging immune system. The concept is that some lifestyle strategies such as high-intensity exercise training may prevent disease through the attenuation of immunosenescence. In this context, we take a top-down approach and review the effect of exercise and training on immunological parameters in elderly at rest and during exercise in humans, and how they respond to different modes of training. We highlight the impact of these different exercise modes on immunological parameters, such as cytokine and lymphocyte concentration in elderly individuals.


The development of highly active antiretroviral therapy (HAART) has shifted human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) from an acute to a chronic condition. Due to reduced fatality, approximately 1.1 million people living with HIV/AIDS (PLWHA) are faced with increased longevity in conjunction with functional consequences associated with chronic disability Employment has been associated with increased treatment...
adherence, quality of life (QoL), and mental and physical health for people living with HIV/AIDS. The purpose of this study was to determine the relationship between employment status and QoL for PLWHA. Participants included 115 patients receiving services from two Ryan White HIV/AIDS Program (RWHAP) clinics in a rural Mid Atlantic Appalachian region of the U.S. Findings revealed statistically significant differences in employment status on six domains of the World Health Organization’s Quality of Life scale for PLWHA (WHOQOL-HIV-Bref), except for spirituality/religion/personal beliefs. Implications for practice and research are discussed. [ABSTRACT FROM AUTHOR]


OBJECTIVES: Antiretroviral therapy is affording longer lifespans for people living with HIV (PLWH), yet factors such as substance use play an increasing role in morbidity and mortality in this population. Though previous studies have examined substance use differences between age cohorts of PLWH, no study has examined the influence of birth cohort on current substance use patterns. Thus, this study investigated the prevalence of past 12-month self-reported substance use between four birth cohorts, <1970 (M age = 54.1), 1970s (M age = 41.5), 1980s (M age = 31.3 years old), and 1990s (M age = 23.2 years old) of PLWH in Florida. METHODS: PLWH (N = 934) recruited from community health clinics in Florida completed a questionnaire assessing sociodemographics, health status, and substance use. Multivariate logistic regressions utilizing the <1970 cohort as the referent group examined the relationship between birth cohort and substance use. RESULTS: The 1980s cohort had significantly greater odds of marijuana use compared to the oldest cohort (<1970s), while the three younger cohorts (1970s, 1980s, and 1990s) evidenced a significantly greater odds of ecstasy use compared to the oldest group. Contrastingly, the three younger birth cohorts reported significantly less crack use than the oldest cohort, while the youngest group (1990s) also demonstrated an 80% reduction in injection drug use compared to the oldest group. CONCLUSION: The older cohort evidenced significantly greater crack and injection drug use, while the younger cohorts evidenced greater marijuana and ecstasy use. Therefore, it is important to develop age-specific substance use interventions among PLWH.


The article discuss about the housing crisis in South Florida and the people living with high AIDS or HIV rates. Topics discussed include difficulty to find affordable house if you have HIV, housing opportunities for persons with AIDS which is run by the Department of Housing and Urban Development, and the impact of HIV on transgender population in South Florida.


BACKGROUND: Reducing the number of people with undiagnosed HIV infection is a major goal of HIV control and prevention efforts in Europe and elsewhere. We analysed data from a large multi-city European bio-behavioural survey conducted among Men who have Sex with Men (MSM) for previously undiagnosed HIV infections, and aimed to characterise undiagnosed MSM who test less frequently than recommended. METHODS: Data on sexual behaviours and social characteristics of MSM with undiagnosed HIV infection from Sialon II, a bio-behavioural cross-sectional survey conducted in 13 European cities in 2013/2014, were compared with HIV-negative MSM. Based on reported HIV-testing patterns, we distinguished two subgroups: MSM with a negative HIV test result within 12 months prior to the study, i.e. undiagnosed incident infection, and HIV positive MSM with unknown onset of infection. Bivariate and multivariate
associations of explanatory variables were analysed. Distinct multivariate multi-level random-intercept models were estimated for the entire group and both subgroups. RESULTS: Among 497 participants with HIV-reactive specimens, 234 (47.1%) were classified as previously diagnosed, 106 (21.3%) as incident, and 58 (11.7%) as unknown onset based on self-reported status and testing history. MSM with incident HIV infection were twice as likely (odds ratio (OR) = 2.22, 95% confidence interval (95%CI): 1.17-4.21) to have used recreational substances during their last anal sex encounter and four times more likely (OR = 3.94, 95%CI: 2.14-7.27) not to discuss their HIV status with the last anal sex partner(s). MSM with unknown onset of HIV infection were 3.6 times more likely (OR = 3.61, 95%CI: 1.74-7.50) to report testing for a sexually transmitted infection (STI) during the last 12 months. CONCLUSIONS: Approximately one third of the study participants who are living with HIV were unaware of their infection. Almost two-third (65%) of those with undiagnosed HIV appeared to have acquired the infection recently, emphasizing a need for more frequent testing. Men with the identified behavioural characteristics could be considered as primary target group for HIV Pre-Exposure Prophylaxis (PrEP) to avoid HIV infection. The increased odds of those with unknown onset of HIV infection to have had an STI test in the past year strongly suggests a lost opportunity to offer HIV testing.


WHEN it's personal, remembrance has a poignant sting. But without a shared sense of urgency, public memory can fade. Tomorrow marks World Aids Day, traditionally a time to remember the tragic human cost of HIV and Aids. While a hard core of activism still strives for progress against HIV, the urgent life-or-death battle that spurred on the advances of past decades is no more. [ABSTRACT FROM PUBLISHER]


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.


Medical knowledge of HIV is rapidly evolving, leading to increased understanding of the disease, its immunology and clinical manifestations. Antiretroviral therapy (ART) has provided a means of controlling but not curing the disease, and patients now live longer, healthier lives with the disease. However, new challenges are emerging, including those of treating a population ageing on ART and continuing to prevent viral transmission. Worldwide, strategies including universal testing and the roll-out of ART have reduced transmission, and the number of new diagnoses is falling. In the UK, however, approximately 1 in 4 individuals with HIV are unaware of their diagnosis, and nearly half present with a CD4 count <350 cells/microlitre. It remains essential that all healthcare providers are alert to at the risk of HIV, and those who display the signs of early infection, to ensure these patients are tested and treatment is put in place before the development of HIV-related infections, cancers and complications.
Introduction Numerous studies have evaluated auditory functions in human immunodeficiency virus (HIV) patients; however, these studies had a few major limitations in terms of methodology as they used mainly evoked audiometry although this method is expensive, time consuming and not widely available. Therefore, we conducted a study in naïve HIV subjects with routine audiometry. Objective To determine the effect of HIV and of the drugs used to treat it on the auditory functions. Methods A prospective observational study was conducted in a medical college with 25 naïve HIV-seropositive patients for over a year. Pure tone audiometry (250-8,000 Hz) and CD4 T-lymphocyte count were performed at the time of enrollment and 6 months after commencement of highly active antiretroviral treatment. Results The subjects had increased hearing thresholds at high frequencies (4 KHz and 8KHz) in both ears at the time of enrollment that persisted at the same level (p > 0.05) on follow-up at 6 months. None of the subjects had any other otological symptom during the 6 months of observation. Seven subjects had sensorineural hearing loss in one or both ears at 0 and 6 months. These observations did not show any significant difference on Wilcoxon-signed-rank test. Spearman correlation did not find a significant correlation (p > 0.05) between CD4 T-lymphocyte counts and pure tone audiometry during the study. Conclusion We found high-frequency hearing loss in all subjects with no relation with highly active antiretroviral therapy (HAART) and severity of the disease. This study advocates hearing assessment with pure tone audiometry in HIV subjects so that intervention can be initiated in a timely manner. [ABSTRACT FROM AUTHOR]
was measured with the Food Security Questionnaire (FSQ). Participants completed the following psychosocial scales: (1) depression - Patient Health Questionnaire-8 (PHQ8); (2) perceived stress - Perceived Stress Scale (PSS-10); (3) social support - Multidimensional Scale of Perceived Social Support (MSPSS). Linear regression models were used to investigate relationships among variables controlling for gender and income. The cohort was characterized as follows: Mean age 56 +/- 4.6 years, 80% African-American, and 32% women. Mean body mass index (BMI) was 28.4 +/- 7.2 with 55% reporting food insecurity. Most participants reported having post-secondary education (53%), although 77% reported annual incomes <$20,000. Food insecurity was independently associated with measures of poor dietary intake: aHEI (beta = -0.08, p = .02) and MDS (beta = -0.23, p < 0.01) and with low dietary intake of fibre (beta = -0.27, p = .04), vitamin E (beta = -0.35, p = .01), folate (beta = -0.31, p = .02), magnesium (beta = -0.34, p = .01) and copper (beta = -0.36, p = .01). These data indicate food insecurity is associated with poor diet quality among PLWH. Clinical interventions are needed to improve food access for PLWH of low SES.


Background: Because HIV viral suppression is essential for optimal outcomes and prevention efforts, understanding trends and predictors is imperative to inform public health policy. Objective: To evaluate viral suppression trends in people living with HIV (PLWH), including the relationship of associated factors, such as demographic characteristics and integrase strand transfer inhibitor (ISTI) use. Design: Longitudinal observational cohort study. Setting: 8 HIV clinics across the United States. Participants: PLWH receiving clinical care. Measurements: To understand trends in viral suppression (<400 copies/mL), annual viral suppression rates from 1997 to 2015 were determined. Analyses were repeated with tests limited to 1 random test per person per year and using inverse probability of censoring weights to address loss to follow-up. Joint longitudinal and survival models and linear mixed models of PLWH receiving antiretroviral therapy (ART) were used to examine associations between viral suppression or continuous viral load (VL) levels and demographic factors, substance use, adherence, and ISTI use. Results: Viral suppression increased from 32% in 1997 to 86% in 2015 on the basis of all tests among 31,930 PLWH. In adjusted analyses, being older (odds ratio [OR], 0.76 per decade [95% CI, 0.74 to 0.78]) and using an ISTI-based regimen (OR, 0.54 [CI, 0.51 to 0.57]) were associated with lower odds of having a detectable VL, and black race was associated with higher odds (OR, 1.68 [CI, 1.57 to 1.80]) (P < 0.001 for each). Similar patterns were seen with continuous VL levels; when analyses were limited to 2010 to 2015; and with adjustment for adherence, substance use, or depression. Limitation: Results are limited to PLWH receiving clinical care. Conclusion: HIV viral suppression rates have improved dramatically across the United States, which is likely partially attributable to improved ART, including ISTI-based regimens. However, disparities among younger and black PLWH merit attention. Primary Funding Source: National Institutes of Health.


OBJECTIVE: The increase of HIV-patients life expectancy leads to a new model of patient with chronic diseases and polymedicated. For this reason we ought to know in clinical practice the prevalence of polypharmacy and drug-drug interactions between the antiretroviral drugs and comedication in our patients in order to identify and prevent them. METHOD: A retrospective, descriptive study carried out in >50 years old patients on antiretroviral treatment. Results: We included 242 patients of whom 148 (61%) were receiving concomitant treatment. 243 potential interactions were detected, where 197 are considered moderate and 46 severe, affecting 110 patients. 35 (76%) interactions were related to boosted protease inhibitors. The main consequence of these interactions was the increase in plasma concentrations of comedication (48%). Statins were the comedication most involved in severe drug-drug interactions (24%), followed by
inhaled corticosteroids (15%). CONCLUSIONS: Polypharmacy was found in about half of our study population and the prevalence of drug-drug interactions was high. Hospital pharmacists may play a crucial role in their detection, management and early communication.


OBJECTIVE: To examine the type and frequency of living strategies used by adults living with HIV. METHODS: We conducted a cross-sectional web-based survey that included 51 living strategies: maintaining sense of control, attitudes and beliefs, blocking HIV out of the mind, and social interaction. We examined the frequency of use and compared the proportion of respondents who engaged in strategies across 3 age-groups (<40 years, 40-49 years, and >/=50 years). RESULTS: Of the 935 participants, the majority were men (79%) and most (>/>=60%) engaged "most" or "all of the time" in healthy lifestyle strategies and maintained a positive outlook living with HIV. Compared to younger participants, a higher proportion of older adults (>/>=50 years) engaged "most" or "all the time" in strategies that involved maintaining control over health and adopting positive attitudes and outlook living with HIV. CONCLUSIONS: Findings can help to inform the role of self-management to enhance successful aging with HIV.


This study explores baby boomer-aged adults’ experiences accessing an emotional health program (EHP) in a community-based seniors’ center, examining differences between it and an older cohort of users. Data generation includes client-based surveys (n=118), in-depth qualitative interviews (n=20) with client users and professionally-trained counselors (n=2), and a focus group with peer support service worker (n=14). Key findings suggest EHPs as a preventative strategy to address familial abuse, the need for education and support on sexual health and dating, and the need to combat ageism to improve access. Community-based seniors’ centers as a cost-effective approach to health promotion is also highlighted. [ABSTRACT FROM AUTHOR]


BACKGROUND: HIV-infected adults have increased risk for age-related diseases and low cardiorespiratory fitness that can be prevented and improved with exercise. Yet, exercise strategies have not been well studied in older adults with HIV and may require substantial adaptation to this special population. OBJECTIVE: To determine the safety and efficacy of aerobic exercise in older HIV-infected men in a randomized trial comparing different levels of exercise intensity. METHODS: We conducted a pilot exercise trial in 22 HIV-infected men >/=50 years of age receiving antiretroviral therapy who were randomized 1:1 to moderate-intensity aerobic exercise (Mod-AEX) or high-intensity aerobic exercise (High-AEX) that was performed three times weekly for 16 weeks in a supervised setting. Primary outcome was cardiorespiratory fitness (VO2peak) measured by treadmill testing. Secondary outcomes were exercise endurance, six-minute walk distance (6-MWD), body composition measured by Dual-energy X-ray absorptiometry (DXA),
and fasting plasma levels of lipids and glucose. RESULTS: VO2peak increased in the High-AEX group (3.6 +/- 1.2 ml/kg/min, p = 0.02) but not in the Mod-AEX group (0.4 +/- 1.4 ml/kg/min, p = 0.7) with a significant between group difference (p<0.01). Exercise endurance increased in both the High-AEX group (27 +/- 11%, p = 0.02) and the Mod-AEX group (11 +/- 4%, p = 0.04). The 6-MWD increased in both the High-AEX (62 +/- 18m, p = 0.01) and the Mod-AEX group (54 +/- 14m, p = 0.01). Changes in VO2peak and 6-MWD were clinically relevant. There were no serious exercise-related adverse events. Dropouts were similar between group (27% overall) and were related to joint pain. CONCLUSIONS: This pilot exercise trial demonstrates that moderate to high-intensity aerobic exercise in older HIV-infected men increases endurance and ambulatory function. However, increased cardiorespiratory fitness was observed only with high-intensity aerobic exercise despite substantial baseline impairment. Future research is needed to determine exercise strategies in older HIV-infected adults that address advanced aging and comorbidity yet are durable and feasible.


Combined Antiretroviral therapy (cART) has improved life-expectancy of people living with HIV (PLHIV) but as they age, prevalence of chronic non-AIDS related comorbidities may increase. We study the evolution of HIV-disease markers and comorbidities' prevalence in PLHIV in Greece. Two cross-sectional analyses (2003 and 2013) on data from the AMACS cohort were performed. Comparisons were based on population average models and were repeated for subjects under follow-up at both 2003 and 2013. 2,403 PLHIV were identified in 2003 and 4,910 in 2013 (1,730 contributing for both cross-sections). Individuals in 2013 were on average older, diagnosed/treated for HIV for longer, more likely to be on cART, virologically suppressed, and with higher CD4 counts. Chronic kidney disease, dyslipidemia and hypertension prevalence increased over time. There was an increase in prescription of lipid-lowering treatment (3.5% in 2003 vs. 7.7% 2013, p<0.001). Among 220 and 879 individuals eligible for Framingham 10-year Event Risk calculation, the proportion of patients in the high-risk group (>20%) increased from 18.2% to 22.2% (p = 0.002). Increase in the prevalence of comorbidities was more pronounced in the subset of patients who were followed in both 2003 and 2013. The increased availability and uptake of cART led to significant improvements in the immuno-virological status of PLHIV in Greece, but they aged alongside an increase in prevalence of non-AIDS related comorbidities. These results highlight the need for appropriate monitoring, optimal cART selection and long-term management and prevention strategies for such comorbidities.


BACKGROUND: Social isolation is associated with an increased risk for mental and physical health problems, especially among older persons living with HIV (PLWH). Thus, there is a need to better understand real-time temporal associations between social activity and mood- and health-related factors in this population to inform possible future interventions. OBJECTIVE: This study aims to examine real-time relationships between social activity and mood, fatigue, and pain in a sample of older PLWH. METHODS: A total of 20 older PLWH, recruited from the University of California, San Diego HIV Neurobehavioral Research Program in 2016, completed smartphone-based ecological momentary assessment (EMA) surveys 5 times per day for 1 week. Participants reported their current social activity (alone vs not alone and number of social interactions) and levels of mood (sadness, happiness, and stress), fatigue, and pain. Mixed-effects regression models were used to analyze concurrent and lagged associations among social activity, mood, fatigue, and pain. RESULTS: Participants (mean age 58.8, SD 4.3 years) reported being alone 63% of the time, on average, (SD 31.5%) during waking hours. Being alone was related to lower concurrent happiness (beta=-.300; 95% CI -.525 to -.079; P=.008). In lagged analyses, social activity predicted higher levels of fatigue later in the day (beta=-1.089; 95% CI -1.780 to -0.396;
P=.002), and higher pain levels predicted being alone in the morning with a reduced likelihood of being alone as the day progressed (odds ratio 0.945, 95% CI 0.901-0.992; P=.02). CONCLUSIONS: The use of EMA elucidated a high rate of time spent alone among older PLWH. Promoting social activity despite the presence of pain or fatigue may improve happiness and psychological well-being in this population.


PURPOSE: Results of a study of contraindicated concomitant medication use among recipients of preferred antiretroviral therapy (ART) regimens are reported. METHODS: A retrospective study was conducted to evaluate concomitant medication use in a cohort of previously treatment-naive, human immunodeficiency virus (HIV)-infected U.S. patients prescribed preferred ART regimens during the period April 2014-March 2015. Data were obtained from a proprietary longitudinal prescription database; elements retrieved included age, sex, and prescription data. The outcome of interest was the frequency of drug-drug interactions (DDIs) associated with concomitant use of contraindicated medications. RESULTS: Data on 25,919 unique treatment-naive patients who used a preferred ART regimen were collected. Overall, there were 384 instances in which a contraindicated medication was dispensed for concurrent use with a recommended ART regimen. Rates of contraindicated concomitant medication use differed significantly by ART regimen; the highest rate (3.2%) was for darunavir plus ritonavir plus emtricitabine-tenofovir disoproxil fumarate (DRV plus RTV plus FTC/TDF), followed by elvitegravir-cobicistat-emtricitabine-tenofovir disoproxil fumarate (EVG/c/FTC/TDF)(2.8%). The highest frequencies of DDIs were associated with ART regimens that included a pharmacoenhancing agent: DRV plus RTV plus FTC/TDF (3.2%) and EVG/c/FTC/TDF (2.8%). CONCLUSION: In a large population of treatment-naive HIV-infected patients, ART regimens that contained a pharmacoenhancing agent were involved most frequently in contraindicated medication-related DDIs. All of the DDIs could have been avoided by using therapeutic alternatives within the same class not associated with a DDI.


Oropharyngeal candidosis (OPC) is an opportunistic fungal infection that is commonly found in HIV-infected patients, even in the twenty-first century. Candida albicans is the main pathogen, but other Candida species have been isolated. OPC usually presents months or years before other severe opportunistic infections and may indicate the presence or progression of HIV disease. The concept of OPC as a biofilm infection has changed our understanding of its pathobiology. Various anti-fungal agents (both topical and systemic) are available to treat OPC. However, anti-fungal resistance as a result of the long-term use of anti-fungal agents and recurrent oropharyngeal infection in AIDS patients require alternative anti-fungal therapies. In addition, both identifying the causative Candida species and conducting anti-fungal vulnerability testing can improve a clinician’s ability to prescribe effective anti-fungal agents. The present review focuses on the current findings and therapeutic challenges for HIV-infected patients with OPC.


INTRODUCTION: Non-alcoholic fatty liver disease is characterized by the presence of hepatic steatosis and can be associated with fibrosis progression, development of cirrhosis and liver-related complications. Data on the prevalence of liver fibrosis and steatosis in HIV patients remain contradictory in resource-limited settings. We aimed to describe the prevalence and factors associated with liver fibrosis and steatosis in patients with HIV mono-infection.
under long-term antiretroviral therapy (ART) in Rio de Janeiro, Brazil. METHODS: Clinical assessment, fasting blood collection and liver stiffness measurement (LSM)/controlled attenuation parameter (CAP) by transient elastography were performed on the same day for this cross-sectional study (PROSPEC-HIV study; NCT02542020). Patients with viral hepatitis co-infection, ART-naive or missing data were excluded. Liver fibrosis and steatosis were defined by LSM \( \geq 8.0 \) kPa and CAP \( \geq 248 \) dB/m respectively. HIV history, cumulative and current ART regimens were evaluated. Multivariate logistic regression models adjusted for age and gender were performed. RESULTS: In total, 395 patients (60% female; median age of 45 (IQR, 35 to 52) years, body mass index = 25.7 (23.2 to 29.4) kg/m\(^2\) , alanine aminotransferase = 30 (23 to 42) IU/L, duration of ART for 7 (4 to 14) years) were included. LSM and CAP were reliable in 93% (n = 367) and 87% (n = 344) respectively. The prevalence of fibrosis and steatosis were 9% (95% confidence interval (CI), 7 to 13) and 35% (95% CI, 30 to 40) respectively. The following factors were associated with fibrosis (odds ratio (OR) (95% CI)): older age (per 10 years; 1.80 (1.27 to 2.55); \( p = 0.001 \)) and CD4+ count <200 cells/mm\(^3\) (7.80 (2.09 to 29.09), \( p = 0.002 \)). Type 2 diabetes had a trend towards the presence of liver fibrosis (2.67 (0.96 to 7.46), \( p = 0.061 \)). Central obesity (10.74 (4.40 to 26.20), \( p < 0.001 \)), type 2 diabetes (9.74 (3.15 to 30.10), \( p < 0.001 \)), dyslipidaemia (2.61 (1.35 to 5.05), \( p = 0.003 \)) and metabolic syndrome (4.28 (2.45 to 7.46), \( p < 0.001 \)) were associated with steatosis. A dominant backbone ART regimen of zidovudine (AZT), d4T, ddI or ddC was associated with steatosis (1.90 (1.07 to 3.38), \( p = 0.028 \)) independently of metabolic features. CONCLUSION: Integrated strategies for preventing non-communicable diseases in people with HIV mono-infection are necessary to decrease the burden of liver diseases. Clinical Trial Number: NCT02542020.


PURPOSE OF REVIEW: The purpose of the present review is to describe the major barriers to HIV eradication and assess the most promising cure strategies under investigation. RECENT FINDINGS: There are significant challenges to achieve HIV eradication. These include the establishment of persistent latently infected cells, systemic chronic immune activation, and immune dysfunction. Since the announcement of the first HIV cure involving the Berlin patient, several attempts to reproduce these results have failed. Thus, it is widely accepted that long-term HIV remission would be a more feasible approach. Optimization of ART, immune-based therapies, therapeutic vaccinations, and gene editing, amongst others, are strategies aimed at controlling HIV in the absence of ART. These new strategies alone or in combination are being developed in preclinical studies and clinical trials and will provide further insight into whether long-term HIV remission is possible. SUMMARY: The present review discusses several mechanisms that mediate the persistence of the HIV reservoir, clinical cases that provide hope in finding a functional cure of HIV, and promising interventional strategies being tested in preclinical studies and clinical trials that attempt to reduce the HIV reservoirs and/or boost the immune responses to control HIV in the absence of ART.


We assessed the effect of co-infection by hepatitis C virus (HCV) on immunological and virological response at 48 weeks from initiation of antiretroviral therapy (ART). We included patients from the Cohort of Spanish HIV Research Network (CoRIS) starting ART between January 2004 and November 2014, had at least 1 CD4 T-cell count and viral load measurements both in the previous 6 months and at 48 (+/-12) weeks from ART initiation, and HCV serology before ART initiation. We used linear regression for mean differences in CD4 T-cell count increase from ART initiation and logistic regression to estimate odds ratios for virological response. Of 12,239 patients by November 30, 2015, 5070 met inclusion criteria: 4382 (86.4%) HIV mono-infected and 688 (13.6%) HIV/HCV co-infected. Co-infected patients were more likely to have acquired HIV through injecting drugs use (57.4% vs. 1.1%), to be women, older, and Spanish, have a lower educational level, and having started ART with lower CD4 counts and acquired immunodeficiency syndrome. CD4 T-cell
count increase at 48 weeks was 229.7 cell/muL in HIV-monoinfected and 161.9 cell/muL in HIV/HCV-coinfected patients. The percentages of patients achieving a virological response at 48 weeks were 87.0% and 78.3% in mono and coinfected patients, respectively. Multivariable analyses showed that at 48 weeks, coinfected patients increased 44.5 (95% confidence interval [CI]: 24.8-64.3) cells/muL less than monoinfected and had lower probability of virological response (odds ratio: 0.62; 95% CI: 0.44-0.88). HIV/HCV-coinfected patients have lower immunological and virological responses at 48 weeks from ART initiation than monoinfected patients.


This theoretical essay examines the intersections between race, ethnicity and old age from an inter-disciplinary lens. Drawing on cultural gerontology (especially embodied aging studies) and post-colonial perspectives on aging, it explores how an emphasis on the body and embodiment can serve as a conceptual lens for understanding racialized aging bodies. A tentative framework for analysis is proposed. The concept of exile explores how bodies of color and older bodies are denigrated through the hegemonic (white, youth-centered, masculinist) gaze. Re-animation can take place by transcending double-consciousness: ‘seeing beyond’ the dominant gaze. Othering and otherness are explored in relation to both raced and aging bodies. The limits of ethnic aging are scrutinized at an epistemic level, simultaneously informing, and obscuring the understanding of lived experiences of racialized ethnic minorities in old age. Visible and invisible difference provide a way of unpacking the simultaneous hypervisibility of older (female) bodies of color, and their invisibility in institutional and policy discourses. De-coloniality is considered, by exploring ways to resist hegemonic power through embodied ways of knowing. This article concludes by exploring how recent methodological innovations – especially the visual and sensory turn – can offer new ways of understanding the lived experiences of aging bodies of color.


BACKGROUND After introduction of Highly Active Anti-Retroviral Therapy (HAART), the prevalence of hypogonadism among Human Immunodeficiency Virus (HIV) infected males is decreasing. MATERIALS AND METHODS Cross-sectional study was undertaken at ART centre of a medical Institute. The study recruited HIV infected males aged 18 to 65 years receiving ART. Patients with any debilitating chronic illness, diabetes mellitus, chronic smokers or alcoholic, currently on opioids or methadone were excluded. Androgen deficiency in aging male (ADAM) questionnaire was used to screen patients for possible presence of hypogonadism. Patients underwent biochemical evaluation for serum total testosterone (TT), luteinising hormone (LH) and CD4 count. Chi-squared test was used to compare different parameters. Pearson’s correlation coefficient was used to assess any relationship between CD4 count, LH and testosterone. A p-value of <0.05 was considered statistically significant. RESULTS In the study 120 patients were evaluated. The mean age of the patients was 41.61 years. The mean BMI of the patients was 22.47 kg/m2. The mean duration of ART was 6.13 years and mean CD4 count was 442.63 cells/mm3. Hypogonadism was seen in 20 (23.3%) and majority (85.7%) had secondary hypogonadism. There was significant association between hypogonadism and CD4 count but no association was found with body mass index (BMI) and duration of ART. CONCLUSION Hypogonadism is seen in 23.3% of HIV infected males. Majority (85.7%) had secondary hypogonadism. There was significant association of hypogonadism with lower CD4 count.

The notion of frailty has evolved for more than 15 years. Although there is no consensus definition, frailty reflects a state of increased vulnerability to adverse health outcomes for individuals of the same chronological age. Two commonly used clinical tools, the frailty index and the frailty phenotype, both measure health-related deficits. The frailty index is a ratio of the number of deficits that an individual has accumulated divided by all deficits measured, whereas the phenotype specifies frailty as represented by poor performance in three of five criteria (i.e., weight loss, exhaustion, weakness, slowness, lack of activity). From human studies, animal models of both approaches have been developed and are beginning to shed light on mechanisms underlying frailty, the influence of frailty on disease expression, and new interventions to attenuate frailty. Currently, back-translation to humans is occurring. As we start to understand subcellular mechanisms involved in damage and repair as well as their response to treatment, we will begin to understand the molecular basis of aging and, thus, of frailty.


Antiretroviral therapy (ART) has prolonged lives of persons living with HIV/AIDS (PLWHA), resulting in greater incidence of aging-related diseases and disability. Physical activity (PA) is recommended for healthy aging, but little is known about PA in older PLWHA. The purpose of this study was to objectively assess PA levels in older PLWHA and the associations with physical function. Twenty-one PLWHA, >/=50 years old, on ART with undetectable HIV-1 viral loads, wore an accelerometer to assess PA, including number of steps, activity intensity, and energy expenditure over 7 days. A physical function performance battery assessing aerobic capacity, strength, and gait speed was also completed. Average age was 66, and 67% were male. An average of 3,442 (interquartile range: 4,613) steps were walked daily, with 254.9 kcals expended. Participants spent most waking hours (75%) sedentary, with minimal hours (24%) in light-intensity activity. Only 5 min per day (35 min per week), on average, were spent in moderate-to-vigorous physical activity (MVPA). Maximal gait speed and 6-min walk test significantly correlated (p < .05) with all PA outcomes. Usual gait speed significantly correlated with all PA outcomes, except for daily kcals and light-intensity activity. Greater PA was associated with better physical performance, while high sedentary time was associated with poorer performance. To our knowledge, this is the first study to objectively measure PA in older PLWHA. Our findings indicate that older PLWHA accumulate substantial sedentary time. Most (86%) do not achieve recommended MVPA levels. This activity profile was associated with poor physical function. Providers should promote PA among PLWHA.


Evidence suggests that racial disparities in the HIV care continuum persist in older age groups, particularly among African Americans. The objective of this systematic review was to identify factors that facilitate or hinder older African Americans' engagement in the HIV care continuum. For studies published between 2003 and 2018, we: (1) searched databases using keywords, (2) excluded non-peer-reviewed studies, (3) limited findings to older African Americans and the HIV care continuum, and (4) retrieved and summarized data focused on barriers and facilitators of the HIV care continuum. Among the 1023 studies extracted, 13 were included: diagnosis/testing (n = 1), engagement in care (n = 7), and antiretroviral adherence (n = 5). Barriers included lack of HIV risk awareness, routine testing, and healthcare access, stigma, and multimorbidities. Social support, health/medication literacy, and increased self-efficacy facilitated engagement. A targeted focus on older African Americans is needed to achieve national goals of improving HIV care and treatment outcomes.

Data support that hypertension (HTN) is prevalent among human immunodeficiency virus (HIV) patients contributing to increased risk of cardiovascular disease. Immunodeficiency and prolonged antiretroviral treatment along with common risk factors including older age, male gender, and high body mass index might conduce to greater incidence of HTN. The purpose of this review was to summarize recent evidence of the increased cardiovascular risk in these patients linking HIV infection to HTN.


While HIV disproportionately impacts homeless individuals, little is known about the prevalence of HIV risk behaviors in the southwest and how age factors and HIV risk perceptions influence sexual risk behaviors. We conducted a secondary data analysis (n = 460) on sexually active homeless adults from a cross-sectional study of participants (n = 610) recruited from homeless service locations, such as shelters and drop-in centers, in an understudied region of the southwest. Covariate-adjusted logistic regressions were used to assess the impact of age at homelessness onset, current age, age at first sex, and HIV risk perceptions on having condomless sex, new sexual partner(s), and multiple sexual partners (>4 sexual partners) in the past 12 months. Individuals who first experienced homelessness by age 24 were significantly more likely to report condomless sex and multiple sexual partners in the past year than those who had a later onset of their first episode of homelessness. Individuals who were currently 24 years or younger were more likely to have had condomless sex, new sexual partners, and multiple sexual partners in the past 12 months than those who were 25 years or older. Those who had low perceived HIV risk had lower odds of all three sexual risk behaviors. Social service and healthcare providers should consider a younger age at homelessness onset when targeting HIV prevention services to youth experiencing homelessness.


BACKGROUND: While combination antiretroviral therapy (cART) has significantly improved survival times for persons diagnosed with HIV, estimation of life expectancy (LE) for this cohort remains a challenge, as mortality rates are a function of both time since diagnosis and age, and mortality rates for the oldest age groups may not be available.

METHODS: A validated case-finding algorithm for HIV was used to update the cohort of HIV-positive adults who had entered care in Ontario, Canada as of 2012. The Chiang II abridged life table algorithm was modified to use mortality rates stratified by time since entering the cohort and to include various methods for extrapolation of the excess HIV mortality rates to older age groups.

RESULTS: As of 2012, there were approximately 15,000 adults in care for HIV in Ontario. The crude all-cause mortality rate declined from 2.6% (95%CI 2.3, 2.9) per year in 2000 to 1.3% (1.2, 1.5) in 2012. Mortality rates were elevated for the first year of care compared to subsequent years (rate ratio of 2.6 (95% CI 2.3, 3.1)). LE for a 20-year-old living in Ontario was 62 years (expected age at death is 82), while LE for a 20-year-old with HIV was estimated to be reduced to 47 years, for a loss of 15 years of life. Ignoring the higher mortality rates among new cases introduced a modest bias of 1.5 additional years of life lost. In comparison, using 55+ as the open-ended age group was a major source of bias, adding 11 years to the calculated LE. CONCLUSIONS: Use of age limits less than the expected age at death for the open-ended age group significantly overstates the estimated LE and is not recommended. The Chiang II method easily accommodated input of stratified mortality rates and extrapolation of excess mortality rates.
Uganda’s population is ageing, which comes with increased and varied burdens of disease and health-care needs. At the same time, gerontological care in Uganda remains neglected. This paper examines the factors that cause older Ugandans to delay health-care access. We conduct a thematic analysis of data drawn from nine focus groups held with rural Ugandans aged 60-plus. Our analysis highlights the factors that delay older persons' access to health care and how these align with the Three-Delay Model, which was originally developed to assess and improve obstetric care in low-resource settings. Our participants report delays in deciding to seek care related to mobility and financial limitations, disease aetiology, severity and stigma (Delay I); reaching care because of poor roads and limited transportation options (Delay II); and receiving appropriate care because of ageism among health-care workers, and poorly staffed and under-supplied facilities (Delay III). We find these delays to care are interrelated and impacted by factors at the individual, community and health-system levels. We conclude by arguing for multi-pronged interventions that will address these delays, improve access to care and ultimately enhance older Ugandans’ health and wellbeing.


Immunosenescence is characterized by deterioration of the immune system caused by aging which induces changes to innate and adaptive immunity. Immunosenescence affects function and phenotype of immune cells, such as expression and function of receptors for immune cells which contributes to loss of immune function (chemotaxis, intracellular killing). Moreover, these alterations decrease the response to pathogens, which leads to several age-related diseases including cardiovascular disease, Alzheimer’s disease, and diabetes in older individuals. Furthermore, increased risk of autoimmune disease and chronic infection is increased with an aging immune system, which is characterized by a pro-inflammatory environment, ultimately leading to accelerated biological aging. During the last century, sedentarism rose dramatically, with a concomitant increase in certain type of cancers (such as breast cancer, colon, or prostate cancer), and autoimmune disease. Numerous studies on physical activity and immunity, with focus on special populations (i.e., people with diabetes, HIV patients) demonstrate that chronic exercise enhances immunity. However, the majority of previous work has focused on either a pathological population or healthy young adults whilst research in elderly populations is scarce. Research conducted to date has primarily focused on aerobic and resistance exercise training and its effect on immunity. This review focuses on the potential for exercise training to affect the aging immune system. The concept is that some lifestyle strategies such as high-intensity exercise training may prevent disease through the attenuation of immunosenescence. In this context, we take a top-down approach and review the effect of exercise and training on immunological parameters in elderly at rest and during exercise in humans, and how they respond to different modes of training. We highlight the impact of these different exercise modes on immunological parameters, such as cytokine and lymphocyte concentration in elderly individuals. [ABSTRACT FROM AUTHOR]


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. ABSTRACT FROM AUTHOR


Increasingly older adults are being diagnosed with HIV/AIDS. In 2002, UNAIDS indicated that 13 aspects of quality of life (QoL) were poorer for older adults, but only sparse, inconsistent cross-cultural evidence is available. This statement was investigated using a reliable, valid measure (the WHOQOL-HIV) distributed in nine cultures (eight countries). HIV positive and well adults (n = 2089) were assessed across 30 QoL facets; 403 were 40+ years. It was confirmed that sleep, fatigue and sex-life were poorer areas of QoL for older HIV adults than younger. Furthermore, they could be misinterpreted as normal ageing signs. Moreover, older people reported greater dependency on medication. However, older HIV adults had better QoL than expected on 11 dimensions; negative feelings, social inclusion, and several environmental and spiritual facets. This highlights the extent of poor QoL in younger adults. After accounting for culture and gender, overall QoL and health in older HIV adults was explained by eight facets comprising 61.3% of the variance. Social relationships were paramount, especially personal relationships (41%), but support and sex-life also. Energy, negative feelings, cognitions, financial resources and HIV symptoms also contributed. Social interventions for ageing communities would improve well-being. This evidence could support global ageing and HIV policy.


The first cases of AIDS in Spain were reported in 1982. Since then over 85,000 persons with AIDS have been cumulated, with 60,000 deaths. Current estimates for people living with HIV are of 145,000, of whom 20% are unaware of it. This explains the still high rate of late HIV presenters. Although the HIV epidemic in Spain was originally driven mostly by injection drug users, since the year 2000 men having sex with men (MSM) account for most new incident HIV cases. Currently, MSM represent over 80% of new yearly HIV diagnoses. In the 80s, a subset of young doctors and nurses working at Internal Medicine hospital wards became deeply engaged in attending HIV-infected persons. Before the
introduction of antiretrovirals in the earlier 1990s, diagnosis and treatment of opportunistic infections was their major task. A new wave of infectious diseases specialists was born. Following the wide introduction of triple combination therapy in the late 1990s, drug side effects and antiretroviral resistance led to built a core of highly devoted HIV specialists across the country. Since then, HIV medicine has improved and currently is largely conducted by multidisciplinary teams of health care providers working at hospital-based outclinics, where HIV-positive persons are generally seen every six months. Antiretroviral therapy is currently prescribed to roughly 75,000 persons, almost all attended at clinics belonging to the government health public system. Overall, the impact of HIV/AIDS publications by Spanish teams is the third most important in Europe. HIV research in Spain has classically been funded mostly by national and European public agencies along with pharma companies. Chronologically, some of the major contributions of Spanish HIV research are being in the field of tuberculosis, toxoplasmosis, leishmaniasis, HIV variants including HIV-2, drug resistance, pharmacology, antiretroviral drug-related toxicities, coinfection with viral hepatitis, design and participation in clinical trials with antiretrovirals, immunopathogenesis, ageing, and vaccine development.


BACKGROUND: The effects of methamphetamine (MA) on caries have been well documented. Little, however, is known about its effects on the periodontium. The authors conducted this study to determine the prevalence and severity of periodontal disease in an urban population of HIV-positive MA users. METHODS: This cross-sectional survey was conducted in one of the most populous urban areas of Los Angeles County, California, beset with high rates of MA use. Participants were recruited by a combination of street outreach methods, referral from drug treatment centers, and word of mouth. Participants were eligible if they were older than 18 years, spoke English or Spanish, used MA in the past 30 days, were willing to undergo a dental examination and psychosocial assessments, and were willing to provide a urine sample. Periodontal assessments were completed for 541 participants by 3 trained and calibrated dentists. RESULTS: The prevalence and severity of periodontal disease were high in this population of HIV-positive and -negative MA users. Cigarette smoking and age were identified as risk factors. CONCLUSIONS: The HIV-positive and -negative cohorts were remarkably similar, suggesting that their lifestyles contributed more to their destructive periodontal disease than their MA use. PRACTICAL IMPLICATIONS: MA users are at high risk of developing destructive periodontal disease and badly broken-down teeth. Clinicians should plan accordingly for timely management of the patients' care, knowing that MA users have extensive periodontal and restorative treatment needs.


Black people living with HIV (BPLWH) are less likely to adhere to antiretroviral treatment than are members of other racial/ethnic groups. Data were combined from two studies of BPLWH (n = 239) to estimate adherence trajectories using a semiparametric, group-based modeling strategy over three time-points (spanning 6 months). Analyses identified three groups of individuals (high-stable, moderately low-stable, low-decreasing). Multinomial logistic regressions were used to predict trajectory membership with multiple levels of socio-ecological factors (structural, institutional/health system, community, interpersonal/network, individual). Older age was associated with being in the high-stable group, whereas substance use, lower perceived treatment effectiveness, and lower quality healthcare ratings were related to being in the moderately low-stable group. In sum, multiple socio-ecological factors contribute to adherence among BPLWH and thus could be targeted in future intervention efforts.
The article discusses changes in human immunodeficiency virus (HIV) treatment in Australia as of 2018. Topics covered include the near-normal life expectancy of people with HIV who undergo treatment, the increased rates of cardiovascular and other diseases due to HIV, and the importance for nurses of understanding HIV prevention, care, and treatment. Also noted is the annual four day workshop on the subject and related topics.

The finding of low circulating testosterone level in men is relatively frequent. The symptoms of hypogonadism are very frequent in the aging men. However, the diagnosis of hypogonadism is often neglected and the opportunity to replace low testosterone in older men is highly debated. The aim of this narrative review is to summarize the steps necessary to formulate a proper diagnosis and to guide toward an individualized treatment. While universally recognized the need to treat the young adults with known causes of pituitary or testicular failure, there are controversies on the cost-benefit of treating testosterone deficiency in older men. Discrepancies among the several available guidelines do not help to clarify the scenario, however, the recent larger clinical trials have shed some light on the fact that testosterone treatment carries some benefit, that is not free from risks. We provide an updated review of the diagnostic hallmarks, the several treatment modalities, with their advantages and disadvantages, and how to individualize and monitor treatment in order to maximize the benefits and minimize the risks. The treatment of male hypogonadism can no longer be downgraded and must become part of the cultural baggage of the endocrinologist.
~20% with the GDS. In contrast, the multivariate Mahalanobis distance method identified impairment in ~5%. Using the test dataset, diagnostic accuracy [95% confidence intervals] and positive predictive value (PPV) was best for the multivariate method vs. Frascati and GDS (accuracy: 92.8% [90.3–95.2%] vs. 76.1% [72.1–80.0%] and 80.6% [76.6–84.5%] respectively; PPV: 61.2% [48.3–72.2%] vs. 29.4% [22.2–36.8%] and 33.9% [25.6–42.3%] respectively). Increasing the a priori false positive rate for the multivariate Mahalanobis distance method from 5% to 15% resulted in an increase in sensitivity from 77.4% (64.5–89.4%) to 92.2% (83.3–100%) at a cost of specificity from 94.5% (92.8–95.2%) to 85.0% (81.2–88.5%).

Conclusion: Our simulations suggest that the commonly used diagnostic criteria of HIV-associated cognitive impairment label a significant proportion of a normative reference population as cognitively impaired, which will likely lead to a substantial over-estimate of the true proportion in a study population, due to their lower than expected specificity. These findings have important implications for clinical research regarding cognitive health in people living with HIV. More accurate methods of diagnosis should be implemented, with multivariate techniques offering a promising solution. [ABSTRACT FROM AUTHOR]


Hispanic and Black adults are disproportionately affected by HIV and experience poorer HIV-related health outcomes relative to non-Hispanic White adults. The current study adopted Sorensen's integrated model to test the hypothesis that lower functional and critical health literacy competencies contribute to poorer HIV-related health and CD4 cell count for Hispanic and Black individuals. Eighty-one non-Hispanic White, Hispanic, and Black HIV seropositive individuals from a large, Southwestern metropolitan area were administered measures of health literacy, including the Expanded Numeracy Scale, Newest Vital Sign, Rapid Estimate of Adult Literacy in Medicine, Test of Functional Health Literacy (TOHFLA)-numeracy, and TOHFLA-reading. Hispanic and Black individuals demonstrated less HIV knowledge than non-Hispanic White individuals. Black participants demonstrated fewer health literacy appraisal skills. Importantly, lower levels of health literacy were linked to poorer CD4 cell count (an index of immune functioning) for Hispanic and Black individuals and not for non-Hispanic White individuals. These findings suggest race group differences for health literacy on current CD4 cell count such as very specific dimensions of low health literacy (e.g. poorer judgment of health-related information), but not other presumed deficits (e.g. motivation, access), play an important role in clinical health outcomes in HIV.


BACKGROUND: Lifestyle physical activity (ie, moderate physical activity during routine daily activities most days of the week) may benefit human immunodeficiency virus (HIV)-positive adults who are at high risk for cardiovascular disease. OBJECTIVE: The aims of this study were to describe lifestyle physical activity patterns in HIV-positive adults and to examine the influence of lifestyle physical activity on markers of cardiovascular health. Our secondary objective was to compare these relationships between HIV-positive adults and well-matched HIV-uninfected adults. METHODS: A total of 109 HIV-positive adults and 20 control participants wore an ActiGraph accelerometer, completed a maximal graded cardiopulmonary exercise test, completed a coronary computed tomography, completed anthropomorphic measures, and had lipids and measures of insulin resistance measured from peripheral blood. RESULTS: Participants (N = 129) had a mean age of 52 +/- 7.3 years, 64% were male (n = 82), and 88% were African American (n = 112). On average, HIV-positive participants engaged in 33 minutes of moderate-to-vigorous physical activity per day (interquartile range, 17-55 minutes) compared with 48 minutes in controls (interquartile range, 30-62 minutes, P = .05). Human immunodeficiency virus-positive adults had poor fitness (peak oxygen uptake [VO2], 16.8 +/- 5.2 mL/min per kg; and a ventilatory
efficiency, 33.1 [4.6]). A marker of HIV disease (current CD4+ T cell) was associated with reduced peak VO2 ($r = -0.20$, $P < .05$) and increased insulin resistance ($r = 0.25$, $P < .01$) but not with physical activity or other markers of cardiovascular health ($P \geq 0.05$). After controlling for age, gender, body mass index, and HIV status, physical activity was not significantly associated with peak VO2 or ventilatory efficiency. **CONCLUSION:** Human immunodeficiency virus-positive adults have poor physical activity patterns and diminished cardiovascular health. Future longitudinal studies should examine whether HIV infection blunts the beneficial effects of physical activity on cardiovascular health.


A bstract This paper aims to illuminate how serodiscordant couples were informed by their own and other's bodies in their experience of HIV/AIDS information. The lived body is the contact we have with the world. Our knowledge about others is through their bodies. In addition, illness is experienced first through the lived body. Therefore, when doctors want to learn about the illness, they extract information from the lived body. In this study, we investigated how serodiscordant couples experience HIV and AIDS information in Malawi. In-depth interviews were conducted in the homes of twenty-one serodiscordant couples and three individuals who had separated from their partners. Participants for the study were selected purposively. Data analysis was carried out using Max van Manen's phenomenological approach to generate descriptions and interpretations of the couples' experiences of HIV and AIDS information. The study found that the life-world is the overarching context of experiencing HIV and AIDS information and identified five structures of the life-world of serodiscordant couples: lived body, lived space, lived others, lived time, and spirituality. HIV and AIDS are first experienced through the lived body, and bodies were informational within the lived spaces. Thus, this research contributes to the study of HIV and AIDS information by revealing the lived body as an important source. It also identifies that the body can be an ambiguous source, since HIV and AIDS information available from the lived body may be ignored or misinterpreted by the serodiscordant couples and by those they interact with. [End Page 442] [ABSTRACT FROM AUTHOR]


Background: Adults living with human immunodeficiency virus (HIV) are at increased risk for anal and oropharyngeal cancer caused by human papillomavirus (HPV). The efficacy of HPV vaccines in this population is unknown. Methods: In this phase 3, double-blind, randomized, controlled trial, we assigned HIV-infected adults aged $\geq 27$ years to the quadrivalent HPV (types 6, 11, 16, 18) vaccine or placebo (1:1) stratified by sex and presence of anal high-grade squamous intraepithelial lesions on biopsy (bHSIL). The primary endpoint was vaccine efficacy against incident persistent anal infection with quadrivalent vaccine types or single detection at the final visit that were not present at baseline. Secondary endpoints included vaccine efficacy for anal bHSIL after week 52, persistent oral HPV infection. Results: A total of 575 participants were randomized. The Data and Safety Monitoring Board stopped the study early due to futility. Vaccine efficacy was 22% (95.1% confidence interval [CI], -31%, 53%) for prevention of persistent anal infection or single detection at the final visit, 0% (95% CI -44%, 31%) for improving bHSIL outcomes and 88% (95.1% CI 2%, 98%) for preventing persistent oral HPV infection, but was 32% (95.1% CI -80%, 74%) for 6-month persistent oral HPV infection or single detection at the final visit. Conclusions: These results do not support HPV vaccination of HIV-infected adults aged $\geq 27$ years to prevent new anal HPV infections or to improve anal HSIL outcomes. However, our data suggest a role for prevention of oral HPV infections, but this finding should be confirmed in future studies. Clinical Trials Registration: NCT01461096.

BACKGROUND: Integrase strand transfer inhibitors (INSTIs) are recommended for first-line antiretroviral therapy in combination with two nucleos(t)ide reverse transcriptase inhibitors. Co-formulated bictegravir, emtricitabine, and tenofovir alafenamide (B/F/TAF), a novel, INSTI-based regimen, is currently approved in the US and EU for the treatment of HIV-1 infection and recommended as first-line treatment in current guidelines. In our current analysis, we aimed to determine changes in patient-reported symptoms over time among HIV-1-infected adults who initiated or switched to B/F/TAF versus another INSTI-based regimen, co-formulated abacavir, dolutegravir, and lamivudine (ABC/DTG/3TC).

METHODS: A planned secondary analysis of patient-reported outcomes was conducted for two double-blind, randomized, phase III studies in HIV-1-infected adults comparing B/F/TAF with ABC/DTG/3TC: one in treatment-naive individuals (GS-US-380-1489, ClinicalTrials.gov NCT02607930) and the other in virologically suppressed participants (GS-US-380-1844, ClinicalTrials.gov NCT02603120). In both studies, the HIV symptoms distress module (HIV-SI) was administered at baseline (BL) and weeks 4, 12, and 48. Responses to each of the 20 items were dichotomized as bothersome or not bothersome. Treatment differences were assessed using unadjusted and adjusted logistic regression models (adjusted for BL HIV-SI count, age, sex, BL Veterans Aging Cohort Study [VACS] Index, medical history of serious mental illness, BL Short Form [SF]-36 Physical Component Summary [PCS], BL SF-36 Mental Component Summary [MCS], and, for virologically suppressed participants only, years since HIV diagnosis). We conducted longitudinal modeling of bothersome symptoms using a generalized mixed model including treatment, time, time-by-treatment, and additional covariates from the adjusted logistic regression model as described above. The Pittsburgh Sleep Quality Index (PSQI) was administered at the same frequency as the HIV-SI, and the total score was dichotomized as good or poor sleep quality. Similar models to those used for HIV-SI were applied, using BL sleep quality and BL SF-36 MCS as covariates. Statistical significance was assessed using p < 0.05.

RESULTS: Across both studies, bothersome symptoms were reported by fewer participants on B/F/TAF than those on ABC/DTG/3TC. In treatment-naive adults, fatigue/loss of energy, nausea/vomiting, dizzy/lightheadedness, and difficulty sleeping were reported significantly less with B/F/TAF at two or more time points. Fatigue and nausea were also significantly less common for those receiving B/F/TAF in longitudinal models. In virologically suppressed participants, nausea/vomiting, sad/down/depressed, nervous/anxious, and poor sleep quality (from the PSQI) were reported significantly less with B/F/TAF at two or more time points, as well as in longitudinal models. CONCLUSIONS: B/F/TAF was associated with lower prevalence of bothersome symptoms than ABC/DTG/3TC in both treatment-naive and virologically suppressed adults.


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.


When HIV Is Not a Terminal Disease HIV/AIDS is a condition that has shifted from a terminal illness to a chronic condition over the past couple of decades. With advancements [...]  


The frequency of the ages of the HIV/AIDS deaths and that of the patients detected before or after the development of AIDS followed normal distribution. The median of HIV/AIDS deaths was 40-44 years in 1995-1998 and 50-54 years in 2014-2016, while the median of detection of the infection as "HIV" or as "AIDS" was constantly 25-29 years; it implied that the survival time of the HIV/AIDS patients became longer by 10 years in the past twenty odd years. The lengthening of the survival time could have been attributable to introduction of HIV/AIDS therapy, such as HAART. Importantly, however, during the same period, the life span of Japanese population was lengthened by near 10 years. Under the assumption that HIV/AIDS patients died 20 years after detection of the infection, the total number of the deaths was 1,446 in 1990-2016, which was close to the total number in Vital Statistics during the same period 1,532.

Health Care


OBJECTIVES: In a clinic-based, treated HIV-infected cohort, we identified individuals with sarcopenia and compared with age, sex and ethnically matched controls; and investigated associated risk factors and health outcomes. DESIGN: Sarcopenia (age-related muscle loss) causes significant morbidity to the elderly, leading to frequent hospitalizations, disability and death. Few have characterized sarcopenia in the HIV-infected who experience accelerated aging. METHODS: Sarcopenia was defined as low muscle mass with weak grip strength and/or slow gait speed using lower 20th percentiles of controls. Multivariate logistic and linear regression analyses were used to explore risk factors and health-related outcomes associated with sarcopenia among HIV-infected individuals. RESULTS: We recruited 315 HIV-infected individuals aged at least 25 years with at least 1-year history of undetectable viral load on treatment (HIV RNA <50 copies/ml). Percentage of sarcopenia in 315 HIV-infected was 8%. Subsequently, 153 of the 315 were paired
with age, sex and ethnically matched HIV-uninfected. The percentage of sarcopenia in the HIV-infected (n = 153) compared with uninfected (n = 153) were 10 vs. 6% (P = 0.193) respectively, whereas of those at least 50 years of age among them were 17% vs. 4% (P = 0.049), respectively. Associated risk factors among the HIV-infected include education level, employment status, BMI, baseline CD4 cell count, duration on NRTIs and GGT levels. Identified negative outcomes include mortality risk scores (5.42; 95% CI 1.46-9.37; P = 0.007) and functional disability (3.95; 95% CI 1.57-9.97; P = 0.004). CONCLUSION: Sarcopenia is more prevalent in HIV-infected at least 50 years old compared with matched controls. Our findings highlight associations between sarcopenia with loss of independence and greater healthcare burden among treated HIV-infected individuals necessitating early recognition and intervention.


In 2014, an estimated 36.9 million people worldwide were living with human immunodeficiency virus (HIV). In the UK alone, there are around 100,000 HIV-infected individuals. Public information campaigns, such as the UNAIDS 90-90-90 initiative, have encouraged testing and promoted linkage into care. Since the introduction of ‘highly active’ antiretroviral therapy (HAART), most people living with HIV have seen their viral load suppressed to undetectable levels in plasma (typically <40–50 viral copies/ml), which has brought their expected lifespan close to that of the HIV-negative population. This has resulted in more elderly patients living with HIV alongside various other co-morbidities, some of which are independent of HIV itself. It has thus become vital for clinicians from all specialties to command at least some understanding of HIV and its possible complications. This enables both better management of conditions in the community, and more appropriate specialist referral when needed.


HIV-positive individuals are more vulnerable to poor health than HIV-negative individuals. This vulnerability is characterized by a higher risk of several common, age-related health problems, even after adjustment for established risk factors. This expert opinion report aims at identifying the optimal biomarkers for monitoring the structural integrity and function of physiological systems at risk across aging in HIV-seropositive subjects. These biomarkers, readily available locally and relatively cost-effective for clinicians in primary and secondary care, should allow early detection of the first preclinical structural and functional changes in renal, brain, cardiovascular, and skeleton systems or apparatus in HIV subjects across aging. A particular interest of this report is the definition of the concept of biomarker of the "organ functional reserve". This definition emphasizes the fact that some biomarkers for monitoring the molecular, structural and functional integrity of a given organ reflect a level of impairment that is basically irremediable despite effective pharmacological or nonpharmacological intervention.


PURPOSE: In 1998, the AIDS Therapy Evaluation in the Netherlands (ATHENA) national observational HIV cohort was established to demonstrate the lifesaving effectiveness of triple combination antiretroviral therapy, including HIV-protease inhibitors, that had recently been made available for clinical use. Subsequently, the HIV Monitoring Foundation was established by the Dutch Ministry of Health, Welfare and Sport to continue ATHENA as an open cohort in order to continue the registration and monitoring of all HIV-positive people as an integral part of HIV care in all 26 HIV treatment centres in the Netherlands. PARTICIPANTS: To date, a total of 25 036 participants have been enrolled in the cohort, with
As of 1 January 2017, 19,035 HIV-1-positive participants were known to be in care: 18,824 adults (81% men and 19% women) and 211 children (47% boys and 53% girls). The remaining 601 participants had either died (46%), were lost to care (29%) or had moved abroad (25%).

FINDINGS TO DATE: Today, with over 20 years of follow-up, the ATHENA cohort has provided extensive knowledge on HIV treatment, comorbidities and coinfections and created insight into the transmission dynamics of the HIV epidemic. FUTURE PLANS: ATHENA continues to enrol and monitor HIV-positive people entering HIV care in the Netherlands. Future research will continue to provide tangible input into HIV care and prevention policies in the Netherlands and internationally.


BACKGROUND: There is strong evidence for the effectiveness of addressing tobacco use in health care settings. However, few smokers receive cessation advice when visiting a hospital. Implementing smoking cessation technology in outpatient waiting rooms could be an effective strategy for change, with the potential to expose almost all patients visiting a health care provider without preluding physician action needed. OBJECTIVE: The objective of this study was to develop an intervention for smoking cessation that would make use of the time patients spend in a waiting room by passively exposing them to a face-aging, public morphing, tablet-based app, to pilot the intervention in a waiting room of an HIV outpatient clinic, and to measure the perceptions of this intervention among smoking and nonsmoking HIV patients. METHODS: We developed a kiosk version of our 3-dimensional face-aging app Smokerface, which shows the user how their face would look with or without cigarette smoking 1 to 15 years in the future. We placed a tablet with the app running on a table in the middle of the waiting room of our HIV outpatient clinic, connected to a large monitor attached to the opposite wall. A researcher noted all the patients who were using the waiting room. If a patient did not initiate app use within 30 seconds of waiting time, the researcher encouraged him or her to do so. Those using the app were asked to complete a questionnaire. RESULTS: During a 19-day period, 464 patients visited the waiting room, of whom 187 (40.3%) tried the app and 179 (38.6%) completed the questionnaire. Of those who completed the questionnaire, 139 of 176 (79.0%) were men and 84 of 179 (46.9%) were smokers. Of the smokers, 55 of 81 (68%) said the intervention motivated them to quit (men: 45, 68%; women: 10, 67%); 41 (51%) said that it motivated them to discuss quitting with their doctor (men: 32, 49%; women: 9, 60%); and 72 (91%) perceived the intervention as fun (men: 57, 90%; women: 15, 94%). Of the nonsmokers, 92 (98%) said that it motivated them never to take up smoking (men: 72, 99%; women: 20, 95%). Among all patients, 102 (22.0%) watched another patient try the app without trying it themselves; thus, a total of 289 (62.3%) of the 464 patients were exposed to the intervention (average waiting time 21 minutes). CONCLUSIONS: A face-aging app implemented in a waiting room provides a novel opportunity to motivate patients visiting a health care provider to quit smoking, to address quitting at their subsequent appointment and thereby encourage physician-delivered smoking cessation, or not to take up smoking.


There is increasing evidence that HIV is an independent risk factor for stroke, resulting in an emerging population of people living with both HIV and stroke all over the world. However, neurorehabilitation strategies for the HIV-stroke population are distinctly lacking, which poses an enormous global health challenge. In order to address this gap, a better understanding of the HIV-stroke population is needed, as well as potential approaches to design effective neurorehabilitation strategies for this population. This review goes into the mechanisms, manifestations, and treatment options of neurologic injury in stroke and HIV, the additional challenges posed by the HIV-stroke population, and rehabilitation engineering approaches for both high and low resource areas. The aim of this review is to connect the
underlying neurologic properties in both HIV and stroke to rehabilitation engineering. It reviews what is currently known about the association between HIV and stroke and gaps in current treatment strategies for the HIV-stroke population. We highlight relevant current areas of research that can help advance neurorehabilitation strategies specifically for the HIV-stroke population. We then explore how robot-assisted rehabilitation combined with community-based rehabilitation could be used as a potential approach to meet the challenges posed by the HIV-stroke population. We include some of our own work exploring a community-based robotic rehabilitation exercise system. The most relevant strategies will be ones that not only take into account the individual status of the patient but also the cultural and economic considerations of their respective environment.


Background: African Americans are disproportionately affected by both HIV and hypertension. Failure to modify risk factors for cardiovascular disease and chronic kidney disease such as hypertension among HIV-infected patients may attenuate the benefits conferred by combination antiretroviral therapy. In the general population, African Americans with hypertension are less likely to have controlled blood pressure than whites. However, racial differences in blood pressure control among HIV-infected patients are not well studied. Methods: We conducted a cross-sectional study evaluating racial differences in hypertension prevalence, treatment, and control among 1,664 patients attending the University of Alabama at Birmingham HIV Clinic in 2013. Multivariable analyses were performed to calculate prevalence ratios (PR) with 95% confidence intervals (CI) as the measure of association between race and hypertension prevalence and control while adjusting for other covariates. Results: The mean age of patients was 47 years, 77% were male and 54% African-American. The prevalence of hypertension was higher among African Americans compared with whites (49% vs. 43%; p = 0.02). Among those with hypertension, 91% of African Americans and 93% of whites were treated (p = 0.43). Among those treated, 50% of African Americans versus 60% of whites had controlled blood pressure (systolic blood pressure <140 mmHg and diastolic blood pressure <90 mmHg) (p = 0.007). After multivariable adjustment for potential confounders, prevalence of hypertension was higher among African Americans compared to whites (PR 1.25; 95% CI 1.12–1.39) and prevalence of BP control was lower (PR 0.80; 95% CI 0.69–0.93). Conclusions: Despite comparable levels of hypertension treatment, African Americans in our HIV cohort were less likely to achieve blood pressure control. This may place them at increased risk for adverse outcomes that disproportionately impact HIV-infected patients, such as cardiovascular disease and chronic kidney disease, and thus attenuate the benefits conferred by combination antiretroviral therapy. [ABSTRACT FROM AUTHOR]


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.


We aimed to quantify the proportion of people receiving care for HIV-infection that are 50 years or older (older HIV patients) in Latin America and the Caribbean between 2000 and 2015 and to estimate the contribution to the growth of this population of people enrolled before (<50yo) and after 50 years old (yo) (50yo). We used a series of repeated, cross-sectional measurements over time in the Caribbean, Central and South American network (CCASAnet) cohort. We estimated the percentage of patients retained in care each year that were older HIV patients. For every calendar year, we divided patients into two groups: those who enrolled before age 50 and after age 50. We used logistic regression models to estimate the change in the proportion of older HIV patients between 2000 and 2015. The percentage of CCASAnet HIV patients over 50 years had a threefold increase (8% to 24%) between 2000 and 2015. Most of the growth of this population can be explained by the increasing proportion of people that enrolled before 50 years and aged in care. These changes will impact needs of care for people living with HIV, due to multiple comorbidities and high risk of disability associated with aging.


Promptly after primoinfection, HIV generates a pool of infected cells carrying transcriptionally silent integrated proviral DNA, the HIV-1 reservoir. These cells are not cleared by combined antiretroviral therapy (cART), and persist lifelong in treated HIV-infected individuals. Defining clinical strategies to eradicate the HIV reservoir and cure HIV-infected individuals is a major research field that requires a deep understanding of the mechanisms of seeding, maintenance and destruction of latently infected cells. Although CTL responses have been classically associated with the control of HIV replication, and hence with the size of HIV reservoir, broadly neutralizing antibodies (bNAbs) have emerged as new players in HIV cure strategies. Several reasons support this potential role: (i) over the last years a number of bNAbs with high potency and ability to cope with the extreme variability of HIV have been identified; (ii) antibodies not only block HIV replication but mediate effector functions that may contribute to the removal of infected cells and to boost immune responses against HIV; (iii) a series of new technologies have allowed for the in vitro design of improved antibodies with increased antiviral and effector functions. Recent studies in non-human primate models and in HIV-infected individuals have shown that treatment with recombinant bNAbs isolated from HIV-infected individuals is safe and may have a beneficial effect both on the seeding of the HIV reservoir and on the inhibition of HIV replication. These promising data and the development of antibody technology have paved the way for treating HIV infection with engineered monoclonal antibodies with high potency of neutralization, wide coverage of HIV diversity, extended plasma half-life in vivo and improved effector functions. The exciting effects of these newly designed antibodies in vivo, either alone or in combination with other cure strategies (latency reversing agents or therapeutic vaccines), open a new hope in HIV eradication.
Abstract: Introduction: The “greying” of the HIV epidemic necessitates a better understanding of the healthcare needs of older HIV-positive adults. As these individuals age, it is unclear whether comorbidities and their associated therapies or the ageing process itself alter the response to antiretroviral therapy (ART). In this study, HIV treatment outcomes and corresponding risk factors were compared between older ART initiators and those who were younger using data from the Caribbean, Central and South America Network for HIV Epidemiology (CCASAnet). Methods: HIV-positive adults (≥18 years) initiating ART at nine sites in Argentina, Brazil, Chile, Haiti, Honduras, Mexico and Peru were included. Patients were classified as older (≥50 years) or younger (<50 years) based on age at ART initiation. ART effectiveness was measured using three outcomes: death, virologic failure and ART treatment modification. Cox regression models for each outcome compared risk between older and younger patients, adjusting for other covariates. Results: Among 26,311 patients initiating ART between 1996 and 2016, 3389 (13%) were ≥50 years. The majority of patients in both ≥50 and <50 age groups received a non-nucleoside reverse transcriptase inhibitor-based regimen (89% vs. 87%), did not have AIDS at baseline (63% vs. 62%), and were male (59% vs. 58%). Older patients had a higher risk of death (adjusted hazard ratio (aHR) 1.64; 95% confidence intervals (CI): 1.48 to 1.83) and a lower risk of virologic failure (aHR: 0.73; 95% CI: 0.63 to 0.84). There was no difference in risk of ART modification (aHR: 1.00; 95% CI: 0.94 to 1.06). Risk factors for death, virologic failure and treatment modification were similar for each group. Conclusions: Older age at ART initiation was associated with increased mortality and decreased risk of virologic failure in our cohort of more than 26,000 ART initiators in Latin America and the Caribbean. To the best of our knowledge this is the first study from the region to evaluate ART outcomes in this growing and important population. Given the complexity of issues related to ageing with HIV, a greater understanding is needed in order to properly respond to this shifting epidemic. [ABSTRACT FROM AUTHOR]


PURPOSE: To assess health-related quality of life (HRQoL) and its associated factors among people living with HIV/AIDS (PLWHA) in Rio de Janeiro, Brazil. METHODS: A cross-sectional study including PLWHA receiving usual HIV-care at Instituto Nacional de Infectologia Evandro Chagas (INI/Fiocruz) was conducted between 2014 and 2016 in Rio de Janeiro, Brazil. The EQ-5D-3L assessed HRQoL; PHQ-2 and ASSIST were used for screening depression and substance use, respectively. Clinical variables were obtained from the INI/Fiocruz cohort database, and structured questions evaluated intimate partner violence, sexual abstinence and relationship status. Data were analysed using multivariable Tobit regression model. RESULTS: A total of 1480 PLWHA were included: 64.7% were male at birth (38.4% men who have sex with men [MSM], 24.3% heterosexual men and 2% transgender women [TGW]); median age was 43.1 years, and 95.8% were receiving antiretroviral therapy. The median EQ-5D-3L utility score was 0.801. Results showed that the following factors: MSM and women; older age; lower educational level; no engagement in a relationship; depression screening positive; polysubstance use; and, detectable viral load were independently associated with worse HRQoL. CONCLUSIONS: PLWHA under care at INI/Fiocruz presented good HRQoL. Polysubstance use, depression and lower educational level were among the factors negatively associated with HRQoL. This was the first time that the EQ-5D-3L utility scores were calculated for a considerable number of PLWHA in Brazil, which is a fundamental piece of information for future cost-effectiveness analysis.

Patients with human immunodeficiency virus (HIV)/AIDS live a far different life today compared with those who were infected in the 1980s and 1990s. Antiretroviral therapy has evolved from a once poorly tolerated, heavy pill burden to the availability of many once-daily single-tablet regimens. The improvements in therapy have necessitated the need to be cognizant of comorbidities as well as drug-drug interactions. Despite the tremendous advances in therapy, newer therapies are in the pipeline and continue to emerge, making care for patients burdened by HIV perhaps easier than it has ever been.


PURPOSE: No prior studies have addressed the performance of electronic health record (EHR) data to diagnose chronic obstructive pulmonary disease (COPD) in people living with HIV (PLWH), in whom COPD could be more likely to be underdiagnosed or misdiagnosed, given the higher frequency of respiratory symptoms and smoking compared with HIV-uninfected (uninfected) persons. METHODS: We determined whether EHR data could improve accuracy of ICD-9 codes to define COPD when compared with spirometry in PLWH vs uninfected, and quantified level of discrimination using the area under the receiver-operating curve (AUC). The development cohort consisted of 350 participants who completed research spirometry in the Examinations of HIV Associated Lung Emphysema (EXHALE) study, a pulmonary substudy of the Veterans Aging Cohort Study. Results were externally validated in 294 PLWH who performed spirometry for clinical indications from the University of Washington (UW) site of the Centers for AIDS Research Network of Integrated Clinical Systems cohort. RESULTS: ICD-9 codes performed similarly by HIV status, but alone were poor at discriminating cases from non-cases of COPD when compared with spirometry (AUC 0.633 in EXHALE; 0.651 in the UW cohort). However, algorithms that combined ICD-9 codes with other clinical variables available in the EHR-age, smoking, and COPD inhalers-improved discrimination and performed similarly in EXHALE (AUC 0.771) and UW (AUC 0.734). CONCLUSIONS: These data support that EHR data in combination with ICD-9 codes have moderately good accuracy to identify COPD when spirometry data are not available, and perform similarly in PLWH and uninfected individuals.


In the UK, people living with HIV (PLWH) who are promptly diagnosed and treated with antiretroviral therapy have a near-normal life-expectancy. Older PLWH (aged ≥50 years) constitute an increasing proportion of the UK HIV cohort, and will soon be the largest age group. This article discusses recent literature on HIV and ageing, and implications for optimising the health and wellbeing of older PLWH in the UK (including those diagnosed at an older age). It includes the aetiology of ageing in PLWH, multimorbidity and frailty, and long-term survivors' issues, in addition to polypharmacy and other medication-related problems (e.g. drug-drug interactions). The role of the pharmacist medicines optimisation, and models of care are all discussed in relation to the ageing population of PLWH. This article does not cover the management of specific comorbidities. [ABSTRACT FROM AUTHOR]

BACKGROUND: Little is known about the clinical presentation and outcomes amongst older HIV infected populations accessing ART in sub-Saharan Africa. We compared mortality amongst HIV infected patients accessing ART that were < 50 years to those >/= 50 years in Kwa-Zulu Natal, South Africa. METHODS: We undertook a retrospective review of medical records of patients that accessed HIV services at the CAPRISA AIDS Treatment program (CAT) between June 2004 to December 2012 (N = 4003). HIV infected patients, 14 years or older were enrolled. All-cause mortality and treatment response to ART in those < 50 years to those >/=50 years were compared. A Kaplan-Meier curve and log-rank test were used to compare the cumulative probability of death between the two age groups with the primary endpoint being mortality. Statistical analysis was done using SAS (version 9.4.; SAS Institute Inc., Cary, NC, USA). RESULTS: Of 4003 individuals, 262 (6.5%) were >/= 50 years (older group). The median age in those >/=50 years and < 50 year was 54.5 and 32.0 years, respectively. The younger group was mainly female (64.7%). There was no difference in mortality rate, between the older (6.9/100 person-years (py), 95% confidence interval (CI): 4.7-9.6) and younger group (5.3/100 py, 95% CI: 4.7-5.8) at 60 months (p = 0.137). In the multivariable model older patients had a significantly higher risk of death compared to younger patients. (hazard ratio (HR) 1.60, 95% CI: 1.08-2.39, p = 0.019). The rate of CD4+ cell count increase was higher in those < 50 years (beta = 0.34, 95% CI: 0.19-0.50, p < 0.001) with no difference in viral suppression. The older group showed significantly higher prevalence of diabetes (6.3%) and hypertension (21.5%), p < 0.001.

CONCLUSION: ART initiation in older HIV infected patients was associated with a higher mortality compared to those younger than 50 years. ART immunological response was less robust in older individuals. The increase in hypertension and diabetes among older patients suggests the need to restructure and integrate primary and specialized health care services into ART services.


Human immunodeficiency virus (HIV) infection has become a chronic disease with multiple highly effective antiretroviral regimens available. Patients live with this infection for many years and need continuing care to remain on their medications and to manage the comorbidities which develop from both the disease and the treatment. [ABSTRACT FROM AUTHOR]


Background The VA system is the largest single provider of healthcare in the United States and to individuals infected with HIV specifically. High quality medication management is particularly important since HIV is a chronic infectious condition which requires taking multiple medications with strict requirements for adherence to medication regimens. Veterans Administration (VA) patients are required to obtain all chronic medications using the VA mail-order pharmacy system.

Objective Drawing on Donabedian’s Quality Improvement framework, this study sought to examine experiences that Veterans with HIV have with the Veterans Administration medication mail-order system, and to explore opportunities for quality improvement.

Methods A sequential, explanatory mixed-methods design was used to interview Veterans receiving care at a Midwestern Veterans Administration Hospital using a mail-order experience survey followed by in-depth interviews. All 57 Veterans, out of 72, who were successfully contacted consented to participate.
Results Overall, Veterans evaluated the mail-order service positively and valued the accuracy (correct medication delivery). However, a notable problem emerged with respect to assuring access to HIV medications with about half (47%) indicating running out of HIV medication. Respondents identified structural issues with respect to days covered by mailed medications (90 versus current 30 days) and process issues with scheduling new refills. Veterans also indicated the information sheets were too long, complex and not helpful for their queries. Patients were open to pharmacists playing an active role during clinic visits and felt this would help manage their conditions better.

Conclusions Veterans generally reported that the VA Mail-order service was of high quality. However, some findings indicate there are opportunities to improve this service to be more patient-centered particularly for vulnerable HIV patients.


Growing evidence suggests that HIV infection may accelerate biological aging. Insomnia symptoms, particularly in later life, exacerbate cellular aging. We examined the association between insomnia symptoms and leukocyte telomere length (LTL), and further explored how this association was affected by HIV serostatus and age. Data were assessed from 244 HIV-infected individuals >/=40 years and 244 HIV-uninfected individuals who were frequency-matched by age, gender and education level. Insomnia symptoms were assessed by responses to four sleep-related questions covering the past month. We performed multivariable linear regression with logarithmically transformed LTL and reported exponentiated coefficients. HIV-infected individuals had shorter LTL compared to uninfected individuals (geometric mean 0.82 vs 0.89, P=0.052), and this association remained after adjustment for gender, education level, and smoking history (-7.4%, P=0.051) but markedly attenuated after additional adjustment for insomnia and depressive symptoms (-3.7%, P=0.367). Significant interactions between age group (55-82 vs 40-54 years) and insomnia symptoms on LTL were observed in the HIV-infected individuals (-28.4%, P=0.033) but not the uninfected (-17.9%, P=0.250). After stratifying by age group, LTL was independently associated with insomnia symptoms in those 55 years and older among the HIV-infected individuals (-24.5%, P=0.026) but not those 40-54 years old (-9.8%, P=0.428). Our findings suggest that elevated insomnia and depressive symptoms may partly explain the correlation between HIV serostatus and shorter LTL. Significant association between insomnia and shorter LTL observed in elderly HIV-infected but not in uninfected individuals suggest that such adverse effect may begin at an earlier age or is more pronounced in HIV-infected individuals but requires further investigation.


Pain, tobacco cigarette smoking, and prescription opioid misuse are all highly prevalent among persons living with HIV (PLWH). Smoking and pain medication misuse can lead to deleterious outcomes, including more severe pain and physical impairment. However, we are not aware of any interventions that have attempted to address these issues in an integrated manner. Participants (N=68) were recruited from an outpatient infectious disease clinic and randomized to either a computer-based personalized feedback intervention (Integrated PFI) that aimed to increase motivation, confidence, and intention to quit smoking, and decrease intentions to misuse prescription analgesic medications, or a Control PFI. Results indicated that PLWH who received the Integrated PFI (vs. Control PFI) evinced greater post-treatment knowledge of interrelations between pain and tobacco smoking. Moreover, participants who received the Integrated PFI and smoked at least 10 cigarettes per day (but not<10 CPD) reported greater confidence and readiness/intention to quit smoking. Effects of the Integrated PFI on knowledge of pain and opioid misuse, and attitudes/intentions regarding prescription pain medication misuse were not statistically-significant. Taken together,
these results indicate that this novel intervention strategy may offer promise for addressing a critical public health need in a population that is generally underrepresented in clinical research.


HIV-related immunodeficiency has complex effects on female genital HPV, which include increased risks of infection, multiple types, persistence, reactivation and the risk to develop pre-invasive and invasive disease. Reconstitution of immunity with anti-viral drugs improves cellular immunity, but the risk of HPV-related malignancy remains higher than background incidences and presents at younger ages. Early initiation of antiretroviral therapy (ART) allows improved retention of immune memory through existing antibodies and T-cell clones and improves long-term outcomes. Suggestions of a higher risk to contract HIV if there is existing genital HPV infection are supported and explained by pathophysiological cervical changes, including inflammation. HIV-HPV interactions should influence public health decisions towards prioritising large-scale prepubertal HPV-vaccine roll-out, secondary cervical cancer prevention and early detection programmes for HIV-infected women and early initiation of ART. This chapter will also focus on special considerations for the management of women with co-infection with these two viruses and genital HPV-related diseases.


Background: Demographic data show an increasingly aging human immunodeficiency virus (HIV) population worldwide. Recent concerns over dolutegravir-related neuropsychiatric toxicity have emerged, particularly amongst older people living with HIV (PLWH). We describe the pharmacokinetics (PK) of dolutegravir (DTG) 50 mg once daily in PLWH aged 60 and older. Additionally, to address calls for prospective neuropsychiatric toxicodynamic data, we evaluated changes in sleep quality and cognitive functioning in this population after switching to abacavir (ABC)/lamivudine (3TC)/DTG over 6 months. Methods: PLWH >/=60 years with HIV-viral load <50 copies/mL on any non-DTG-based antiretroviral combination were switched to ABC/3TC/DTG. On day 28, 24-hour PK sampling was undertaken. Steady-state PK parameters were compared to a published historical control population aged </=50 years. We administered 6 validated sleep questionnaires and neurocognitive (Cogstate) testing pre-switch and over 180 days. Results: In total, 43 participants enrolled, and 40 completed the PK phase. Overall, 5 discontinued (2 due to sleep-related adverse events, 4.6%). DTG maximum concentration (Cmax) was significantly higher in patients >/=60 years old versus controls (geometric mean 4246 ng/mL versus 3402 ng/mL, P = .005). In those who completed day 180 (n = 38), sleep impairment (Pittsburgh Sleep Quality Index) was marginally higher at day 28 (P = .02), but not at days 90 or 180. Insomnia, daytime functioning, and fatigue test scores did not change statistically over time. Conclusions: DTG Cmax was significantly higher in older PLWH. Our data provides clinicians with key information on the safety of prescribing DTG in older PLWH.


Ever since the introduction of highly active antiretroviral therapy (ART) in 1995, HIV infection has been linked to "metabolic" complications (insulin resistance, dyslipidemia, osteoporosis, and others). Studies suggested increased rates of myocardial infarction, renal insufficiency, neurocognitive dysfunction, and fractures in HIV-positive patients. Even long-term suppression of HIV seemed to be accompanied by an excess of deleterious inflammation that could promote
these complications. The aims of this viewpoint paper are to summarize recent data and to examine the possibility that the problem of aging-related morbidity in HIV might not be as dramatic as previously believed.


OBJECTIVE: Whether older people living with HIV (PLWH) can achieve similar functional benefits with exercise as their uninfected peers and the ideal intensity of exercise needed for these benefits are not known. DESIGN: Sedentary adults (50-75 years) with or without HIV were recruited for 24-weeks of supervised endurance/resistance exercise. After 12 weeks of moderate-intensity exercise, participants were randomized to continue moderate- or advance to high-intensity exercise for an additional 12 weeks. METHODS: Outcomes by serostatus and exercise intensity (moderate, high) were compared using linear and mixed effects regression models and controlled for baseline values or week 12 values. RESULTS: 32 PLWH and 37 controls were enrolled; 27 PLWH (12 moderate/15 high) and 29 controls (15 moderate/14 high) completed 24 weeks. PLWH had significantly poorer physical function across nearly all baseline measures. Both groups had significant improvements in all function measures. From 0-12 weeks, PLWH had significantly greater percent improvements (mean, 95% CI) than controls on VO2 max (5 [0, 10]%; from 13-24 weeks, PLWH had significantly greater percent improvements on stair climb (-5 [-10, -1]%), and 400-MWT (-3 [-5, -0]%); all p < 0.05. An interaction between exercise intensity and HIV serostatus was significant for measures of strength: PLWH randomized to high-intensity gained significantly more strength than moderate-intensity in bench and leg press (6 [0,12]% and 10 [2,17]% greater; both p < 0.05); controls had similar gains regardless of intensity. CONCLUSIONS: Both moderate- and high-intensity exercise resulted in significant improvements in physical function; high-intensity exercise may impart greater strength benefits to PLWH.


Herpes zoster (HZ) occurs at a higher age-specific rate in people living with HIV (PLWH) than in the general population. We implemented a quality improvement study to assess herpes zoster vaccine (HZV) usage among PLWH, assess HZV usage after additional reminders/prompts, and identify barriers to HZV among older PLWH. HZV rates in PLWH were determined in six institutions with varying payment structures. For the intervention, Part 1, PLWH eligible for HZV at the University of Colorado were identified, and providers were notified of patient eligibility. In Part 2, in addition to provider notification, an order for HZV was placed in the patient's chart before a clinic appointment. HZV coverage rates ranged from 1.5% to 42.4% at six sites. Before the intervention, 21.3% of eligible University of Colorado patients had received HZV. An additional 8.3% received HZV with Part 1 and 17.8% with Part 2 interventions. At completion, a total of 53.2% of eligible patients had received HZV through routine clinical care or the interventions. Insurance coverage concern was cited as a common reason for not receiving HZV. Minor adverse reactions occurred in 26.7% patients and did not require medical care. HZV coverage was low at a majority of sites. Clinical reminders with links to vaccination orders or preplaced vaccination orders led to improved HZV coverage in our clinic, but published guidelines for use of HZV in PLWH and improvement in logistic or insurance barriers to HZV receipt are paramount to improved HZV coverage.

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.


Invisible and Overlooked: Substance Use Disorders in Aging Adults America is in the midst of social and cultural reboot. The way that we receive and process information (including the acceptance [...] Falutz, J. (2018). "Frailty: is thy name.....universal? Evolving challenges of managing effectively treated older people living with HIV." Antivir Ther 23(2): 101-104.

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 diagnose frailty in PLWH.


Background and Objective: As HIV-infected (HIV+) individuals age, there is a need to understand successful aging (SA) from the patient perspective. This study compared SA definitions between HIV+ and HIV-uninfected (HIV-) older adults and then examined correlates of SA categories. Research Design and Methods: Ninety-three HIV+ and 46 HIV-older (aged 50+) adults provided brief definitions of SA, which was examined using content analysis. We then compared the frequency of SA categories by serostatus and examined the correlates of SA categories within both groups. Results: Seven SA categories emerged: General Health, Cognitive Health & Ability, Physical/Biological Health & Ability, Social Relationships, Attitudes, Psychological, & Emotional Well-Being, Proactive & Engaged Lifestyle, and Independence. While
no significant differences emerged, HIV- older adults were more likely to report General Health and the subcategory of Longevity/Survival, while HIV+ older adults were more likely to report subcategories of Enjoying Life & Fulfillment and Maintaining Balance. Few demographic correlates of SA categories emerged. Mood and HIV characteristics were not associated with SA categories. In both groups, those without neurocognitive impairment were significantly more likely to endorse General Health than those with neurocognitive impairment. Discussion and Implications: HIV+ and HIV- older individuals may generally perceive SA similarly, and their definitions parallel with existing models of SA. Yet, living with a chronic illness may cause HIV+ older adults to place greater value on quality of life and life satisfaction than physical health and chronological age. Observational and intervention studies may use similar approaches in evaluating and maximizing SA.


Side effects are central to the experience of living longer with HIV but rarely have they been studied alone. Unlike other aspects of that experience, like quality of life, treatment adherence, chronicity, episodic disability, aging, health, and viral load suppression, side effects have not benefited from the same level of empirical and theoretical engagement from qualitative researchers. In this paper, we draw on syndemics theory and 50 qualitative interviews to better understand the experience of HIV treatment side effects. Two main categories were identified in the data: side effects as a product and side effects as a risk factor. The first category suggests that side effects are not just the product of taking antiretroviral drugs. They are also the product of particular conditions and tend to cluster with other health problems. The second category puts forward the idea that side effects can act as a syndemic risk factor by exposing PLWH to a greater risk of developing health problems and creating conditions in which psychosocial issues are more likely to emerge. The paper concludes by calling for more research on the complex nature of side effects and for the development of comprehensive approaches for the assessment and management of side effects.


Unstable housing, including homelessness, is a public policy concern for all populations, and more critically for people with a serious health condition such as HIV. We measure the effect of unstable housing on HIV treatment biomarkers: viral suppression (viral load<200 HIV RNA copies per ml) and adequate CD4(+) T-cell count (CD4>350cells per mul). We use panel data (1995-2015) from 3082 participants of the Women's Interagency HIV Study (WIHS) sites in Bronx and Brooklyn (NY), Chicago (IL), Los Angeles and San Francisco (CA), and Washington (DC). The instrumental variable (IV) measures allocations for the Housing Opportunities for People with AIDS (HOPWA) per person newly infected with HIV, and it represents actual availability of housing assistance for HIV-positive persons at the metropolitan area level. Using an extended probit model with the IV, we find that unstable housing reduces the likelihood of viral suppression by 51 percentage points, and decreases the probability of having adequate CD4 cell count by 53 percentage points. The endogeneity-corrected results are larger than naïve probits, which show decreases of 8.1 and 7.8 percentage points, respectively. The hypothesized pathways for the effect are: decreased use of mental healthcare/counseling, any healthcare, and less continuity of care. Increasing efforts to improve housing assistance, including HOPWA, and other interventions to make housing more affordable for low-income populations, and HIV-positive populations in particular, may be warranted not only for the benefits of stable housing, but also to improve HIV-related biomarkers.

Background Antiretroviral treatment has turned HIV infection into a chronic condition with a near normal life expectancy and an ageing patient population. For a well-defined proportion of these patients, HIV-care could pass from specialty care to primary care, especially for prevention and treatment of additional chronic diseases. A better understanding of the complex health needs of this particular proportion is needed to determine the optimal way to integrate specialist and primary care. Objectives Our objective was to examine the health-seeking behaviour of ageing HIV patients. We investigated which physicians they consulted and the reasons for encounter. We also explored patients' participation in preventive healthcare activities. Methods We conducted a retrospective descriptive cohort study among adults, 60 years of age or older living with HIV, who came for a routine consultation visit at the HIV clinic of the Institute of Tropical Medicine (ITM) over a period of 9 months. Those who met the inclusion criteria were offered a self-administered questionnaire. The responses were manually coded, exported into Excel and subsequently imported into SPSS for descriptive statistical analysis. Results We analysed questionnaires from 74 patients, 11 women and 63 men. Since their last consultation visit at the ITM, 48 patients consulted their general practitioner (GP), 35 patients consulted a specialist and 7 went to the emergency department over a period of 6 months. Forty-nine patients (66%) had done a faecal occult blood test and 8 women (73% of female patients) had a screening mammography in the past 2 years, 8 women (73% of female patients) had a PAP smear in the past 3 years. Sixty-three participants (85%) declared that their vaccinations were up-to-date. Thirty-eight patients (51%) take antihypertensive medication, 35 patients (47%) cholesterol medication and 9 participants (12%) are on oral antihyperglycemic medication. Conclusions A large proportion of patients are seeking healthcare from their GP and specialists, other than the HIV specialist. They do so both for curative and preventive health needs. This calls for a more structured collaboration between the various care providers, whereby communication plays a pivotal role.


Background: Anal high-grade dysplasia (HSIL) ablation may reduce the incidence of invasive cancer, but few data exist on HSIL treatment efficacy and natural regression without treatment. Methods: An open-label, randomized, multi-site clinical trial of HIV-infected adults age 27 or older with 1-3 biopsy-proven anal HSIL (index HSIL) without prior history of HSIL treatment with infrared coagulation. Participants were randomized 1:1 to ablation of anal HSIL with infrared coagulation (treatment group) or no HSIL treatment (active monitoring). Participants were followed every three months with high-resolution anoscopy. Treatment group participants underwent anal biopsies of suspected new or recurrent HSIL. Active monitoring arm participants only underwent biopsies at month 12. The primary endpoint was complete clearance of index HSIL at Month 12. Results: We randomized 120 participants. Complete index HSIL clearance occurred more frequently in the treatment group as compared to active monitoring group (62% vs. 30%; risk difference, 32%; 95% CI, 13%-48%; P<0.001). Complete or partial clearance (complete clearance of >/=1 index HSIL) occurred more commonly in the treatment group (82% vs. 47%; risk difference, 35%; 95% CI, 16%-50%; P<0.001). Having a single index lesion was significantly associated with complete clearance as compared to having 2-3 index lesions (RR, 1.96; 95% CI, 1.22-3.10). The most common adverse events related to treatment were mild or moderate anal pain and bleeding. No serious adverse events were deemed related to treatment or study participation. Conclusion: Infrared coagulation ablation of anal HSIL results in more clearance of HSIL compared to observation alone.

OBJECTIVE: People living with HIV (PLWH) are living longer and developing comorbidities and aging-related syndromes. New care models are needed to address the combined burden and complexity of HIV and its comorbidities in this group. The goal of this study is to describe qualitative data from patients and providers that informed the development of a comprehensive care model for older PLWH.

METHODS: Patient and provider perspectives on the clinical care and service needs of patients living and aging with HIV were explored via surveys and focus groups at a safety net HIV clinic in San Francisco. We surveyed 77 patients and 26 providers and conducted separate focus groups of older patients living with HIV (n = 31) and staff (n = 20). Transcripts were analyzed using thematic analysis. Themes for a care program were additionally explored using findings from the literature on HIV and aging.

FINDINGS: Themes from surveys and focus groups emphasized (a) the need for knowledge expertise in HIV and aging, (b) focus on medical conditions and determinants of health of particular import (e.g. marginal housing) among older PLWH, (c) co-locating specialty services (e.g. cardiology, geriatrics) with primary care, and (d) addressing social isolation. Findings informed the design of a comprehensive, multidisciplinary care model for PLWH called the Golden Compass program composed of four "points": Heart and Mind (North), Bones and Strength (East), Network and Navigation (South), and Dental, Hearing, and Vision (West).

CONCLUSION: Based on patient and clinic staff perspectives from surveys and focus groups, we designed a multidisciplinary program of integrated primary and specialty care, as well as housing and social support, to address the needs of older PLWH within a safety-net infrastructure. Golden Compass launched in 2017 for PLWH older than 50 years. Future research to evaluate the effectiveness of this care program in improving patient outcomes and satisfaction is ongoing.


In HIV-infected patients, combined antiretroviral therapy (cART) is associated to adipose tissue redistribution known as lipodystrophy and associated cardiometabolic risk. This study aimed to evaluate the evolution of body composition in HIV-infected patients, with and without lipodystrophy, over 2 yr. We evaluated anthropometric parameters and body composition by whole-body dual-energy X-ray absorptiometry in 144 HIV-infected patients on cART. We defined lipodystrophy by fat mass ratio. Lipodystrophy was present in 45.77% of the patients. These patients presented higher HIV infection duration, cART duration, and CD4+ cell count, with no differences regarding gender, age, body mass index, and viral load. Patients with lipodystrophy showed an increase in total fat mass (9.9%) and upper-limbs fat mass (17.6%), with a decrease in total, trunk, and lower-limbs fat-free mass (2.2%; 2.2%, and 3.9%, respectively), over 2 yr. In patients without lipodystrophy, the trunk fat-free mass decreased 1.9% over time, and no changes were observed in the other studied parameters. In patients with lipodystrophy, there was predominantly a central fat mass gain, with no changes in lower limbs, suggesting that peripheral adipocytes lose their regenerative capacity.

Groen, K. and S. E. Geerlings (2018). "[HIV positive patients visit an increasing number of physicians]." Ned Tijdschr Geneeskd 162.

The population of people living with HIV is ageing. As a result, an increasing proportion of people on combination antiretroviral therapy will experience comorbidities and polypharmacy, with the risk of drug-drug interactions. These comorbidities will also be treated by physicians who are not specialised in HIV. Moreover, early diagnosis and treatment improve the prognosis of HIV infection, but 11% of the people living with HIV are currently undiagnosed. Therefore, physicians should be alert to the possibility of HIV also with regard to older adults. Since risk
assessment may be challenging, testing for HIV upon diagnosis of an indicator condition could prove a useful strategy to enhance earlier diagnosis for all physicians.


OBJECTIVE: To assess periodontitis prevalence and severity in HIV-infected patients as compared to controls. Furthermore, to assess whether HIV infection characteristics are associated with periodontitis. DESIGN: cross-sectional controlled study. METHODS: We assessed prevalence and severity of periodontitis in 258 HIV-infected patients and 539 historical controls with the Dutch Periodontal Screening Index (DPSI). HIV characteristics were collected from medical charts. Age-related diseases and oral care were assessed with questionnaires. RESULTS: Severe periodontitis (DPSI 4) was more prevalent in HIV-infected patients than in controls (66% vs. 36%, p=0.002). HIV-infection, increasing age and male sex were significant risk factors for severe periodontitis. In particular, older male HIV patients have a higher risk of severe periodontitis. Clinical, immunological and virologic characteristics, and antiretroviral therapy were not associated with periodontitis prevalence or severity. HIV-infected patients rate the importance of their oral health as high, although many do not disclose their HIV infection to their dentists. CONCLUSIONS: Prevalence and severity of periodontitis are higher in HIV-infected patients compared to controls, particularly in older males. Awareness of the increased prevalence of periodontitis associated with HIV-infection among patients and health-care professionals could significantly improve oral health and quality of life of HIV-infected patients.


BACKGROUND: Geriatric Patients Living with HIV/AIDS (GEPO) is a new prospective observational multicentre cohort consisting of all the HIV-positive geriatric patients being treated at 10 clinics in Italy, and HIV-negative controls attending a single geriatric clinic. The aim of this analysis of the GEPO cohort was to compare prevalence and risk factors of individual non-communicable diseases (NCD), multi-morbidity (MM) and polypharmacy (PP) amongst HIV positive and HIV negative controls at enrolment into the GEPO cohort. METHODS: This cross-sectional study was conducted between June 2015 and May 2016. The duration of HIV infection was subdivided into three intervals: < 10, 10-20 and > 20 years. The NCD diagnoses were based on guidelines defined criteria, including cardiovascular disease, hypertension, type 2 diabetes, chronic kidney disease, dyslipidaemia, chronic obstructive pulmonary disease. MM was classified as the presence of two or more co-morbidities. The medications prescribed for the treatment of comorbidities were collected in both HIV positive and HIV negative group from patient files and were categorized using the Anatomical Therapeutic Chemical (ATC) classification. PP was defined as the presence of five or more drug components other than anti-retroviral agents. RESULTS: The study involved a total of 1573 patient: 1258 HIV positive and 315 HIV negative). The prevalence of individual comorbidities was similar in the two groups with the exception of dyslipidaemia, which was more frequent in the HIV-positive patients (p < 0.01). When the HIV-positive group was stratified based on the duration of HIV infection, most of the co-morbidities were significantly more frequent than in control patients, except for hypertension and cardiovascular disease, while COPD was more prevalent in the control group. MM and PP were both more prevalent in the HIV-positive group, respectively 64% and 37%. CONCLUSIONS: MM and PP burden in geriatric HIV positive patients are related to longer duration of HIV-infection rather than older age per se.

INTRODUCTION: Owing to more effective and less toxic antiretroviral therapy (ART), people living with HIV (PLWH) live longer, a phenomenon expected to grow in the next decades. With advancing age, effectively treated PLWH experience not only a heightened risk for non-infective comorbidities and multimorbidity, but also for geriatric syndromes and frailty. In addition, older adults living with HIV (OALWH) have a higher prevalence of so-called iatrogenic triad described as polypharmacy (PP), potentially inappropriate medication use, and drug-drug interactions. Areas covered: This review will focus the management of ART in OALWH. We will discuss iatrogenic triad and best way to address PP. Special focus will be given to pharmacokinetic and pharmacodynamic aspects of ART in the elderly, evaluation of ART toxicities, and specific ART strategies commonly used in this population. Expert commentary: Research should be focused on recruiting more OALWH, frail individuals in particular, into the clinical trials and specific geriatric outcome need to be considered together with traditional viroimmunological outcomes.


OBJECTIVES: The aim of the study was to characterize contemporary patterns and correlates of testosterone therapy (TTh) use and discontinuation by HIV serostatus among men in the Multicenter AIDS Cohort Study (MACS).

METHODS: Self-reported testosterone use data were collected semiannually from 2400 (1286 HIV-infected and 1114 HIV-uninfected) men who have sex with men. Multivariable Poisson regression was used to estimate prevalence ratios for TTh use and predictors of TTh discontinuation (2012-2015). RESULTS: Use was higher among HIV-infected compared with HIV-uninfected men in all age strata, with an age-adjusted prevalence of 17% vs. 5%, respectively (adjusted prevalence ratio 3.7; P < 0.001). Correlates of use in the multivariable model were similar by HIV serostatus: white race, the Los Angeles (LA) site, more than one recent sexual partner, non-smoking status, and higher American Heart Association/American College of Cardiology (AHA/ACC) cardiovascular disease (CVD) risk score category (approximately 70% of testosterone users were in the high-risk category). Compared with HIV-uninfected men, HIV-infected men more frequently reported building muscle mass as a motivation for testosterone use. The TTh discontinuation rate was 20.9/100 person-years [95% confidence interval (CI) 17.3, 25.0/100 person-years]. Relative to HIV-uninfected men, HIV-infected men were half as likely to discontinue (adjusted incidence rate ratio 0.4; P < 0.001). Discontinuation was 40% higher in the period after the US Food and Drug Administration (FDA) safety communication for testosterone in 2014, independent of co-factors (P = 0.06). CONCLUSIONS: Given the high prevalence of both TTh use and CVD risk among HIV-infected men, the benefits and risks of TTh should be examined in future studies of aging HIV-infected men and monitored routinely in clinical practice.


As part of a mixed methods study determining end-of-life and advanced care planning needs in southern Appalachia, a narrative analysis was done of stories told in interviews of 8 selected participants using transcript data. Narratives were fraught with contradiction and paradox. Tensions were evident about living in Appalachia, the Bible Belt, and an area wherein distances are long and community rejection can occur as news travels quickly. The primary finding was that stigma, from several sources, and shrinking circles of social support for people living with HIV/AIDS, all of whom were in treatment, combined to create a sense of solitariness. Narratives were fraught with tensions, contradictions, and paradoxes. Living in Appalachia, the Bible Belt, and an area wherein distances are long and community rejection can occur as news travels quickly. The rejection-based religiously based stigma was often predicated on stereotypes about sexual behavior and illicit drug use. Diagnosis was a key turning point after which many spiraled downward financially and socially. Implications for research and advanced care planning are included.

OBJECTIVE: Major depressive disorder is associated with an increased risk of mortality and aging-related diseases. The authors examined whether major depression is associated with higher epigenetic aging in blood as measured by DNA methylation (DNAm) patterns, whether clinical characteristics of major depression have a further impact on these patterns, and whether the findings replicate in brain tissue. METHOD: DNAm age was estimated using all methylation sites in blood of 811 depressed patients and 319 control subjects with no lifetime psychiatric disorders and low depressive symptoms from the Netherlands Study of Depression and Anxiety. The residuals of the DNAm age estimates regressed on chronological age were calculated to indicate epigenetic aging. Major depression diagnosis and clinical characteristics were assessed with questionnaires and psychiatric interviews. Analyses were adjusted for sociodemographic characteristics, lifestyle, and health status. Postmortem brain samples of 74 depressed patients and 64 control subjects were used for replication. Pathway enrichment analysis was conducted using ConsensusPathDB to gain insight into the biological processes underlying epigenetic aging in blood and brain. RESULTS: Significantly higher epigenetic aging was observed in patients with major depression compared with control subjects (Cohen's d=0.18), with a significant dose effect with increasing symptom severity in the overall sample. In the depression group, epigenetic aging was positively and significantly associated with childhood trauma score. The case-control difference was replicated in an independent data set of postmortem brain samples. The top significantly enriched Gene Ontology terms included neuronal processes. CONCLUSIONS: As compared with control subjects, patients with major depression exhibited higher epigenetic aging in blood and brain tissue, suggesting that they are biologically older than their corresponding chronological age. This effect was even more profound in the presence of childhood trauma.


Although antiretroviral therapy has reduced mortality among people with HIV, inadequate treatment coverage, ageing, and the increasing incidence of organ failure and malignancies mean that high-quality care should include care at the end of life. This Review summarises the epidemiology of HIV in relation to mortality, and the symptoms and concerns of people with AIDS and those living with HIV who have either related or unrelated advanced comorbidities. In response to the evidence of a need for palliative care, the principles and practice of palliative care are described, and the evidence for its effectiveness and cost-effectiveness is appraised. The core practices of palliative care offer a mechanism to enhance the person-centred nature of HIV care; I identify the gaps in this type of care, and present evidence for effective models of care to address these. I detail the policies that prompt governments and health systems to respond to the palliative care needs of their population. Finally, I conclude this Review with evidence-based recommendations to improve the delivery of, and access to, high-quality HIV care until the end of life, reducing unnecessary suffering while optimising person-centred outcomes.


BACKGROUND: Despite historically high rates of herpes zoster among people living with HIV (PLWH), comparative studies of herpes zoster by HIV serostatus are lacking since the advent of combination antiretroviral therapy and availability of zoster vaccine. METHODS: Annual rates (2002-2015) of first-episode herpes zoster and zoster vaccination were calculated for PLWH and uninfected adults in the Veterans Aging Cohort Study and stratified by HIV serostatus and age. Herpes zoster was captured using ICD9 codes and vaccine receipt with procedural codes and pharmacy data. RESULTS: Of 45,177 PLWH and 103,040 uninfected veterans, rates of herpes zoster decreased among PLWH (17.6-8.1/1000) over the study period but remained higher than uninfected adults (4.1/1000) at the end of study period. Rates were higher in PLWH with lower CD4 (<200 vs >500 cells/microL: 18.0 vs 6.8/1000) and unsuppressed vs suppressed HIV-1 RNA (21.8 vs 7.1/1000). Restricted to virologically suppressed participants with CD4 >350 cells per microliter, herpes zoster rates were similar among PLWH aged younger than 60 years and aged 60 years and older in 2015 (6.6 vs 6.7/1000) but higher than all uninfected age groups. At study end, cumulative receipt of zoster vaccine for PLWH aged 60 years and older was less than half that of uninfected veterans: 98.7 vs 215.2/1000. CONCLUSIONS: Herpes zoster rates among PLWH have markedly decreased, but, even in cART-treated individuals, remain 50% higher than uninfected adults. Lower rates of zoster vaccine receipt combined with high rates of herpes zoster support the need for a safe and effective vaccine against herpes zoster for PLWH, formal zoster vaccine guidelines for PLWH, and consideration for expanded use at younger ages.


The implementation of highly active antiretroviral therapy has increased the life expectancy of people living with human immunodeficiency virus (HIV), thus reducing the number of deaths from acquired immune deficiency syndrome. Nowadays life expectancy of HIV(+) patients is comparable to those who are not infected. However, due to the use of antiretroviral therapy and the persistent immune activation and inflammation caused by HIV, other negative events may occur including dyslipidaemias, cardiovascular disorders, chronic kidney disease, early ageing, and neurocognitive impairment. It also increases the risk of developing metabolic syndrome and becomes a risk factor for cardiovascular disease: e.g. hypertension, brain stroke, and heart infarct. Comprehensive care of HIV patients with disturbed lipid profile includes lifestyle modifications such as dietary changes along with smoking cessation and has a beneficial effect on the lipid profile (total cholesterol, LDL, HDL, triglyceride levels). Therefore, it can reduce the risk of cardiovascular disease, allows the patients to avoid additional pharmacotherapy, and can eliminate drug-drug interactions with antiretroviral drugs. There are a lot of data showing that early dietary intervention and consistent diet control have a beneficial effect on lipid disorders in HIV-infected patients. Clinicians should be aware of it. In view of the benefits that can be gained by people living with HIV from dietary intervention, it is appropriate to include dieticians in a panel of specialists who take care of HIV(+) patients. [ABSTRACT FROM AUTHOR]


Background and purpose — While development in hip fracture incidence and mortality is well examined, none has yet looked at the temporal trends regarding prevalence of co-morbidities. Therefore we investigated changes in incidence of first hip fracture, co-morbidity prevalence, 30 day- and 1-year mortality in hip fracture patients in the Danish population during the period 1999 to 2012. Patients and methods — Patients >18 years admitted with a fractured hip in Denmark between 1996 and 2012 were identified with data for the period 1999-2012 being analyzed.
regarding prevalence of co-morbidities, incidence, and mortality. Results — 122,923 patients were identified. Incidence in the whole population declined but sex-specific analysis showed no changes for men. For the whole study population, 30-day and 1-year mortality remained unchanged. Age at time of first hip fracture also remained unchanged. Of the included co-morbidities a decrease in prevalence of malignancy and dementia in women was found while there was an increase in the prevalence of all remaining co-morbidities, except hemi- or paraplegia for both sexes, rheumatic diseases for women, and for men diabetes with complications, myocardial infarction, AIDS/HIV, and malignancy. Interpretation — While hip fracture incidence declined for women it was unchanged for men; likewise, 30-day and 1-year mortality rates together with age at first fracture remained unchanged. When these results are compared with the relatively large increase in the prevalence of co-morbidities, it does not seem likely that the increased disease burden is affecting either the incidence or the mortality.


People living with human immunodeficiency virus (HIV) infection typically have hypovitaminosis D, which is linked to a large number of pathologies, including immune disorders and infectious diseases. Vitamin D (VitD) is a key regulator of host defense against infections by activating genes and pathways that enhance innate and adaptive immunity. VitD mediates its biological effects by binding to the Vitamin D receptor (VDR), and activating and regulating multiple cellular pathways. Single nucleotide polymorphisms in genes from those pathways have been associated with protection from HIV-1 infection. High levels of VitD and VDR expression are also associated with natural resistance to HIV-1 infection. Conversely, VitD deficiency is linked to more inflammation and immune activation, low peripheral blood CD4+ T-cells, faster progression of HIV disease, and shorter survival time in HIV-infected patients. VitD supplementation and restoration to normal values in HIV-infected patients may improve immunologic recovery during combination antiretroviral therapy, reduce levels of inflammation and immune activation, and increase immunity against pathogens. Additionally, VitD may protect against the development of immune reconstitution inflammatory syndrome events, pulmonary tuberculosis, and mortality among HIV-infected patients. In summary, this review suggests that VitD deficiency may contribute to the pathogenesis of HIV infection. Also, VitD supplementation seems to reverse some alterations of the immune system, supporting the use of VitD supplementation as prophylaxis, especially in individuals with more severe VitD deficiency. [ABSTRACT FROM AUTHOR]


Background: HIV-positive individuals (HIV+) on antiretrovirals commonly take enough other medications to cross a threshold for polypharmacy but little is known about associated outcomes. We asked whether non-antiretroviral polypharmacy is associated with hospitalization and mortality and whether associations differ by HIV status. Methods: Data on HIV+ and uninfected individuals in the US Veterans Affairs Healthcare System were analyzed. Eligible HIV+ were on antiretrovirals with suppressed HIV-1 RNA and uninfected individuals received at least one medication. We calculated average non-antiretroviral medication count for fiscal year 2009. As there is no established threshold for non-antiretroviral polypharmacy, we considered more than two and at least five medications. We followed for hospitalization and mortality (fiscal year 2010-2015), adjusting for age, sex, race/ethnicity and VACS Index. Results: Among 9473 HIV+ and 39 812 uninfected individuals respectively, non-antiretroviral polypharmacy was common (>2: 67,
VACS Index discriminated risk of hospitalization (c-statistic: 0.62, 0.60) and mortality (c-statistic: 0.72, 0.70) similarly in both groups. After adjustment, more than two (hazard ratio 1.51, 95% CI 1.46-1.55) and at least five non-antiretrovirals (hazard ratio 1.52, 95% CI 1.49-1.56) were associated with hospitalization with no interaction by HIV status. Risk of mortality associated with more than two non-antiretrovirals interacted with HIV status (P = 0.002), but not for at least five (adjusted hazard ratio 1.43, 95% CI 1.36-1.50). For both groups and both outcomes, average medication count demonstrated an independent, dose response, association. Conclusion: Neither severity of illness nor demographics explain a dose response, association of non-antiretroviral polypharmacy with adverse health outcomes among HIV+ and uninfected individuals. Copyright (C) 2018 The Author(s). Published by Wolters Kluwer Health, Inc.


Background: Care and viral suppression national goals for HIV infection are not being met for many at-risk groups. Assessment of the trends in national outcomes for linkage to care, receipt of care, and viral suppression among these groups is necessary to reduce transmission. Methods: Data reported to the National HIV Surveillance System by December 2016 were used to identify cases of HIV infection among persons aged 13 years and older in one of 17 identified jurisdictions with complete laboratory reporting. We estimated national trends in HIV-related linkage to care, receipt of care and viral suppression using estimated annual percent change from 2012-2015 for various characteristics of interest, overall and stratified by sex and race/ethnicity. Results: Overall, trends in linkage to and receipt of care and viral suppression increased from 2012-2015. Generally, linkage to and receipt of care increased among young black and Hispanic/Latino males, those with infection attributed to male-to-male sexual contact, and those not in stage 3 [AIDS] at HIV diagnosis. All sub-groups showed improvement in viral suppression. Within years, there remains a substantial disparity in receipt of care and viral suppression among racial/ethnic groups. Conclusion: While trends are encouraging, scientifically proven prevention programs targeted to high-risk populations are the foundation for stopping transmission of HIV infection. Frequent testing to support early diagnosis and prompt linkage to medical care, particularly among young men who have male to male sexual contact, black and Hispanic/Latino populations, are key to reducing transmission at all stages of disease.


We examined the incidence of herpes zoster (HZ) before and after the initiation of antiretroviral therapy (ART), and risk factors for HZ among human immunodeficiency virus (HIV)-infected individuals in Tanzania. A cohort study was conducted among HIV-positive individuals enrolled in HIV care and treatment clinics in Dar es Salaam, Tanzania. A Cox proportional hazard model was used to examine the effect of ART on the risk of HZ after adjusting for sociodemographics and time-varying clinical and nutritional factors. Among 72,670 HIV-positive individuals, 2,312 incident cases of HZ (3.2%) occurred during the median follow-up of 15 months (interquartile range: 3-35). The incidence rate of HZ significantly declined from 48.9 (95% confidence interval [CI] = 46.7-51.0) per 1,000 person-years before ART to 3.7 (95% CI = 3.3-4.1) per 1,000 person-years after the initiation of ART (P < 0.001). The risk of HZ declined with longer duration on ART. Low CD4 cell count, older age, female sex, district of Dar es Salaam, and year of enrollment were independently associated with the risk of HZ in the multivariate analysis. Low body mass index and anemia were not associated with the risk of HZ. The risk of HZ substantially declined after ART initiation in this large cohort of HIV-infected individuals. Earlier initiation of ART could reduce the risk of HZ and other opportunistic infections among HIV-infected individuals in sub-Saharan Africa.
HIV treatment in Canada has rapidly progressed with the advent of new drug therapies and approaches to care. With this evolution, there is increasing interest in Canada in understanding the current delivery of HIV care, specifically where care is delivered, how, and by whom, to inform the design of care models required to meet the evolving needs of the population. We conducted a cross-sectional survey of Canadian care settings identified as delivering HIV care between June 2015 and January 2016. Given known potential differences in delivery approaches, we stratified settings as primary care or specialist settings, and described their structure, geographic location, populations served, health human resources, technological resources, and available clinical services. We received responses from 22 of 43 contacted care settings located in seven Canadian provinces (51.2% response rate). The total number of patients and HIV patients served by the participating settings was 38,060 and 17,678, respectively (mean number of HIV patients in primary care settings = 1,005, mean number of HIV patients in specialist care settings = 562). Settings were urban for 20 of the 22 (90.9%) clinics and 14 (63.6%) were entirely HIV focused. Primary care settings were more likely to offer preventative services (e.g., cervical smear, needle exchange, IUD insertion, chronic disease self-management program) than specialist settings. The study illustrates diversity in Canadian HIV care settings. All settings were team based, but primary care settings offered a broader range of preventative services and comprehensive access to mental health services, including addictions and peer support.


Timely presentation to care for people newly diagnosed with HIV is critical to optimize health outcomes and reduce onward HIV transmission. Studies describing presentation to care following diagnosis during a hospital admission are lacking. We sought to assess the timeliness of presentation to care and to identify factors associated with delayed presentation. We conducted a population-level study using health administrative databases. Participants were all individuals older than 16 and newly diagnosed with HIV during hospital admission in Ontario, Canada, between April 1, 2007 and March 31, 2015. We used modified Poisson regression models to derive relative risk ratios for the association between sociodemographic and clinical variables and the presentation to out-patient HIV care by 90 days following hospital discharge. Among 372 patients who received a primary HIV diagnosis in hospital, 83.6% presented to care by 90 days. Following multivariable analysis, we did not find associations between patient sociodemographic or clinical characteristics and presentation to care by 90 days. In a secondary analysis of 483 patients diagnosed during hospitalization but for whom HIV was not recorded as the principal reason for admission, 73.1% presented to care by 90 days. Following multivariable adjustment, we found immigrants from countries with generalized HIV epidemics (RR 1.265, 95% CI 1.133-1.413) were more likely to present to care, whereas timely presentation was less likely for people with a mental health diagnosis (RR 0.817, 95% CI 0.742-0.898) and women (RR 0.748, 95% CI 0.559-1.001). Future work should evaluate mechanisms to facilitate presentation to care among these populations.


To the extent we can even refer to an American healthcare "system," it functions brilliantly ... to make money. The system is designed to reward executives or major shareholders of pharmaceutical & health insurance companies, healthcare facilities, and related entities. With a rapidly aging population, healthcare will soon surpass a fifth of our economy. Of course, the American healthcare system does not function brilliantly when one considers the perspective of patients and over-extended primary care providers. Prices are growing faster than inflation or wages, healthcare is
twice as costly as other comparable nations, and one third is a result of waste, fraud, and abuse. One could argue that good health is incidental and often an unexpected (but welcome!) outcome of the system given trailing national health indicators, disparities, millions of uninsured and underinsured persons, and that medical errors are our nation's third leading cause of death. This current healthcare model is unsustainable and undergoing profound change, irrespective of the American Health Care Act (AHCA) and White House budgetary cuts for health and science research. Changes in payment models, technology, wellness, public health approaches, and data availability have the potential to meaningfully address social determinants of health and encourage an embrace of a new holistic approach. However, implementing this change will be "complicated," as it will entail a profound reordering of economic, policy, and legal priorities to place the interests of individual and public health first. [ABSTRACT FROM AUTHOR]


Although people with HIV infection (PLWH) are at higher risk of polypharmacy and substance use, there is limited knowledge about potential harms associated with polypharmacy such as falls and fractures in this population. The study objective was to determine whether polypharmacy, as measured by the number and type of medication, is associated with falls and fractures among PLWH and DSM-IV substance dependence in the past year or ever injection drug use (IDU). We identified the number of medications by electronic medical record review in the following categories: (i) systemically active, (ii) non-antiretroviral (non-ARV), (iii) sedating, (iv) non-sedating as well as any opioid medication and any non-opioid sedating medication. Outcomes were self-reported (1) fall/accident requiring medical attention and (2) fracture in the previous year. Separate logistic regression models were fitted for medications in each category and each outcome. Among 250 participants, the odds of a fall requiring medical attention were higher with each additional medication overall (odds ratio [OR] 1.12, 95% Confidence Interval [CI] = 1.05, 1.18), each additional non-ARV medication (OR 1.13, 95%CI = 1.06, 1.20), each additional sedating medication (OR 1.36, 95%CI = 1.14, 1.62), and a non-opioid sedating medication (OR 2.89, 95%CI = 1.06, 7.85) but not with an additional non-sedating medication or opioid medication. In receiver operating characteristic (ROC) curve analyses, optimal cutoffs for predicting falls were: >/=8 overall and >/=2 sedating medications. Odds ratios for fracture in the previous year were OR 1.05, 95%CI = 0.97, 1.13 for each additional medication overall and OR 1.11, 95%CI = 0.89, 1.38 for each additional sedating medication. In PLWH and substance dependence or ever IDU, a higher number of medications was associated with greater odds of having a fall requiring medical attention. The association appeared to be driven largely by sedating medications. Future studies should determine if reducing such polypharmacy, particularly sedating medications, lowers the risk of falls.


Models of care for people living with HIV (PLWH) have varied over time due to long term survival, development of HIV-associated non-AIDS conditions, and HIV specific primary care guidelines that differ from those of the general population. The objectives of this study are to assess how often infectious disease (ID) physicians provide primary care for PLWH, assess their practice patterns and barriers in the provision of primary care. We used a 6-item survey electronically distributed to ID physician members of Emerging Infections Network (EIN). Of the 1248 active EIN members, 644 (52%) responded to the survey. Among the 644 respondents, 431 (67%) treated PLWH. Of these 431 responders, 326 (75%) acted as their primary care physicians. Responders who reported always/mostly performing a screening assessment as recommended per guidelines were: (1) Screening specific to HIV (tuberculosis 95%, genital chlamydia/gonorrhoea 77%, hepatitis C 67%, extra genital chlamydia/gonorrhoea 47%, baseline anal PAP smear for women 36% and men 34%); (2) Primary care related screening (fasting lipids 95%, colonoscopy 95%, mammogram 90%,
cervical PAP smears 88%, depression 57%, osteoporosis in postmenopausal women 55% and men >50 yrs 33%). Respondents who worked in university hospitals, had <5 years of ID experience, and those who cared for more PLWH were most likely to provide primary care to all or most of their patients. Common barriers reported include: refusal by patient (72%), non-adherence to HIV medications (43%), other health priorities (44%), time constraints during clinic visit (43%) and financial/insurance limitations (40%). Most ID physicians act as primary care providers for their HIV infected patients especially if they are recent ID graduates and work in university hospitals. Current screening rates are suboptimal. Interventions to increase screening practices and to decrease barriers are urgently needed to address the needs of the aging HIV population in the United States.


Background: Poor functional status can significantly affect Health-Related Quality of Life (HRQoL) of HIV patients. However, there is scarce information on the functional profile of such patients before starting antiretroviral therapy (ART). Objective: To estimate the association between health-related quality of life and physical functioning in Antiretroviral-Naive HIV-infected patients. Methods: We conducted a cross-sectional study with HIV-infected patients older than 18 years, and naive to antiretroviral therapy. The patients were evaluated for functional profile by pulmonary function (forced vital capacity, forced expiratory volume at one second, and Tiffeneau index), handgrip strength, and six-minute walk test in a cross-sectional study. HRQoL was evaluated by the 36-Item Short-Form Health Survey and its Physical (PCS) and Mental (MCS) Component Summaries. Multiple linear regression analyses were used to evaluate the association of predictor variables with PCS and MCS scores. Results: We found lower HRQoL among females patients, with far below average impairment of mental health component. Both male and female patients presented lower 6MWD function test values. Patients with dynapenia were older than patients without it, presented lower PCS mean score, lower family income, poor 6 MWD function test, lower FVC, and lower FEV1 t. Multivariable logistic regression analyses showed that Grip Strength, age and family income were predictor variables for Physical component of HRQoL. Female gender and smoking habit were predictive for the mental component of HRQoL. Conclusion: HRQoL in HIV, drug-naive patients is predicted by level of dynapenia, smoking, income and gender. Therefore, lifestyle changes and active exercising can help to improve HRQoL in such patients.


CONTEXT: No prospective studies address disease-specific Advance Care Planning (ACP) for adults living with HIV/AIDS. OBJECTIVE: To examine the efficacy of FFamily-CEntered (FACE) ACP in increasing advance care planning and
advance directive documentation in the medical record. METHODS: Longitudinal, two-arm, randomized controlled trial with intent-to-treat design recruited from 5 hospital-based outpatient HIV clinics in Washington, DC. Adults living with HIV and their surrogate decision makers (N=233 dyads) were randomized to either an intensive facilitated two-session FACE ACP (Next Steps: Respecting Choices goals of care conversation and Five Wishes advance directive) or Healthy Living Control (conversations about developmental/relationship history and nutrition). RESULTS: Patients (n=223) mean age: 51 years, 56% male, 86% African-American. One hundred ninety-nine dyads participated in the intervention. At baseline, only 13% of patients had an advance directive. Three months post-intervention, this increased to 59% for the FACE ACP group versus 17% in the control group (p<0.0001). Controlling for race, the odds of having an advance directive in the medical record in the FACE ACP group was approximately 7 times greater than controls (Adjusted Odds Ratio=6.58, 95% C.I: 3.21-13.51, p<0.0001). Among African-Americans randomized to FACE, 58% had completed/documented advance directives versus 20% of controls (p<0.0001). CONCLUSIONS: The FACE ACP intervention significantly improved ACP completion and advance directive documentation in the medical record among both African-American and non-African-American adults living with HIV in Washington, D.C., providing health equity in ACP which can inform best practices.


Immunosenescence is characterized by deterioration of the immune system caused by aging which induces changes to innate and adaptive immunity. Immunosenescence affects function and phenotype of immune cells, such as expression and function of receptors for immune cells which contributes to loss of immune function (chemotaxis, intracellular killing). Moreover, these alterations decrease the response to pathogens, which leads to several age-related diseases including cardiovascular disease, Alzheimer’s disease, and diabetes in older individuals. Furthermore, increased risk of autoimmune disease and chronic infection is increased with an aging immune system, which is characterized by a pro-inflammatory environment, ultimately leading to accelerated biological aging. During the last century, sedentarism rose dramatically, with a concomitant increase in certain type of cancers (such as breast cancer, colon, or prostate cancer), and autoimmune disease. Numerous studies on physical activity and immunity, with focus on special populations (i.e., people with diabetes, HIV patients) demonstrate that chronic exercise enhances immunity. However, the majority of previous work has focused on either a pathological population or healthy young adults whilst research in elderly populations is scarce. Research conducted to date has primarily focused on aerobic and resistance exercise training and its effect on immunity. This review focuses on the potential for exercise training to affect the aging immune system. The concept is that some lifestyle strategies such as high-intensity exercise training may prevent disease through the attenuation of immunosenescence. In this context, we take a top-down approach and review the effect of exercise and training on immunological parameters in elderly at rest and during exercise in humans, and how they respond to different modes of training. We highlight the impact of these different exercise modes on immunological parameters, such as cytokine and lymphocyte concentration in elderly individuals.


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.


BACKGROUND: HIV-infected patients are at a higher risk to develop malignancies than general population. Although AIDS-related malignancies are a common feature of late-stage disease, patients under successful antiretroviral therapy also have an increased risk for development of non-AIDS malignancies. OBJECTIVE: To compare the frequency and characteristics of adults HIV-infected patients and general population who died of malignancies in Bahia, Brazil from January 2000 to December 2010. METHODS: National Information System on Mortality (SIM) was searched to identify all deaths in the study period caused by malignancies in general population and in HIV patients. The frequency of malignancies in these two groups was compared. For HIV patients we also recorded the last HIV RNA plasma viral load and CD4+ cells count, retrieved from official databases on laboratory monitoring for HIV patients. RESULTS: In the study period 733,645 deaths were reported, 677,427 (92.3%) of them in individual older than 13 years. Malignancies were the cause of death in 77,174 (11.4%) of them, and 5156 (0.8%) were associated to HIV/Aids. Among deaths of HIV/Aids patients, Kaposi’s sarcoma was the most prevalent malignancy (OR: 309.7; 95% CI: 177-544), followed by non-Hodgkin lymphoma (OR: 10.1; 95% CI: 5.3-19.3), Hodgkin’s lymphoma (OR: 4.3; 95% CI: 2.2-8.4), and cranial nervous malignancies (OR: 3.3; 95% CI:1.6-7.0). HIV patients died at a significantly lower age (43.7 years), than general population (64.5 years, p<0.0001). Patients who had a diagnosis of Aids-related malignancies had lower CD4+ cells count than those with non-AIDS relates malignancies (p=0.04). CONCLUSION: HIV infection is a clear risk factor for development of some malignancies, and is associated with early mortality, compared to general population. The level of CD4+ cells count predicts the type of malignancies causing death in this population.


Background Oral pre-exposure prophylaxis (PrEP) prevents HIV infection in men who have sex with men (MSM); however, adherence is an ongoing concern. Long-acting injectable PrEP is being tested in phase 3 trials and could address challenges associated with adherence. We examined the potential effectiveness of long-acting injectable PrEP compared with oral PrEP in MSM.

Methods We used an agent-based model to simulate HIV transmission in a dynamic network of 11 245 MSM in Atlanta, GA, USA. We used raw data from studies in macaque models and pharmacokinetic data from safety trials to estimate the time-varying efficacy of long-acting injectable PrEP. The effect of long-acting injectable PrEP on the cumulative number of new HIV infections over 10 years (2015–24) was compared with no PrEP and daily oral PrEP across a range of coverage levels. Sensitivity analyses were done with varying maximum efficacy and drug half-life values.

Findings In the absence of PrEP, the model predicted 2374 new HIV infections (95% simulation interval [SI] 2345–2412) between 2015 and 2024. The cumulative number of new HIV infections was reduced in all scenarios in which MSM received long-acting injectable PrEP compared with oral PrEP. At a coverage level of 35%, compared with no PrEP, long-acting injectable PrEP led to a 44% reduction in new HIV infections (1044 new infections averted [95% SI 1018–1077]) versus 33% (792 infections averted [763–821]) for oral PrEP. The relative benefit of long-acting injectable PrEP was sensitive to the assumed efficacy of injections received every 8 weeks, discontinuation rates, and terminal drug half-life.
Interpretation Long-acting injectable PrEP has the potential to produce larger reductions in HIV transmission in MSM than oral PrEP. However, the real-world, population-level impact of this approach will depend on uptake of this prevention method and its effectiveness, as well as retention of patients in clinical care.

Funding National Institute on Drug Abuse and National Institute of Mental Health.


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).


Peripheral neuropathy is a common condition of human immunodeficiency virus (HIV)-infected patients, which often remains undetected. We assessed the performance of stimulated skin wrinkling-eutectic mixture of local anesthetic (SSW-EMLA) test compared with brief peripheral neuropathy screening (BPNS) to detect HIV neuropathy. This is a cross-sectional study conducted in HIV-positive patients. A modified skin wrinkling grading was used to assess SSW-EMLA effect. BPNS-detectable neuropathy was assessed by a combination of neuropathy severity scoring scale (subjective) and objective method of sensory and tendon reflex examination. The SSW-EMLA test accuracy with reference to BPNS was assessed using sensitivity and specificity and predictive values. In a total of 99 HIV patients, 61.6% were males and the majority age group were between 30 and 40 years (52%). The neuropathy detection was SSW-EMLA test 36.4% versus BPNS 15.2% (P = .04). The sensitivity of SSW-EMLA test was 60.0% [95% confidence interval (95% CI) 34.5-81.7], specificity 67% (95% CI 63.3-71.7), and overall accuracy of 66.7% (95% CI 58.9-73.2). The SSW-EMLA test detected many more peripheral neuropathy cases than BPNS in HIV patients and has potential as an alternative test for screening for HIV neuropathy in resource-constraint hospitals in Indonesia.


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.

The article discusses the potential of host immune profiling to individualize goal-directed management of HIV and to transform research into HIV comorbidities and HIV cure.


BACKGROUND: Diagnosing HIV and/or TB is not sufficient; linkage to care and treatment is conditional to reduce the burden of disease. This study aimed to determine factors associated with linkage to HIV care and TB treatment at community-based services in Cape Town, South Africa. METHODS: This retrospective cohort study utilized routinely collected data from clients who utilized stand-alone (fixed site not attached to a health facility) and mobile HIV testing services in eight communities in the City of Cape Town Metropolitan district, between January 2008 and June 2012. Clients were included in the analysis if they were >/=12 years and had a known HIV status. Generalized estimating equations (GEE) logistic regression models were used to assess the association between determinants (sex, age, HIV testing service and co-infection status) and self-reported linkage to HIV care and/or TB treatment. RESULTS: Linkage to HIV care was 3 738/5 929 (63.1%). Linkage to HIV care was associated with the type of HIV testing service. Clients diagnosed with HIV at mobile services had a significantly reduced odds of linking to HIV care (aOR 0.7 (CI 95%: 0.6–0.8), p<0.001. Linkage to TB treatment was 210/275 (76.4%). Linkage to TB treatment was not associated with sex and service type, but was associated with age. Clients in older age groups were less likely to link to TB treatment compared to clients in the age group 12–24 years (all, p-value<0.05). CONCLUSION: A large proportion of clients diagnosed with HIV at mobile services did not link to care. Almost a quarter of clients diagnosed with TB did not link to treatment. Integrated community-based HIV and TB testing services are efficient in diagnosing HIV and TB, but strategies to improve linkage to care are required to control these epidemics.


BACKGROUND: Tobacco smoking is common in people living with HIV, but high-quality evidence on interventions for smoking cessation is not available in this population. We aimed to assess the efficacy and safety of varenicline with counselling to aid smoking cessation in people living with HIV. METHODS: The ANRS 144 Inter-ACTIV randomised, parallel, double-blind, multicentre, placebo-controlled phase 3 trial was done at 30 clinical hospital sites in France. People living with HIV who had smoked at least ten cigarettes per day for 1 year or longer, were motivated to stop smoking, were not dependent on another psychoactive substance, and had no history of depression or suicide attempt were eligible. Using a computer-generated randomisation sequence, we allocated (1:1) the patients to receive either varenicline titrated to two 0.5 mg doses twice daily or placebo twice daily for 12 weeks, plus face-to-face counselling. Patients and investigators were masked to treatment group allocation. Patients who were not abstinent at week 24 were offered open-label varenicline for 12 additional weeks. The primary outcome was the proportion of smokers continuously abstinent from week 9 to week 48. Smoking status was confirmed by carbon monoxide in exhaled air. Primary analyses were done in both the intention-to-treat (ITT) population and modified ITT (mITT) population,
which comprised all patients who took at least one tablet of their assigned study treatment. The safety analyses were done in the mITT population. The trial is registered at ClinicalTrials.gov, number NCT00918307. The trial status is complete. FINDINGS: From Oct 26, 2009, to Dec 20, 2012, of 303 patients assessed for eligibility, 248 patients were randomly assigned to the varenicline group (n=123) or the placebo group (n=125). After randomisation, one participant initially assigned to the placebo group was excluded from the ITT analysis for a regulatory reason (no French health-care coverage). 102 patients in the varenicline group and 111 patients in the placebo group received at least one dose of their assigned treatment and were included in the mITT analysis. In the ITT analysis, varenicline was associated with a higher proportion of patients achieving continuous abstinence over the study period (week 9-48): 18 (15%, 95% CI 8-21) of 123 in the varenicline group versus eight (6%, 2-11) of 124 in the placebo group, adjusted odds ratio (OR) 2.5 (95% CI 1.0-6.1; p=0.041). In the mITT analysis, varenicline was also associated with higher continuous abstinence: 18 (18%, 95% CI 10-25) of 102 versus eight (7%, 2-12) of 111 in the placebo group (adjusted OR 2.7, 95% CI 1.1-6.5; p=0.029). The incidence of depression was 2.4 per 100 person-years (95% CI 0.6-9.5; two [2%] of 102) in the varenicline group and 12.4 per 100 person-years (95% CI 6.9-22.5; 11 [10%] of 111) in the placebo group. 14 (7%) of 213 participants had 18 cardiovascular events: six (6%) of 102 people in the varenicline group and eight (7%) of 111 people in the placebo group. INTERPRETATION: Varenicline is safe and efficacious for smoking cessation in people living with HIV and should be recommended as the standard of care. FUNDING: The French National Institute for Health and Medical Research (INSERM)-French National Agency for Research on AIDS and Viral Hepatitis (ANRS) and Pfizer.


Falls are common among older people and a leading cause of injury-related hospitalisation. The immediate post-hospitalisation period is a risky time for further falls. This paper explores discharge strategies from the perspectives of older people hospitalised for a fall and liaison nurses assisting people to return home. Exploratory mixed methods were used. Semi-structured interviews with older people were conducted regarding their experience of the fall and discharge strategies. Quality of life, falls risk and functional capacity were measured by questionnaire. Liaison nurses were also interviewed. Interviews were audio-recorded, transcribed and thematically analysed. Mixed-method synthesis occurred using role-orderedmatrix analysis. Older people (n = 13) and liaison nurses (n = 6) participated. Older persons' quality of life was average and falls risk high. Thematic analysis revealed three key themes: 'falls are not a priority', 'information not given, or given and not retained' and 'reduction in confidence and independence'. Role-orderedmatrix analysis identified differences between acute and rehabilitative hospital stays. Older people hospitalised for a fall present a unique opportunity for implementation of falls prevention strategies. However, hospitalisation is often a time of crisis with competing priorities. Timing and relevance are crucial for optimal uptake of falls prevention strategies, with the primary care setting well-placed for their implementation. [ABSTRACT FROM AUTHOR]


BACKGROUND: Despite persistent calls for HIV care to adopt a chronic care approach, few HIV treatment services have been able to establish service arrangements that prioritise self-management. To prevent cardiovascular and other chronic disease outcomes, the HealthMap program aims to enhance routine HIV care with opportunities for self-management support. This paper outlines the systematic process that was used to design and develop the HealthMap program, prior to its evaluation in a cluster-randomised trial. METHODS: Program development, planning and evaluation was informed by the PRECEDE-PROCOEDE Model and an Intervention Mapping approach and involved four steps: (1) a multifaceted needs assessment; (2) the identification of intervention priorities; (3) exploration and
identification of the antecedents and reinforcing factors required to initiate and sustain desired change of risk behaviours; and finally (4) the development of intervention goals, strategies and methods and integrating them into a comprehensive description of the intervention components. RESULTS: The logic model incorporated the program's guiding principles, program elements, hypothesised causal processes, and intended program outcomes. Grounding the development of HealthMap on a clear conceptual base, informed by the research literature and stakeholder's perspectives, has ensured that the HealthMap program is targeted, relevant, provides transparency, and enables effective program evaluation. CONCLUSIONS: The use of a systematic process for intervention development facilitated the development of an intervention that is patient centred, accessible, and focuses on the key determinants of health-related outcomes for people with HIV in Australia. The techniques used here may offer a useful methodology for those involved in the development and implementation of complex interventions.


Introduction Numerous studies have evaluated auditory functions in human immunodeficiency virus (HIV) patients; however, these studies had a few major limitations in terms of methodology as they used mainly evoked audiometry although this method is expensive, time consuming and not widely available. Therefore, we conducted a study in naïve HIV subjects with routine audiometry. Objective To determine the effect of HIV and of the drugs used to treat it on the auditory functions. Methods A prospective observational study was conducted in a medical college with 25 naïve HIV-seropositive patients for over a year. Pure tone audiometry (250-8,000 Hz) and CD4 T-lymphocyte count were performed at the time of enrollment and 6 months after commencement of highly active antiretroviral treatment. Results The subjects had increased hearing thresholds at high frequencies (4 KHz and 8KHz) in both ears at the time of enrollment that persisted at the same level (p > 0.05) on follow-up at 6 months. None of the subjects had any other otological symptom during the 6 months of observation. Seven subjects had sensorineural hearing loss in one or both ears at 0 and 6 months. These observations did not show any significant difference on Wilcoxon-signed-rank test. Spearman correlation did not find a significant correlation (p > 0.05) between CD4 T-lymphocyte counts and pure tone audiometry during the study. Conclusion We found high-frequency hearing loss in all subjects with no relation with highly active antiretroviral therapy (HAART) and severity of the disease. This study advocates hearing assessment with pure tone audiometry in HIV subjects so that intervention can be initiated in a timely manner. [ABSTRACT FROM AUTHOR]


Early Acute Human Immunodeficiency Virus Infection (eAHI) diagnosis, via 4th generation testing methodology, presents an opportunity for earlier detection and immediate linkage to care for infected persons. We report on two patients with high-risk behaviors for HIV infection, presenting with atypical symptoms of eAHI in an urban Emergency Department (ED). This case report should raise the index of suspicion for HIV among ED physicians as well as underscore the importance of reducing HIV transmission through earlier detection. Universal screening of patients aged 13-64, incorporating new HIV diagnostic algorithms, is recommended by the Centers for Disease Control and Prevention (CDC). By employing the 4th generation HIV testing methodology, we can potentially diagnose HIV infection earlier compared
to older testing methodologies. Currently, 3rd generation HIV testing is used to detect the presence of HIV antibodies, generally through an enzyme-linked immunosorbent assay (ELISA). However, detection of HIV antibodies can take anywhere from 3 to 12 weeks, depending on the individual and testing modality used. This newer diagnostic paradigm enables earlier identification of newly infected individuals. Early HIV detection allows for linkage to care and the administration of effective treatment modalities shortly thereafter. As HIV transmission is highest during its initial acquisition, early detection and linkage to care has been shown to be an efficient method to decrease transmission through subsequent changes in behaviors of those infected.


Background Immediate initiation of antiretroviral therapy (ART) in asymptomatic adults with CD4 counts higher than 500 cells per μL, as recommended, might not always be possible in resource-limited settings. We aimed to identify subgroups of individuals who would benefit most from immediate treatment.

Methods The START trial was a randomised controlled trial in asymptomatic, HIV-positive adults previously untreated with ART. Participants with CD4 counts higher than 500 cells per μL were randomly assigned to receive immediate ART or to defer ART until CD4 counts were lower than 350 cells per μL. The primary endpoint of the study was serious AIDS-defining illnesses or death from AIDS and serious non-AIDS illnesses or non-AIDS-related death. In this post-hoc analysis, we estimated event rates and absolute risk reduction with immediate versus deferred ART, overall and by subgroup. Subgroups were prespecified in the study protocol or formed post hoc on the basis of baseline characteristics associated with morbidity and mortality in people with HIV. For continuous characteristics, approximate terciles were chosen as subgroup cutoff points, unless different cutoffs were clinically meaningful (e.g., age ≥50 years). We estimated the number needed to treat immediately with ART for 1 year to prevent one primary event. Heterogeneity in the absolute risk reduction between subgroups was assessed with bootstrap tests. The START trial is registered with ClinicalTrials.gov, number NCT00867048.

Findings Between April 15, 2009, and Dec 23, 2013, we enrolled 4684 participants from 35 countries across five continents, of whom 2325 were assigned to immediate ART and 2359 were assigned to deferred ART. The primary endpoint occurred in 42 participants in the immediate ART group (0·58 events per 100 person-years) and 100 participants in the deferred ART group (1·37 events per 100 person-years). The absolute risk reduction was 0·80 (95% CI 0·48–1·13) per 100 person-years with immediate treatment, and the number needed to treat immediately to prevent one event was 126 (95% CI 89–208). Significant heterogeneity in absolute risk reduction with immediate ART was found across subgroups according to age (p=0·0022), CD4 to CD8 ratio (p=0·0007), and plasma HIV RNA viral load (p=0·033) at baseline. The highest absolute risk reductions and the lowest numbers needed to treat were found in participants aged 50 years or older, those with CD4 to CD8 ratios of less than 0·5, and those with plasma HIV RNA viral loads of 50 000 copies per mL or higher.

Interpretation Asymptomatic, ART-naive adults with CD4 counts higher than 500 cells per μL who are older, have a low CD4 to CD8 ratio, or a high plasma HIV RNA viral load benefit most from immediate initiation of ART and should be prioritised for treatment.

Funding US National Institute of Allergy and Infectious Diseases.

BACKGROUND: Bictegravir, co-formulated with emtricitabine and tenofovir alafenamide, has shown good efficacy and tolerability, and similar bone, renal, and lipid profiles to dolutegravir, abacavir, and lamivudine, in treatment-naive adults with HIV-1 infection, without development of treatment-emergent resistance. Here, we report 48-week results of a phase 3 study investigating switching to bictegravir, emtricitabine, and tenofovir alafenamide from dolutegravir, abacavir, and lamivudine in virologically suppressed adults with HIV-1 infection.

METHODS: In this multicentre, randomised, double-blind, active-controlled, non-inferiority, phase 3 trial, HIV-1-infected adults were enrolled at 96 outpatient centres in nine countries. Eligible participants were aged 18 years or older and on a regimen of 50 mg dolutegravir, 600 mg abacavir, and 300 mg lamivudine (fixed-dose combination or multi-tablet regimen); had an estimated glomerular filtration rate of 50 mL/min or higher; and had been virologically suppressed (plasma HIV-1 RNA <50 copies per mL) for 3 months or more before screening. We randomly assigned participants (1:1), using a computer-generated randomisation sequence, to switch to co-formulated bictegravir (50 mg), emtricitabine (200 mg), and tenofovir alafenamide (25 mg; herein known as the bictegravir group), or to remain on dolutegravir, abacavir, and lamivudine (herein known as the dolutegravir group), once daily for 48 weeks. The investigators, participants, study staff, and individuals assessing outcomes were masked to treatment assignment. The primary endpoint was the proportion of participants with plasma HIV-1 RNA of 50 copies per mL or higher at week 48 (according to the US Food and Drug Administration snapshot algorithm); the prespecified non-inferiority margin was 4%. The primary efficacy and safety analyses included all participants who received at least one dose of study drug. This study is ongoing but not actively recruiting participants and is in the open-label extension phase, wherein participants are given the option to receive bictegravir, emtricitabine, and tenofovir alafenamide for an additional 96 weeks. This trial is registered with ClinicalTrials.gov, number NCT02603120.

FINDINGS: Between Nov 11, 2015, and July 6, 2016, 567 participants were randomly assigned and 563 were treated (282 received bictegravir, emtricitabine, and tenofovir alafenamide, and 281 received dolutegravir, abacavir, and lamivudine). Switching to the bictegravir regimen was non-inferior to remaining on dolutegravir, abacavir, and lamivudine for the primary outcome: three (1%) of 282 in the bictegravir group had HIV-1 RNA of 50 copies per mL or higher at week 48 versus one (<1%) of 281 participants in the dolutegravir group (difference 0.7%, 95.002% CI -1.0 to 2.8; p=0.62). Treatment-related adverse events were recorded in 23 (8%) participants in the bictegravir group and 44 (16%) in the dolutegravir group. Treatment was discontinued because of adverse events in six (2%) participants in the bictegravir group and in two (1%) participants in the dolutegravir group. INTERPRETATION: The fixed-dose combination of bictegravir, emtricitabine, and tenofovir alafenamide might provide a safe and efficacious option for ongoing treatment of HIV-1 infection. FUNDING: Gilead Sciences.


BACKGROUND: In low- and middle-income countries (LMIC), it is uncertain whether a "dedicated" approach to integrating mental health care (wherein a community health worker (CHW) has the sole responsibility of delivering mental health care) or a "designated" approach (wherein a CHW provides this service in addition to usual responsibilities) is most effective and cost-effective. This study aims to compare the effectiveness and cost-effectiveness of these two models of service integration relative to treatment as usual (TAU) for improving mental health and chronic disease outcomes among patients with HIV or diabetes. METHODS/DESIGN: This is a cluster randomised trial. We will randomise 24 primary health care facilities in the Western Cape Province of South Africa to one of three study arms. Within each cluster, we will recruit 25 patients from HIV and 25 from diabetes services for a total sample of 1200 participants. Eligible patients will be aged 18 years or older, take medication for HIV or diabetes, and screen positive on the Alcohol Use Disorder Identification Test for hazardous/harmful alcohol use or depression on the Centre for Epidemiology Scale on Depression. Participants recruited in clinics assigned to the designated or dedicated approach will receive three sessions of motivational interviewing and problem-solving therapy, while those recruited at TAU-assigned clinics will be referred for further assessment. Participants will complete an interviewer-administered questionnaire at baseline, and at 6 and 12 months post-enrolment to assess change in self-reported outcomes. At these end points, we will test HIV RNA viral load for participants with HIV and HbA1c levels for participants with diabetes. Primary outcomes are reductions in self-reported hazardous/harmful alcohol use and risk of depression. Secondary outcomes are improvements in adherence to chronic disease treatment, biomarkers of chronic disease outcomes, and health-related quality of life. Mixed-effect linear regression models will model the effect of the interventions on primary and secondary outcomes. The cost-effectiveness of each approach will be assessed using incremental cost-effectiveness ratios.

DISCUSSION: Study findings will guide decision-making around how best to integrate mental health counselling into chronic disease care in a LMIC setting. TRIAL REGISTRATION: Pan African Clinical Trials Registry, Trial registration number: ACTR201610001825403 . Registered 17 October 2016.


Objective: Peripheral neuropathy (PN) is a common complication of HIV. There is increasing awareness that some forms of PN, particularly small-fiber neuropathies, can be associated with chronic widespread pain syndromes. Given the high prevalence of both PN and chronic pain in HIV, we sought to determine whether patients with a diagnosis of HIV-PN were more likely to experience other chronic pain syndromes. Methods: Data were obtained from the Clinical Data Warehouse maintained by our institution. All HIV-infected patients receiving standard of care antiretroviral therapy in our institution's primary care HIV clinic (N = 638) were included. Diagnoses of HIV-PN and other chronic pain disorders were established based on clinician-assigned ICD-9/10 codes. Results: Sixty-eight patients (11%) had a diagnosis of HIV-PN. Patients with HIV-PN were more than twice as likely to have other chronic pain disorders (66% vs 32%, chi2 = 30.3, P < 0.001). Patients with HIV-PN were also older and more likely to have substance use and psychiatric disorders; however, the association of HIV-PN with other chronic pain disorders persisted after adjusting for relevant confounders (chi2(5) = 81.38, P < 0.001). Conclusions: Patients with HIV-PN commonly experience other chronic pain disorders. Clinicians managing HIV-PN should seek a broad understanding of patients' pain experience as this may alter management strategies. Researchers studying HIV-PN should consider how the presence of other pain disorders might affect outcomes.

Physical activity reduces the risk for comorbidities, but little is known about barriers to exercise among older adults living with HIV. Three focus groups were conducted among 19 adults living with HIV, aged >/= 50 years, who were enrolled in or recently completed a supervised exercise intervention. Sessions were recorded, transcribed, and coded first using inductive methods. All participants were male, and the majority were white, non-Hispanic; 53% were receiving disability benefits. All had suppressed HIV infection on antiretroviral therapy, with almost 20 years since HIV diagnosis. Participants noted a lack of self-efficacy, motivation, and physical limitations that contributed to a sense of "disability" as barriers to exercise prior to the intervention. Through social support and improvements in self-efficacy, participants were motivated to start and continue exercising. Perceived sense of disability may impede (or interfere with) exercise initiation and maintenance; self-efficacy and social support may facilitate exercise maintenance in older adults living with HIV.


Background: Life expectancy of HIV-infected patients has increased with antiretroviral treatment (ART). Chronic diseases associated with aging, including metabolic and cardiovascular diseases are becoming more prevalent in this population. We aimed to evaluate the association of obesity and aging with cardiometabolic comorbidities and metabolic health status among patients with HIV infection. Methods: We evaluated 580 HIV-1 infected patients (71.7% male, mean age of 47.7 +/- 11.5 years). We analyzed the association of age and obesity (defined by and by central obesity) with gender, duration of HIV infection, and ART, anthropometric parameters, cardiometabolic comorbidities, Framingham risk score (FRS), blood pressure, lipid profile, uric acid, liver biochemical tests, and glycemic profile. Furthermore, we analyzed the above-mentioned associations according to the category and central obesity into the metabolically healthy (MH) and unhealthy (MUH) categories. To evaluate the association of anthropometric parameters with cardiometabolic comorbidities, we performed unadjusted and adjusted logistic regression models. Results: The prevalence of excessive weight and cardiometabolic comorbidities increased with age. Patients with normal weight were younger and there was a higher proportion of female patients in the obesity group. The prevalence of hypertension and metabolic syndrome were higher among patients who were overweight or with obesity. The FRS was higher among patients with obesity. MUH patients had more cardiometabolic comorbidities and a higher FRS. In the normal weight group, MUH patients were older, and in the obesity group they were more likely to be male. The anthropometric parameter most associated with metabolic syndrome was waist circumference and that most associated with hypertension was waist-to-height ratio. The anthropometric parameter most associated with diabetes and FRS was waist-to-hip ratio. Conclusion: Patients with HIV present a high prevalence of obesity and related comorbidities. Ageing significantly contributes to metabolic dysfunction in this population. The proportion of MUH patients is higher among groups with excessive weight and central obesity, with those patients presenting a higher cardiovascular risk. Our results highlight the importance of evaluating and addressing obesity in patients with HIV, as well as metabolic comorbidities and cardiovascular risk.


Background and Objectives: Older adults with HIV face greater health burden than HIV-uninfected counterparts. Little is known about resources that might mediate the influence of physiological health burden on psychological well-being. Informed by the stress process model, we assessed the influence of multifaceted health burden indicators on depressive symptoms and evaluated the mediating effects of social support adequacy. Research Design and Methods: This cross-sectional study used structural equation modeling with data from 640 older men who participated in the
Research on Older Adults with HIV study in the United States. Health burden assessment included number of age-related chronic conditions, multiple HIV-related chronic conditions, and self-rated health. Perceptions of instrumental and emotional support adequacy measured support as a coping resource. Depressed mood as assessed by the 10-item Center for Epidemiologic Studies Depression Scale was the indicator of psychological well-being. Results: Higher incidence of age-related conditions and worse self-rated health was significantly associated with more depressed mood. Self-rated health and HIV-related conditions showed a significant indirect effect on depressed mood via emotional support adequacy. Discussion and Implications: Each dimension of health burden demonstrated a distinct pathway to psychological well-being for men with HIV, which should be considered when prioritizing care plans. Complementing research on medical interventions for people with HIV, these findings suggest that nonpharmacological interventions may be important for improving overall well-being.


OBJECTIVE: To determine influence of age and HIV infection on influenza vaccine responses. DESIGN: Evaluate serologic response to seasonal trivalent influenza vaccine (TIV) as the immunologic outcome in HIV-infected (HIV(+)) and age-matched HIV negative (HIV(-)) adults. METHODS: During 2013-2016, 151 virologically controlled HIV(+) individuals on antiretroviral therapy and 164 HIV(-) volunteers grouped by age as young (<40 years), middle aged (40-59 years) and old (>/=60 years) were administered TIV and investigated for serum antibody response to vaccine antigens. RESULTS: At prevaccination (T0) titers were in seroprotective range in more than 90% of participants. Antibody titers increased in all participants postvaccination but frequency of classified vaccine responders to individual or all three vaccine antigens at 3-4 weeks was higher in HIV(-) than HIV(+) adults with the greatest differences manifesting in the young age group. Of the three vaccine strains in TIV, antibody responses at T2 were weakest against H3N2 with those to H1N1 and B antigens dominating. Among the age groups, the titers for H1N1 and B were lowest in old age, with evidence of an age-associated interaction in HIV(+) persons with antibody to B antigen. CONCLUSION: Greater frequencies of vaccine nonresponders are seen in HIV(+) young compared with HIV(-) adults and the observed age-associated interaction for B antigen in HIV(+) persons are supportive of the concept of premature immune senescence in controlled HIV infection. High-potency influenza vaccination recommended for healthy aging could be considered for HIV(+) adults of all ages.


The aim of the study was to calculate the proportion of rheumatic diseases in HIV patients who were receiving ART and to identify association of the HIV medications with the development of rheumatologic diseases. We conducted a retrospective chart review during the period of 2010 to 2016. We identified 2996 patients as having chronic HIV infection and on ART, and we collected data regarding patient’s demographic characteristics, comorbidities, CD 4 count, HIV viral load, and ART. One hundred thirteen out of 2996 HIV patients (3.8%) were found to have a rheumatic condition (mean age of 48.6 years, 83% male). The most frequent musculoskeletal condition was avascular necrosis (AVN) in 39 (1.3%), and the most frequent autoimmune condition was psoriasis in 28 patients (1%). Compared with the 200 HIV patients without any diagnosis of rheumatic disease were the older patients with rheumatic conditions (mean age of 48.9 vs. 42.7 years; p < 0.01), and had a longer duration of HIV infection (mean duration of 15.5 vs. 10.3 years; p < 0.01). The odds of rheumatic conditions were 1.7 times higher in males (relative to females). Those who received integrase inhibitors were more likely (63.3%) to develop rheumatologic manifestations relative to those who never received integrase inhibitors (21.6%; p < 0.01). The proportion of rheumatic diseases in HIV patients appears to be comparable to
the prevalence in the US population. Older age, longer duration of HIV infection, and the use of ART regimens containing integrase inhibitors, appear to increase the risk of developing a rheumatic condition.


PURPOSE: Results of a study of contraindicated concomitant medication use among recipients of preferred antiretroviral therapy (ART) regimens are reported. METHODS: A retrospective study was conducted to evaluate concomitant medication use in a cohort of previously treatment-naive, human immunodeficiency virus (HIV)-infected U.S. patients prescribed preferred ART regimens during the period April 2014-March 2015. Data were obtained from a proprietary longitudinal prescription database; elements retrieved included age, sex, and prescription data. The outcome of interest was the frequency of drug-drug interactions (DDIs) associated with concomitant use of contraindicated medications. RESULTS: Data on 25,919 unique treatment-naive patients who used a preferred ART regimen were collected. Overall, there were 384 instances in which a contraindicated medication was dispensed for concurrent use with a recommended ART regimen. Rates of contraindicated concomitant medication use differed significantly by ART regimen; the highest rate (3.2%) was for darunavir plus ritonavir plus emtricitabine-tenofovir disoproxil fumarate (DRV plus RTV plus FTC/TDF), followed by elvitegravir-cobicistat-emtricitabine-tenofovir disoproxil fumarate (EVG/c/FTC/TDF)(2.8%). The highest frequencies of DDIs were associated with ART regimens that included a pharmacoenhancing agent: DRV plus RTV plus FTC/TDF (3.2%) and EVG/c/FTC/TDF (2.8%). CONCLUSION: In a large population of treatment-naive HIV-infected patients, ART regimens that contained a pharmacoenhancing agent were involved most frequently in contraindicated medication-related DDIs. All of the DDIs could have been avoided by using therapeutic alternatives within the same class not associated with a DDI.


With the advent of combination antiretroviral therapies, the mortality rate from HIV has declined, while the prevalence of long-term HIV-related neurologic complications continues to rise. Thirty-six million individuals are living with HIV around the world, many of whom reside in resource-limited settings. The majority of studies have focused on individuals residing in the developed world, while the impact of HIV disproportionately affects people living in developing countries. This review focuses on recent domestic and international studies regarding neurologic complications related to HIV, including opportunistic infections, peripheral neuropathy, cerebrovascular disease, and HIV-associated neurocognitive disorders, in light of the growing population affected by these conditions.


PURPOSE: The aim of this study was to present a brief overview of challenges faced by people living with HIV (PLHIV) as they age, to discuss the relevance of HIV to rehabilitation nurses, and to provide evidence-based recommendations for rehabilitation professionals working with PLHIV. DESIGN: Current issues article. METHODS: Literature review related to age-related comorbidities in PLHIV with implications for rehabilitation nurses. FINDINGS: Rehabilitation nurses must be prepared to address issues specific to people living with HIV including sensitivity and privacy regarding HIV status and increased risk of delayed or complicated healing. Rehabilitation nurses should also promote self-management behavior to optimize health in people living with HIV. CONCLUSIONS: Understanding unique characteristics of PLHIV as well as applying focused assessment and tailored interventions in PLHIV will give rehabilitation nurses the tools to successfully guide PLHIV through the rehabilitation process and optimize clinical
outcomes. CLINICAL RELEVANCE: As people with HIV age and experience acute and chronic comorbidities, they will require the clinical expertise of rehabilitation nurses in the process to successfully transition through acute and subacute health care and regain function.


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. [ABSTRACT FROM AUTHOR]

OBJECTIVES: To quantify within a cohort of HIV-infected individuals the number of medical visits and procedures to be carried out according to comorbidities and risk factors to implement a personalized care pathway. PATIENTS AND METHODS: Retrospective study of 915 patients consulting from January 1 to December 31, 2016 at an outpatient unit of multidisciplinary consultations, using an electronic patient record. We built an algorithm using parameters required for the application of the national guidelines for the management of HIV-infected individuals. The frequency of comorbidities was measured according to gender, transmission risk group, and nadir CD4 (<or>200/mm(3)). RESULTS: Patients were mostly men (median age: 52 years), of whom 16% were aged >=60 years. Viral load was <40 copies/mL in 93.5% of treated patients and CD4 cell count >=500/mm(3) for 73%. Overall, 74.5% of patients had at least one comorbidity. The number of comorbidities was similar in men and women but was significantly higher in patients with a nadir CD4 <200/mm3 and increased with age (irrespective of gender). The minimum number of consultations to be scheduled per year was 8123: 70% for the management of comorbidities with an average of six consultations/year/patient. Overall, 53% of patients should attend a proctology consultation. The minimum number of paramedical procedures to be performed was 5115. CONCLUSION: The implementation of a personalized multidisciplinary management within a single facility seems to be a suitable care model to address the needs of HIV-infected individuals.


The objective of this study was to identify the aspects of healthcare that are most valued by people with HIV and to describe their concerns and preferences for the future delivery of services for non-HIV-related illness. Twelve focus groups of people receiving HIV care were conducted in community settings in South-East England. Groups were quota sampled based on age, gender, sexual orientation and ethnicity. Data were analysed using Framework Analysis. The results showed that among the 74 respondents (61% male), a preference for maintaining all care within specialist HIV clinics was commonplace, but was highest among participants with more extensive histories of HIV and comorbidities. Participants valued care-coordination, inter-service communication and timely updates to medical notes. There were high levels of concern around HIV skills in general practices and the capacity of general practitioners to manage patient confidentiality or deal appropriately with the emotional and social challenges of living with HIV. Participants valued, and had an overall preference for, the specialist knowledge and skills of HIV services, suggesting that non-HIV-specialist services will need to build their appeal if they are to have a greater future role in the care of people with HIV. Particular concerns that should be addressed include: patient confidence in the HIV knowledge and skills of non-specialist service providers; clear processes for prescribing and referrals; improved levels of care-coordination and communication between services and increased patient confidence in the capacity of primary care to maintain confidentiality and to appreciate the stigma associated with HIV.


People with HIV are living longer. However, co-morbidities are often more prevalent and severe than in the general population and have greater impacts on health status. Although compelling evidence exists about the health benefits of exercise in the HIV literature, many people living with HIV tend to be physically inactive. The purpose of this
study was to use the Theoretical Domains Framework to investigate the barriers and facilitators to participation in exercise of older people living with HIV. This qualitative study involved in-depth, semi-structured interviews with 12 adults aged 45 years and older recruited from HIV organizations and health centres. Data were analyzed thematically using the Theoretical Domains Framework, and two investigators independently coded transcripts. Six prominent domains were identified from the interviews: Social influences, environmental context and resources, reinforcement, intentions, social and professional role, and knowledge. Themes emerging from the interviews fit into all 14 domains of the Theoretical Domains Framework, and 67% of themes fit into the six most prominent domains. The participants had a working knowledge of exercise and its health benefits but were unfamiliar with specific exercise parameters. The majority identified environmental or resource constraints as salient barriers for participation in exercise programmes. Co-morbidities, injuries, and the side effects of HIV disease and medication were also acknowledged as barriers. Stigma and discrimination from friends, family, people within the LGBTQ community, and health care providers were commonly discussed. Participants spoke of the importance of social support to facilitate participation in exercise programmes. Other facilitators included using technology and incorporating exercise into day-to-day activities. People aging with HIV experience many barriers to exercise. Those designing exercise interventions for people aging with HIV should incorporate strategies to address these obstacles.


BACKGROUND: As HIV-infected patients aged 50 years or older are at increased risk of co-morbidities and multidrug treatments, we examined their exposure to the potential drug-drug interactions (PDDIs) of antiretroviral (ARV) and other medications. METHODS: This cross-sectional study involved the patients aged 50 years or older receiving ARV and non-ARV medications at our clinic. PDDIs were identified using the University of Liverpool HIV Drug Interaction Checker. Logistic regression models were used to assess risk factors for PDDIs. The American Geriatrics Society Beers Criteria were used to identify potentially inappropriate medications (PIMs). RESULTS: A total of 395 (53.9%) of 744 patients showed >/=1 PDDI: 47.4% >/= 1 amber-PDDI (comedications requiring appropriate management) and 5.6% >/= 1 red-PDDI (contraindicated comedications). A higher risk of PDDIs was associated with the use of >/=5 medications (P < 0.001), of antosteoporotics (P < 0.001), calcium channel blockers (P < 0.001), anti-benign prostatic hypertrophy agents (P < 0.001), hypnotics/sedatives (P = 0.022), and anticoagulants (P = 0.006). A higher risk of red-PDDIs was associated with the use of antacids (P < 0.001), anti-benign prostatic hypertrophy agents (P < 0.001) and antipsychotics (P = 0.023). The use of nucleoside reverse transcriptase inhibitor + nonnucleoside reverse transcriptase inhibitor and nucleoside reverse transcriptase inhibitor + integrase strand transfer inhibitor rather than protease inhibitor-based regimens was associated with a reduced risk of PDDIs (P < 0.001). Overall, 119 (16.0%) patients were receiving PIMs (mainly hypnotics/sedatives) and 49 (41.2%) of them had PDDIs able to increase the blood levels of these medications. CONCLUSIONS: Older patients with HIV are highly exposed to PDDIs between ARVs and comedications. The knowledge of their complete medication regimens and the screening for PDDIs and PIMs is therefore crucial to prevent drug-related adverse outcomes in this population.


BACKGROUND: To describe the development of polypharmacy and its components in a British birth cohort in its seventh decade and to investigate socioeconomic and gender differences independent of disease burden. METHODS: Data from the MRC National Survey for Health and Development were analysed to determine the prevalence and
composition of polypharmacy at age 69 and changes since ages 60 to 64. Multinomial regression was used to test associations between gender, education and occupational social class and total, cardiological and non-cardiological polypharmacy controlling for disease burden. RESULTS: At age 69, 22.8% of individuals were taking more than 5 medications. There was an increase in the use of 5 to 8 medications (+ 2.3%) and over 9 medications (+ 0.8%) between ages 60-64 and 69. The greatest increases were found for cardiovascular (+ 13.4%) and gastrointestinal medications (+ 7.3%). Men experienced greater cardiological polypharmacy, women greater non-cardiological polypharmacy. Higher levels of education were associated with lower polypharmacy independent of disease burden, with strongest effects seen for over five cardiological medications (RRR 0.3, 95% CI 0.2-0.5 p < 0.001 for advanced secondary qualifications compared with no qualification); there was no additional effect of social class. CONCLUSIONS: Polypharmacy increased over the seventh decade. Those with lower levels of education had more polypharmacy (total, cardiological and non-cardiological), even allowing for disease burden. Further analysis of future outcomes resulting from polypharmacy should take into account educational and gender differences, in an effort to identify at-risk populations who could benefit from medication reviews.


The two largest providers of HIV care in the US are the Veterans Administration and Kaiser Permanente. Both organizations are significantly outperforming the general population in implementing the HIV Care Continuum, which involves 1) testing and diagnosis, 2) linkage to care, 3) retention in care, 4) initiation and continuation of antiretroviral therapy, and 5) achievement of viral suppression. Adherence to the care continuum allows people living with HIV to achieve viral suppression to levels where the virus is undetectable. Such individuals are less likely to transmit the virus than are other infected individuals not receiving medical care. In this interview article, leaders from the two comprehensive integrated health care systems share insight about how their organizations achieve top-quality HIV care outcomes, as well as their ongoing efforts to identify and close gaps in care.


BACKGROUND: One-pill-once-a-day regimens (OPODs) appeal to providers and patients. The impact of resistance to OPODs in routine clinical care is important yet unclear, particularly in treatment-experienced patients. OBJECTIVES: We hypothesized that resistance to any OPOD component impacts treatment success and that historical, vs. most recent, resistance better predicts it. STUDY DESIGN: In the largest RI HIV Center, we identified all patients starting/switching to Complera/Stribild, evaluated their 12-month viral load (VL) suppression, and examined the impact of demographic, clinical and laboratory data on it, focusing on recent-only vs. accumulated significant resistance, defined as low-, intermediate- or high-level predicted resistance to any OPOD component. Associations with outcomes were evaluated using Fisher exact and Wilcoxon rank sum tests. Hypotheses were tested using logistic regression. RESULTS: Of 1624 patients, 224 started/switched to Complera or Stribild, mean age 44 years, 8 years post-diagnosis, CD4 468 cells/μL; 183 treatment-experienced (140 with genotypes; 61% suppressed at switch). Significant OPOD-associated resistance was in 30% by recent-only genotypes, and 38% by all genotypes. 12-month VL suppression was in 83% of treatment-experienced participants: 96% of suppressed at switch, associated with older age, higher CD4, fewer prior genotypes, less accumulated resistance, and better adherence; and 61% of unsuppressed at switch, associated with better adherence. Accumulated resistance independently predicted 12-month failure, better than most-recent resistance only. CONCLUSION: 12-month VL suppression with Complera/Stribild was high, suggesting that OPODs remain options even for experienced patients. Clinicians should consider resistance history before switching to OPODs and continue to focus on improving adherence.

Background: The aim of this longitudinal study was to examine the consistency of health-related quality of life (HRQoL) among people living with HIV (PLWH) by breaking down the variance of repeated HRQoL measures into trait, state, and method components and to test the stability of HRQoL over time. In addition, we wanted to examine whether HRQoL trait components are related to personality traits, while controlling for selected socio-medical variables.;

Methods: Three assessments were performed with a six-month lag on each assessment. Each participant filled out a World Health Organization (WHO) Quality of Life-BREF to assess HRQoL and a NEO-FFI to measure Big Five personality traits. Overall, 82 participants out of 141 (58.2% of the initial sample) participated in all the assessments.;

Results: The HRQoL among PLWH represented a stable trait to a somewhat greater extent than a situational variability, although the proportions were domain and time variant. More specifically, psychological domain appeared to be the most consistent, whereas social domain appeared to be the most prone to situational influences. The trait component of HRQoL was positively related to being in a relationship, being employed, and being extraverted, and negatively related to neuroticism, which altogether explained 26% of the trait variance.;

Conclusions: HRQoL among PLWH is rather distinct from personality and socio-medical data, which indicates its uniqueness in a clinical practise. Thus, there is a need for a more comprehensive assessment of HRQoL among this patient group to capture an additional source of variance in this important theoretical construct.;


BACKGROUND: Mental health (MH) comorbidities reduce retention in care for persons living with HIV (PLWH) and are associated with poor health outcomes. Optimizing retention in primary care is vital, as poor retention is associated with delayed receipt of antiretroviral (ARV) therapy, ARV non-adherence, and poor health outcomes, including failure to suppress viral load, decreased CD4 counts, and clinically significant ARV drug resistance. We hypothesized that MH service utilization would be associated with improved retention in care for patients with HIV and MH comorbidities. METHODS: This is a retrospective analysis of PLWH initiating outpatient HIV health care at a university-affiliated HIV clinic between January 2007 and December 2013. We examined the association between MH service utilization and retention in care, the outcome of interest, using univariate and multivariable logistic regression.

RESULTS: Overall, 627 (84.4%) out of 743 patients were retained in care using the Health Resources & Services Administration HIV/AIDS Bureau (HRSA/HAB) metric. A multivariable model adjusted for several sociodemographic factors, MH comorbidities, and MH service utilization. The results suggest that lack of health insurance (public ORadj = 0.3, p < 0.01; no insurance ORadj = 0.4, p < 0.01) and >/= 3 MH comorbidities (ORadj = 0.3, P = 0.01) were associated with decreased retention in care. Conversely, older age (> 45 years, ORadj. = 1.6, p = 0.14) and >/= 3 MH service utilization visits (ORadj. = 6.8, p < 0.01) were associated with increased retention in care. CONCLUSIONS: Even in the absence of documented MH comorbidities, improved retention in care was observed with increasing MH service utilization. In order to achieve the US-based National HIV/AIDS Strategy goal of 90% retention in care for PLWH, MH service utilization should be considered along with other evidence-based interventions to improve retention for PLWH newly engaged in care.

OBJECTIVE: We describe the prevalence of pain and its associations with healthcare resource utilization and quality-of-life. DESIGN: The POPPY Study recruited three cohorts: older people living with HIV (PLWH; >/=50 years, n = 699), younger demographically/lifestyle similar PLWH (less than 50 years, n = 374) and older demographically/lifestyle similar HIV-negative (>/=50 years, n = 304) people from April 2013 to February 2016. METHODS: Current pain and pain-related healthcare use was collected via a self-reported questionnaire. Logistic regression assessed between-group differences in the prevalence of pain in the past month and current pain after controlling for potential confounders. Associations between current pain and healthcare resource use, reported joint problems, depressive symptoms, quality-of-life and functional status were assessed in PLWH using Mann-Whitney U and chi-squared tests. RESULTS: Pain in the past month was reported by 473 out of 676 (70.0%) older PLWH, 224 out of 357 (62.7%) younger PLWH and 188 out of 295 (63.7%) older HIV-negative controls (P = 0.03), with current pain reported in 330 (48.8%), 134 (37.5%) and 116 (39.3%), respectively (P = 0.0007). Older PLWH were more likely to experience current pain, even after adjustment for confounders. Of those with pain in the past month, 56 out of 412 (13.6%) had missed days of work or study due to pain, and 520 (59%) had seen a doctor about their pain. PLWH experiencing current pain had more depressive symptoms, poorer quality-of-life on all domains and greater functional impairment, regardless of age group. CONCLUSION: Even in the effective antiretroviral therapy era, pain remains common in PLWH and has a major impact on quality-of-life and associated healthcare and societal costs. Interventions are required to assist clinicians and PLWH to proactively manage pain.


The world is witnessing a rapid demographic shift towards an older population, a trend with major medical, social, economic and political implications. Aging is a multifaceted process, involving numerous molecular and cellular mechanisms in the context of different organ systems. A crucial component of aging is a set of functional and structural alterations in the immune system that can manifest as a decreased ability to fight infection, diminished response to vaccination, increased incidence of cancer, higher prevalence of autoimmunity and constitutive low-grade inflammation, among others. In addition to cell-intrinsic changes in both innate and adaptive immune cells, alterations in the stromal microenvironment in primary and secondary lymphoid organs play an important role in age-associated immune dysfunction. This article will provide a broad overview of these phenomena and point out some of their clinical and therapeutic implications.


Antiretroviral therapy (ART) has prolonged lives of persons living with HIV/AIDS (PLWHA), resulting in greater incidence of aging-related diseases and disability. Physical activity (PA) is recommended for healthy aging, but little is known about PA in older PLWHA. The purpose of this study was to objectively assess PA levels in older PLWHA and the associations with physical function. Twenty-one PLWHA, >/=50 years old, on ART with undetectable HIV-1 viral loads, wore an accelerometer to assess PA, including number of steps, activity intensity, and energy expenditure over 7 days. A physical function performance battery assessing aerobic capacity, strength, and gait speed was also completed. Average age was 66, and 67% were male. An average of 3,442 (interquartile range: 4,613) steps were walked daily, with 254.9 kcals expended. Participants spent most waking hours (75%) sedentary, with minimal hours (24%) in light-intensity activity. Only 5 min per day (35 min per week), on average, were spent in moderate-to-vigorous physical activity (MVPA). Maximal gait speed and 6-min walk test significantly correlated (p < .05) with all PA outcomes. Usual gait speed significantly correlated with all PA outcomes, except for daily kcals and light-intensity activity. Greater PA was associated with better physical performance, while high sedentary time was associated with poorer performance. To our
knowledge, this is the first study to objectively measure PA in older PLWHA. Our findings indicate that older PLWHA accumulate substantial sedentary time. Most (86%) do not achieve recommended MVPA levels. This activity profile was associated with poor physical function. Providers should promote PA among PLWHA.


In biomedical, public health, and popular discourses, the 'end of AIDS' has emerged as a predominant way to understand the future of HIV research and prevention. This approach is predicated on structuring and responding to HIV in ways that underscore its presumed lifelong nature. In this article, I examine the phenomenon of HIV chronicity that undergirds the 'end of AIDS' discourse. In particular, I explore how the logic of HIV chronicity, induced by technological advances in treatment and global financial and political investments, intensifies long-term uncertainty and prolonged crisis. Focusing on over 10 years of anthropological and public health research in the United States, I argue that HIV chronicity, and subsequently, the 'end of AIDS' discourse, obscure the on-going HIV crisis in particular global communities, especially among marginalised and ageing populations who live in under-resourced areas. By tracing the 'end of AIDS' discourse in my field sites and in other global locations, I describe how HIV chronicity signals a continuing global crisis and persistent social precarity rather than a 'break' with a hopeless past or a promising future free from AIDS.


Evidence suggests that racial disparities in the HIV care continuum persist in older age groups, particularly among African Americans. The objective of this systematic review was to identify factors that facilitate or hinder older African Americans' engagement in the HIV care continuum. For studies published between 2003 and 2018, we: (1) searched databases using keywords, (2) excluded non-peer-reviewed studies, (3) limited findings to older African Americans and the HIV care continuum, and (4) retrieved and summarized data focused on barriers and facilitators of the HIV care continuum. Among the 1023 studies extracted, 13 were included: diagnosis/testing (n = 1), engagement in care (n = 7), and antiretroviral adherence (n = 5). Barriers included lack of HIV risk awareness, routine testing, and healthcare access, stigma, and multimorbidities. Social support, health/medication literacy, and increased self-efficacy facilitated engagement. A targeted focus on older African Americans is needed to achieve national goals of improving HIV care and treatment outcomes.


An editorial is presented which addresses the authors' views about the utilization of a patient-centered medical home (PCMH) model for homeless and unstably housed people living with HIV (PLWH), and it mentions the needs of multiply diagnosed PLWH. Medical care and socio-behavioral services are addressed, along with assistance for substance abuse, mental health issues, and housing. Rapport and trust building are assessed.

Although the term “personalized medicine” has been associated in many cases with pharmacogenomics, its definition embraces the use of specific biomarkers and covariates to help in the selection of medical treatments and procedures which are best for each patient. While several efforts have been performed for the tailored selection of therapies and dosing regimens in the general population, developing personalized medicine initiatives for elderly patients remains understudied. The personalized drug therapy for older patients requires the consideration of anatomical, physiological and functional alterations in a multimorbid setting requiring multiple medications. The present review focuses on currently employed qualitative and quantitative precision medicine approaches for elderly patients and discusses some of the associated challenges and limitations. Furthermore, the use of and confidence in physiologically-based approaches for optimal dose selection in this understudied yet clinically important patient population will be highlighted and discussed.


OBJECTIVES: A number of studies have been conducted to identify the self-care strategies that are used by persons living with chronic illnesses to manage their symptoms, but little work has been done to identify the primary information source for these self-care strategies. METHODS: We conducted an anonymous online survey with 1373 persons living with HIV to identify the self-care strategies they use to manage 28 commonly experienced symptoms. Following their report of their symptoms and self-care strategies, we asked an open-ended question to identify where the participant obtained the information. We applied iterative content analysis of the narrative data and multi-nominal regression to identify which demographic factors were significantly related to each information source category. RESULTS: Respondents reported a total of 8539 information sources for their self-care strategies categorized as follows: Common sense/Self-experience, Healthcare professional, Internet, Literature, Multiple Sources, Social Support, and TV ads. CONCLUSIONS: We found that respondents with no college education were significantly more likely to report the use of the Internet as the information source for their self-care strategies. On the other hand, males as compared to females were significantly less likely to use the Internet and significantly more likely to use TV ads.


AIMS: A growing body of research suggests that regularly engaging in stimulating activities across multiple domains-physical, cultural, intellectual, communal, and spiritual-builds resilience. This project investigated the psychometric characteristics of the DeltaQuest Reserve-Building Measure for use in prospective research. METHODS: The study included Rare Patient Voice panel participants. The web-based survey included the Reserve-Building Measure with one-week re-test, measures of quality of life (QOL) and well-being (PROMIS General Health; NeuroQOL Cognitive Function and Positive Affect & Well-Being short-forms; Ryff Environmental Mastery subscale); and the Big Five Inventory-10 personality measure. Classical test theory and item response theory (IRT) analyses investigated psychometric characteristics of the Reserve-Building Measure. RESULTS: This North American sample (n = 592) included both patients and caregivers [mean age = 44, SD 19]). Psychometric analyses revealed distinct subscales measuring current reserve-building activities (Active in the World, Games, Outdoors, Creative, Religious/Spiritual, Exercise, Inner Life, Shopping/Cooking, Passive Media Consumption, ), past reserve-building activities (Childhood Activities, Achievement), and reserve-related person-factors (Perseverance, Current and Past Social Support, and Work Value). Test-retest stability (n = 101) was moderately high for 11 of 15 subscales (ICC range 0.78-0.99); four were below 0.59 indicating a need for further refinement. IRT analyses supported the item functioning of all subscales. Correlational analyses suggest the measure's subscales tap distinct constructs (range r = 0.11-0.46) which are not redundant with
QOL, well-being, or personality (range r = 0.11-0.48). CONCLUSIONS: The Reserve-Building Measure provides a measure of activities and person-factors related to reserve that may potentially be useful in prospective research.


This study examines the importance of four psychosocial factors-personality, cognitive appraisal of quality of life, social support, and current reserve-building—in predicting treatment burden in chronically ill patients. Chronically ill patients (n = 446) completed web-based measures. Structural equation modeling was used to investigate psychosocial factors predicting treatment burden. Reserve-building activities indirectly reduced treatment burden by: (1) reducing health worries appraisals, (2) reducing financial difficulties, (3) increasing calm and peaceful appraisals, and (4) increasing perceived social support. These findings point to key behaviors that chronically ill people can use to attenuate their treatment burden.


Immunosenescence is characterized by deterioration of the immune system caused by aging which induces changes to innate and adaptive immunity. Immunosenescence affects function and phenotype of immune cells, such as expression and function of receptors for immune cells which contributes to loss of immune function (chemotaxis, intracellular killing). Moreover, these alterations decrease the response to pathogens, which leads to several age-related diseases including cardiovascular disease, Alzheimer’s disease, and diabetes in older individuals. Furthermore, increased risk of autoimmune disease and chronic infection is increased with an aging immune system, which is characterized by a pro-inflammatory environment, ultimately leading to accelerated biological aging. During the last century, sedentarism rose dramatically, with a concomitant increase in certain type of cancers (such as breast cancer, colon, or prostate cancer), and autoimmune disease. Numerous studies on physical activity and immunity, with focus on special populations (i.e., people with diabetes, HIV patients) demonstrate that chronic exercise enhances immunity. However, the majority of previous work has focused on either a pathological population or healthy young adults whilst research in elderly populations is scarce. Research conducted to date has primarily focused on aerobic and resistance exercise training and its effect on immunity. This review focuses on the potential for exercise training to affect the aging immune system. The concept is that some lifestyle strategies such as high-intensity exercise training may prevent disease through the attenuation of immunosenescence. In this context, we take a top-down approach and review the effect of exercise and training on immunological parameters in elderly at rest and during exercise in humans, and how they respond to different modes of training. We highlight the impact of these different exercise modes on immunological parameters, such as cytokine and lymphocyte concentration in elderly individuals. [ABSTRACT FROM AUTHOR]


In this review of the current challenges in the fight against HIV, we describe the state of the HIV epidemic and the framework put in place using the 90-90-90 objectives to try and curb the epidemic worldwide. There are numerous effective and evidence-based prevention measures against the spread of HIV, but the biggest challenges lie in the lack of political commitment, reluctance to address issues of sexuality and reproduction, and criminalization of key populations that are at the highest risk of HIV. Access to HIV treatment and continued care without stigmatization should be as easy and cheap as possible for those who are tested and diagnosed with HIV to achieve the best results worldwide. Regarding
the treatment of HIV, the last decades have been very successful in dramatically improving the quality of life of people living with HIV, reducing the transmission rate and decreasing HIV-associated morbidity and mortality. It could even be argued that the next milestone will be a strategy that allows individuals to stop combination antiretroviral therapy safely before a cure is discovered. Despite great progress, people with HIV have shorter life expectancy than those without the virus, and the underlying causes are probably multifactorial, including premature aging, drug toxicities, and comorbidities. Even if challenges remain, hope should too, with the ultimate goal to end the HIV epidemic.


Background: Cigarette smoking is common among persons living with HIV (PLWH) in the US, it is the leading cause of mortality in this group, and efforts to promote cessation have been largely unsuccessful. Methods: From 2015-2017, we performed a randomized controlled trial of Positively Smoke Free- Mobile (PSF-M) vs. standard care. PSF-M is a mobile website that offers a 42-day text message-based quit-smoking program with smartphone features including quit-day selection/calendar, educational/motivational videos, and HELP button for cravings. Results: One hundred individuals enrolled, 48 were randomized to PSF-M (mean age=45, 54% male, 81% Black, 31% Latino) and 52 to the standard care condition. All participants were offered a three month supply of nicotine patches. Participants randomized to the mobile intervention visited the PSF-M homepage a mean of 83 times, viewed 5.6/8 videos, logged in on 13 of 42 possible days, and received 131 texts. 77% tapped HELP for cravings, and craving response options were utilized by the following proportions: phone-a-friend-58%, play-a-game-29%, play-a-song-4%. Older age and non-Black race were both associated with higher levels of engagement with the site. 61% rated PSF-M very/extremely helpful, and 98% would recommend PSF-M to PLWH family/friends. Abstinence at 3 months, quit attempts, and daily cigarette intake all favored PSF-M over standard care, but did not achieve statistical significance in our pilot sample. Conclusions: Smartphone-based tobacco treatment for PLWH was feasible and achieved moderate-high rates of engagement and satisfaction in a middle-aged, ethnic/racial minority group in the poorest urban community in the US. Implications: Cigarette smoking has emerged as the leading killer of persons living with HIV (PLWH). Behavioral interventions have achieved only limited success in promoting cessation in this population. In the current study we explore the feasibility and preliminary efficacy of a multimodal, web-based, quit-smoking intervention delivered to PLWH smokers via their smartphones.


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 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]


People living with HIV may experience disability which is episodic in nature, characterized by periods of wellness and illness. The purpose of this longitudinal qualitative study was to understand how the episodic nature of HIV and the associated uncertainty shape the disability experience of older adults living with HIV over time. Fourteen men and 10 women who were HIV positive and over 50 years (mean age: 57 years; range: 50–73) participated in 4 interviews over 20 months. Longitudinal analyses of the transcribed interviews identified 4 phenotypes of episodic disability over time: decreasing, increasing, stable, or significant fluctuations. Although all participants experienced uncertainty, acceptance and optimism were hallmarks of those whose phenotypes were stable or improved over time. Understanding a person's episodic trajectory may help to tailor interventions to promote stability, mitigate an upward trajectory of increasing disability, and increase the time between episodes of illness.


BACKGROUND: Polypharmacy has not been investigated in patients living with HIV in developing countries. The aims of this study were to determine the prevalence of polypharmacy, the factors associated with polypharmacy and whether polypharmacy was associated with adverse effects among older adults on anti-retroviral therapy (ART).

METHODS: Cross-sectional study in older adults aged 50 and over on ART attending an outpatient HIV/AIDS care centre in Uganda. Demographic and clinical data collected on number and type of medications plus supplements, possible medication related side-effects, comorbidity, frailty, cognitive impairment, current CD4 count and viral load. RESULTS: Of 411 participants, 63 (15.3, 95% C.I. 11.9, 18.8) had polypharmacy (\( \geq 4 \) non- HIV medications). In multivariate analyses, polypharmacy was associated with one or more hospitalisations in the last year (Prevalence Ratio \( PR = 1.8 \), 95% C.I. 1.1, 3.1, \( p = 0.02 \)), prescription by an internist (\( PR = 3.6 \), 95% C.I. 1.3, 10.5, \( p = 0.02 \)) and frailty index scores of 5 to 6 (\( PR = 10.6 \), 95% C.I. 1.4, 78, \( p = 0.02 \)), and 7 or more (\( PR = 17.4 \), 95% C.I. 2.4, 126.5, \( p = 0.005 \)). Polypharmacy was not associated with frequency and severity of possible medication related side effects and falls. CONCLUSION: Polypharmacy is common among older HIV infected patients in sub-Saharan Africa. It's more prevalent among frail people, who have been in hospital in the last year and who have been seen by an internist. We found no evidence that polypharmacy results in any harm but this is worth exploring further.


As the senior population in the United States increases, the aging LGBT (lesbian, gay, bisexual, transgender) population should also see comparable growth rates. Health care providers and social service organizations will care for more LGBT seniors with special needs beyond the general population of older adults as they are more at risk for certain
conditions. This article identifies some specific health disparities and examines several organizations that work to improve LGBT senior health by providing critical health information to LGBT older adults, caregivers, and health care professionals. [ABSTRACT FROM AUTHOR]


Background: Many mathematical models have investigated the population-level impact of expanding antiretroviral therapy (ART), using different assumptions about HIV disease progression on ART and among ART dropouts. We evaluated the influence of these assumptions on model projections of the number of infections and deaths prevented by expanded ART. Methods: A new dynamic model of HIV transmission among men who have sex with men (MSM) was developed, which incorporated each of four alternative assumptions about disease progression used in previous models: (A) ART slows disease progression; (B) ART halts disease progression; (C) ART reverses disease progression by increasing CD4 count; (D) ART reverses disease progression, but disease progresses rapidly once treatment is stopped. The model was independently calibrated to HIV prevalence and ART coverage data from the United States under each progression assumption in turn. New HIV infections and HIV-related deaths averted over 10 years were compared for fixed ART coverage increases. Results: Little absolute difference (<7 percentage points (pp)) in HIV infections averted over 10 years was seen between progression assumptions for the same increases in ART coverage (varied between 33% and 90%) if ART dropouts reinitiated ART at the same rate as ART-naïve MSM. Larger differences in the predicted fraction of HIV-related deaths averted were observed (up to 15pp). However, if ART dropouts could only reinitiate ART at CD4<200 cells/μl, assumption C predicted substantially larger fractions of HIV infections and deaths averted than other assumptions (up to 20pp and 37pp larger, respectively). Conclusion: Different disease progression assumptions on and post-ART interruption did not affect the fraction of HIV infections averted with expanded ART, unless ART dropouts only re-initiated ART at low CD4 counts. Different disease progression assumptions had a larger influence on the fraction of HIV-related deaths averted with expanded ART. [ABSTRACT FROM AUTHOR]


One of the greatest health care challenges of the 21st century is the rapidly growing number of older adults in the United States. This aging population is also becoming increasingly diverse, and with this diversity comes an increased number of older adults who identify as lesbian, gay, bisexual, and transgender (LGBT). The needs and health outcomes of this specific subgroup of the older adult population cannot be extrapolated from the more general population of older adults. Nurses have the opportunity to lead health care providers in improving care for this vulnerable and sometimes invisible population. Leading this charge will require nurse executives who advocate, create care environments that are inclusive, and staff with nurses who can care for the specific needs of LGBT older adults. The purpose of this article is to raise awareness of the health needs of LGBT older adults and identify how nurse executives can advocate to improve care for this overlooked population.

Background HIV-infected individuals are at increased risk for both sarcopenia and cardiovascular disease. Whether an association between low muscle mass and subclinical coronary artery disease (CAD) exists, and if it is modified by HIV serostatus, are unknown.

Methods We performed cross-sectional analysis of 513 male MACS participants (72% HIV-infected) who underwent mid-thigh computed tomography (CT) and non-contrast cardiac CT for coronary artery calcium (CAC) during 2010–2013. Of these, 379 also underwent coronary CT angiography for non-calcified coronary plaque (NCP) and obstructive coronary stenosis ≥50%. Multivariable-adjusted Poisson regression was used to estimate prevalence risk ratios of associations between low muscle mass (<20th percentile of the HIV-uninfected individuals in the sample) and CAC, NCP and obstructive stenosis.

Results The prevalence of low thigh muscle mass was similar by HIV serostatus (20%). There was no association of low muscle mass with CAC or NCP. However, low thigh muscle mass was significantly associated with a 2.5-fold higher prevalence of obstructive coronary stenosis, after adjustment for demographics and traditional CAD risk factors [PR 2.46 (95% CI 1.51, 4.01)]. This association remained significant after adjustment for adiposity, inflammation, and physical activity. There was no significant interaction by HIV serostatus (p-interaction = 0.90).

Conclusions In this exploratory analysis, low thigh muscle mass was significantly associated with subclinical obstructive coronary stenosis. Additional studies involving larger sample sizes and prospective analyses are needed to confirm the potential utility of measuring mid-thigh muscle mass for identifying individuals at increased risk for obstructive CAD who might benefit from more aggressive risk factor management.


The importance of oral microflora composition in HIV-infected patients is well recognized. However, no studies so far have dealt with age-related changes in periodontal pathogens occurrence in HIV+ individuals. The aim of the present study was to assess and compare temporal changes of bacteria frequency in younger (<=35 years) and older (>50 years) HIV-infected and non-infected individuals. Bacterial DNA was isolated from buccal swabs of 30 younger and 30 older subjects in both HIV+ and HIV- groups. By means of PCR the following microorganisms were detected: Aggregatibacter actinomycetemcomitans, Eikenella corrodens, Peptostreptococcus micros, Porphyromonas gingivalis, Prevotella intermedia, Tannerella forsythia and Treponema denticola. Oral and periodontal examinations were performed in all subjects. The prevalence of microorganisms was significantly higher in HIV+ patients compared to controls, and their distribution showed a notable shift. The decreasing incidence in HIV- subjects was: Pi>Pm>Pg>Aa>Ec>Tf>Td whilst in HIV+ it was: Pi>Pm>Ec>Pg>Tf>Aa>Td. Oral manifestations of HIV infection were more frequent in older compared to younger patients. All measured values of clinical periodontal parameters were significantly higher in older compared to younger HIV+ patients. Ageing in HIV+ subjects is accompanied with a substantial increase and rearrangements of periodontal microflora, potentially aggravating oral and systemic health.


BACKGROUND AND OBJECTIVE: Efavirenz is commonly used in Africa and is frequently associated with neurocognitive toxicity, which may compromise clinical outcomes. Older individuals are at increased risk for drug toxicity and clinical outcomes may be worse in older age, particularly among those individuals with cytochrome P450 (CYP) 2B6 polymorphisms associated with slower efavirenz metabolism. The aim of this study was to determine if the CYP2B6 polymorphisms differentially impacts loss to care in older people. METHODS: We conducted a prospective cohort study...
of 914 treatment-naive HIV+ adults initiating efavirenz-based antiretroviral treatment at public HIV clinics in Gaborone, Botswana between 2009 and 2013. Older age, defined as age >/= 50 years, was the primary exposure and loss to care at 6 months was the primary outcome. Interaction between age and CYP2B6 516G>T and 983T>C polymorphisms, defined as extensive, intermediate, and slow metabolism, was assessed. Neurocognitive toxicity was measured using a symptom questionnaire. Age-stratified logistic regression was performed to identify factors associated with loss to care. RESULTS: Older age was associated with loss to care (OR 1.95, 95% CI 1.30-2.92). Age modified the effect of CYP2B6 genotype on loss to care with older, slow metabolizers at over four-fold higher risk when compared to older, intermediate metabolizers (OR 4.06 95% CI 1.38-11.89); neurocognitive toxicity did not mediate this risk. CYP2B6 metabolism genotype did not increase risk of loss to care in younger participants. CONCLUSION: Older age was associated with loss to care, especially among those with slow efavirenz metabolism. Understanding the relationship between older age and CYP2B6 genotype will be important to improving outcomes in an aging population initiating efavirenz-based ART in similar settings.


The finding of low circulating testosterone level in men is relatively frequent. The symptoms of hypogonadism are very frequent in the aging men. However, the diagnosis of hypogonadism is often neglected and the opportunity to replace low testosterone in older men is highly debated. The aim of this narrative review is to summarize the steps necessary to formulate a proper diagnosis and to guide toward an individualized treatment. While universally recognized the need to treat the young adults with known causes of pituitary or testicular failure, there are controversies on the cost-benefit of treating testosterone deficiency in older men. Discrepancies among the several available guidelines do not help to clarify the scenario, however, the recent larger clinical trials have shed some light on the fact that testosterone treatment carries some benefit, that is not free from risks. We provide an updated review of the diagnostic hallmarks, the several treatment modalities, with their advantages and disadvantages, and how to individualize and monitor treatment in order to maximize the benefits and minimize the risks. The treatment of male hypogonadism can no longer be downgraded and must become part of the cultural baggage of the endocrinologist.


BACKGROUND: It is unknown whether statin use among people living with HIV results in a reduction in all-cause mortality. We aimed to evaluate the effect of statin use on all-cause mortality among people living with HIV. METHODS: We conducted comprehensive literature searches of Medline, Embase, CINAHL, the Cochrane Library, and cross-references up to April 2018. We included randomised, quasi-randomised trials and prospective cohort studies that examined the association between statin use and cardio-protective and mortality outcomes among people living with HIV. Two reviewers independently abstracted the data. Hazard ratios (HRs) were pooled using empirical Bayesian random-effect meta-analysis. A number of sensitivity analyses were conducted. RESULTS: We included seven studies with a total of 35,708 participants. The percentage of participants on statins across the studies ranged from 8 to 35%. Where reported, the percentage of participants with hypertension ranged from 14 to 35% and 7 to 10% had been diagnosed with diabetes mellitus. Statin use was associated with a 33% reduction in all-cause mortality (pooled HR =
The probability that statin use conferred a moderate mortality benefit (i.e. decreased risk of mortality of at least 25%, HR ≤ 0.75) was 71.5%. Down-weighting and excluding the lower quality studies resulted in a more conservative estimate of the pooled HR. CONCLUSION: Statin use appears to confer moderate mortality benefits in people living with HIV.


Physical activity (PA) combats the effects of multimorbidity and antiretroviral therapy in people living with HIV (PLWH), but PLWH often don't meet recommended PA guidelines. The purpose of our review was to investigate whether supervised PA improved functional capacity in PLWH. Preferred Reporting Items for Systematic Reviews and Meta-Analyses were followed. Five databases were searched for randomized controlled trials in English, with participants ages 18 years and older, and a supervised PA intervention. A database search yielded 8,267 articles, with 15 eligible for review inclusion. We found a low risk of bias within and across studies. Combined aerobic/progressive resistance training (PRT) improved strength, cardiovascular, and flexibility outcomes; aerobic interventions alone showed no significant improvements; PRT improved strength outcomes; yoga or yoga/meditation showed no outcome differences; and t'ai chi showed cardiovascular and flexibility improvements. We found that supervised PA increased functional capacity in PLWH and that self-report was not a reliable assessment.


Rates of aging-related comorbidities, which require targeted medications to treat, have been shown to be increased among persons living with HIV compared with uninfected counterparts. Polypharmacy is generally defined as the concurrent use of 5 or more medications. We investigated polypharmacy prevalence for non-HIV medications over a 12-year period among HIV-positive and -negative participants in the Multicenter AIDS Cohort Study. Information regarding non-HIV medication use, HIV status, age, race/ethnicity, enrollment period, and medication insurance was obtained on 3,160 participants from semiannual visits between 2004 and 2016. Polypharmacy was defined as taking 5 or more non-HIV medications since the last health care visit. Generalized estimating equation models with repeated measures were produced overall and by HIV status to examine polypharmacy. The unadjusted prevalence of polypharmacy across all study visits was 18.6% and was higher among HIV-positive participants (24.4%) compared with HIV-negative participants (11.6%) (P < .0001). Among the 50 years and older age group, HIV-positive and HIV-negative participants had increases in polypharmacy over the observation period, from 38.4% to 46.8% (P = .0081) and from 16.7% to 46.0% (P < .0001), respectively. Among participants younger than 50, polypharmacy among HIV-positive participants remained stable (18.9% in 2004 to 17.3% in 2016; P = .5374) but increased among HIV-negative men (5.6% to 20.4%; P < .0001). After adjusting for age, race/ethnicity, and medication insurance, HIV-positive participants had a higher prevalence of polypharmacy than HIV-negative participants (25.3% vs 18.7%; P < .0001). Older age, white race, and having medication insurance coverage were also associated with greater polypharmacy. A convergence of polypharmacy prevalence was observed between HIV-positive and -negative participants at the end of observation. HIV-positive status was associated with an increased likelihood of polypharmacy, after adjusting for age, race/ethnicity, enrollment period, medication insurance, and study visit. Over time, polypharmacy prevalence increased among all participants, with converging rates between HIV-positive and -negative participants by the end of the observation period.
Lipid abnormalities are prevalent among persons living with HIV infection and contribute to increasing the risk of cardiovascular events. Antiretroviral therapy (ART) is associated with lipid abnormalities, most commonly hypertriglyceridemia, but also increases in low-density lipoprotein cholesterol and total cholesterol. Different classes of ART, and different drugs within classes, have differing effects on lipid levels, but in general newer drugs have more favourable effects compared with older ones. Low-level inflammation and chronic immune activation act on lipids through a variety of mechanisms to make them more atherogenic. As a consequence, risk is higher than would be expected for any given cholesterol level. Clinical outcome trials of cholesterol-lowering therapies have not yet been completed in people living with HIV, so that treatment decisions depend on extrapolation from studies in uninfected populations. Traditional risk assessment tools underestimate cardiovascular risk in individuals with HIV. Statins are the mainstay of lipid-lowering drug treatment; however, drug–drug interactions with ART must be considered. Simvastatin and lovastatin are contraindicated in patients taking protease inhibitors, and the dose of atorvastatin and rosuvastatin should be limited to 40 mg and 10 mg/d with some ART combinations. Switching from older forms of ART to lipid-friendly newer ones is a useful strategy as long as virologic suppression is maintained, but additional use of a statin lowers low-density lipoprotein cholesterol more effectively. Studies indicate that lipid abnormalities are not treated as aggressively in individuals living with HIV as they are in uninfected people, making this an opportunity to improve care.

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.


Over the past 30 years treatment for HIV has developed to a point where today, people living with HIV now have a near normal lifespan. However, living and ageing with HIV, just like the general ageing population, means that healthcare professionals are now managing, supporting and caring for a group of people who are at risk of developing increasing numbers of comorbidities and complexities. The management of HIV and complex care is now a priority for all healthcare professionals. This article will define the complexities experienced by people living and ageing with HIV; describe the types of complex issues seen and discuss how we can best support and manage those who are faced with HIV and complexity; and also define and consider the nurse's role in care coordination and complex case management.


BACKGROUND: Lifestyle physical activity (ie, moderate physical activity during routine daily activities most days of the week) may benefit human immunodeficiency virus (HIV)-positive adults who are at high risk for cardiovascular disease. OBJECTIVE: The aims of this study were to describe lifestyle physical activity patterns in HIV-positive adults and to examine the influence of lifestyle physical activity on markers of cardiovascular health. Our secondary objective was to compare these relationships between HIV-positive adults and well-matched HIV-uninfected adults. METHODS: A total of 109 HIV-positive adults and 20 control participants wore an ActiGraph accelerometer, completed a maximal graded cardiopulmonary exercise test, completed a coronary computed tomography, completed anthropomorphic measures, and had lipids and measures of insulin resistance measured from peripheral blood. RESULTS: Participants (N = 129) had a mean age of 52 +/- 7.3 years, 64% were male (n = 82), and 88% were African American (n = 112). On average, HIV-positive participants engaged in 33 minutes of moderate-to-vigorous physical activity per day (interquartile range, 17-55 minutes) compared with 48 minutes in controls (interquartile range, 30-62 minutes, P = .05). Human immunodeficiency virus-positive adults had poor fitness (peak oxygen uptake [VO2], 16.8 +/- 5.2 mL/min per kg; and a ventilatory efficiency, 33.1 [4.6]). A marker of HIV disease (current CD4+ T cell) was associated with reduced peak VO2 (r = -0.20, P < .05) and increased insulin resistance (r = 0.25, P < .01) but not with physical activity or other markers of cardiovascular health (P >/= 0.05). After controlling for age, gender, body mass index, and HIV status, physical activity was not significantly associated with peak VO2 or ventilatory efficiency. CONCLUSION: Human immunodeficiency virus-positive adults have poor physical activity patterns and diminished cardiovascular health. Future longitudinal studies should examine whether HIV infection blunts the beneficial effects of physical activity on cardiovascular health.


Falls are an important concern for individuals living with HIV (HIV+). The purpose of this study was to understand perceptions of HIV+ individuals who had fallen regarding what caused their falls, prevention strategies that they used, and the impact of falls on their lives. Qualitative Description was the approach best suited to our study. We conducted
in-depth interviews with 21 HIV+ individuals aged 47 to 71 years who had fallen within the past two years and who received care in a primary care/HIV clinic. Participants identified causes of falls as intrinsic (HIV, opportunistic infections, antiretroviral therapy, substance use, polypharmacy) or extrinsic (icy sidewalks, wet floors). Among those who felt that their falls could be prevented, prevention strategies included physical therapy and avoiding extrinsic fall risk factors. Some participants, however, felt that their falls could not be prevented. While some participants responded adaptively to falls, for many, the experience of falling was connected with deep feelings of loss and suffering. For these individuals, falls were understood to be "the beginning of the end" and a source of social isolation, changing family roles, diminished sense of self, and stigma.


Neurologic conditions associated with HIV remain major contributors to morbidity and mortality, and are increasingly recognized in the aging population on long-standing combination antiretroviral therapy (cART). Importantly, growing evidence suggests that the central nervous system (CNS) serves as a reservoir for viral replication with major implications for human immunodeficiency virus (HIV) eradication strategies. Though there has been major progress in the last decade in our understanding of the pathogenesis, burden, and impact of HIV-associated neurologic conditions, significant scientific gaps remain. In many low-income settings, second- and third-line cART regimens that carry substantial neurotoxicity remain treatment mainstays. Further, patients continue to present severely immunosuppressed with CNS opportunistic infections. Public health efforts should emphasize improvements in access and optimizing treatment of HIV-positive patients, specifically in resource-limited settings, to reduce the risk of neurologic sequelae.


**BACKGROUND:** To investigate metabolic changes associated with second-line antiretroviral therapy (ART) following virological failure of first-line ART. METHODS: SECOND-LINE was an open-label randomized controlled trial. Participants were randomized 1:1 to receive ritonavir-boosted lopinavir (LPV/r) with 2-3 nucleoside/nucleotide reverse transcriptase inhibitors (N[t]RTI group) or raltegravir (RAL group). 210 participants had a dual energy X-ray absorptiometry (DXA)-scan at baseline, week 48 and 96. We categorized participants according to second-line ART backbone: thymidine analogue (ta-NRTI) + lamivudine/emtricitabine (3[F]TC; ta-NRTI group); tenofovir (TDF)+3(F)TC (TDF group); TDF+ta-NRTI +/-3(F)TC (TDF+ta-NRTI group); RAL. Changes in fasted total cholesterol (TC), low-density lipoprotein (LDL)-cholesterol, high-density lipoprotein (HDL)-cholesterol, TC/HDL-cholesterol ratio, triglycerides and glucose from baseline to week 96 were examined. We explored the association between metabolic and DXA-assessed soft-tissue changes. Linear regression methods were used. RESULTS: We analysed 454 participants. Participants in RAL group had greater TC increases, TC (adjusted mean difference [aMD]=0.65, 95% CI 0.33, 0.96), LDL-c (aMD=0.38, 95% CI 0.15, 0.61) and glucose (aMD=0.47, 95% CI -0.01, 0.92) compared to TDF group, and had greater increases in TC (aMD=0.65, 95% CI 0.28, 1.03), HDL-c (aMD=0.12, 95% CI 0.02, 0.23) and LDL-c (aMD=-0.41, 95% CI 0.13, 0.69) compared to TDF+ta-NRTI group. TC/HDL ratio and triglycerides increased in all groups without significant differences between groups. A 1 kg increase in trunk fat mass was associated with an increase in TC. CONCLUSIONS: We observed metabolic changes of limited clinical significance in the relatively young population enrolled in this study. However, the metabolic changes observed may have greater clinical significance in older people living with HIV or those with other concomitant cardiovascular risks.
Inflammation


With the advent of antiretroviral therapy (ART), HIV-infected individuals are now living longer and healthier lives. However, ART does not completely restore health and treated individuals are experiencing increased rates of noncommunicable diseases such as dyslipidemia, insulin resistance, type 2 diabetes, cardiovascular disease, and nonalcoholic fatty liver disease. While it is well known that persistent immune activation and inflammation contribute to the development of these comorbid diseases, the mechanisms underlying this chronic activation remain incompletely understood. In this review, we will discuss emerging evidence that suggests that alterations in cellular metabolism may play a central role in driving this immune dysfunction in HIV patients on ART. [ABSTRACT FROM AUTHOR]


Background: Cardiovascular events (CVE) are an increasing cause of morbi-mortality for HIV patients. The antiretroviral therapy (ART), persistent immune activation, and life style are factors that can increase CVE for such patients. We performed a case-control study to evaluate the role of coinfections and immune markers associated with CVE. Methods: We included patients under ART, with undetectable plasma viral load >/=12 months. Patients presenting any condition of risk for CVE were considered cases, and those without CVE risk conditions were controls. History of viral infections (Epstein-Barr virus, hepatitis C virus, hepatitis B virus, and cytomegalovirus), exposure to antiretroviral drugs, time since HIV diagnosis/under ART, and life style (demographics, weight, smoking, alcohol, and illicit drug use) were assessed. CD4/CD8 nadir and current counts, nadir and current CD4/CD8 ratio, immune activation markers (CD4CD38HLADR, CD8CD38HLADR), and serum levels of eight cytokines [IL-2, IL-4, IL-6, IL-10, tumoral necrosis factor-alpha (TNF-alpha), interferon gamma, macrophage inflammatory proteins 1 alpha, and interferon-inducing protein (IP-10)] were measured. Results: Two-thirds of patients were males. Cases (N = 106) were older (52.8 vs 49.5 years, p = 0.002), had higher levels of creatinine (0.97 vs 0.87 mg/dL, p = 0.002) and IL-6 (0.67 vs 0.52 pg/mL, p = 0.04) than controls (N = 114). There was no difference between groups regarding frequency of CD4CD39HLADR+ or CD8CD38HLADR+ cells. We found a significant correlation (all patients) between increased frequency of CD4CD38HLADR+ cells and levels of IP-10 (r = 0.171, p = 0.02) and TNF-alpha (r = 0.187, p = 0.01). Levels of IL-6 (r = 0.235, p = 0.02), TNF-alpha (r = 0.267, p = 0.01), and IP-10 (r = 0.205, p = 0.04) were correlated with CD4CD38HLADR+ cells, in controls. Higher frequency of CD4CD38HLADR+ cells was also correlated with levels of IP-10 (r = 0.271, p = 0.04) in patients presenting with arterial hypertension. Frequency of CD4CD38HLADR+ cells was negatively correlated with levels of IL-2 (r = -0.639, p = 0.01) and IL-6 (r = -0.0561, p = 0.03) in patients with hypercholesterolemia. No association was detected between viral infections or smoking/alcohol use and immune activation markers. Conclusion: Our results indicate IL-6 levels are associated with increased CV risk. Activated CD4+ T cells were associated with increased levels of proinflammatory cytokines.


BACKGROUND: The widespread introduction of combination antiretroviral therapy (cART) has increased survival of HIV-infected patients. However, the prevalence of age-related comorbidities remains higher than that of the general population, suggesting that individuals with HIV suffer from accelerated aging. Immune activation, senescence and
inflammation could play an important role in this process. METHODS: The CIADIS (Chronic Immune Activation and Senescence) sub-study analyzed biomarkers of activation, differentiation and senescence of T cells in a cellular-CIADIS-weighted score, whereas biomarkers of inflammation were analyzed in a soluble CIADIS-weighted score using principal component analysis. Adjusted logistic regression and Cox proportional hazard models were used to determine the association between CIADIS-weighted scores and the presence of multimorbidity, time to occurrence of the first new age-related comorbidity and time to death, over a 3-year follow-up period. RESULTS: Of 828 patients with an undetectable viral load, a higher cellular-CIADIS-weighted score and higher TNFRI levels were independently associated with the presence of multimorbidity (OR 1.3; 95% CI 1.0-1.6; P = 0.02), but the soluble CIADIS-weighted score was not (OR = 1.1; 95% CI 0.9-1.3; P = 0.33). A higher cellular CIADIS-weighted score (hazard ratio 2.2; P < 0.01), higher levels of CD8 activation and a lower CD4/CD8 ratio were associated with a higher risk of age-related comorbidities. Only TNFRI was associated with mortality in a 3-year period. CONCLUSION: The cellular CIADIS-weighted score was independently associated with both multimorbidity at inclusion and the risk of new age-related comorbidity during a 3-year follow-up. TNFRI was associated a higher risk for mortality.


Hutchinson-Gilford progeria syndrome (HGPS) is a rare genetic disorder characterized by an accelerated aging phenotype that typically leads to death via stroke or myocardial infarction at approximately 14.6 years of age. Most cases of HGPS have been linked to the extensive use of a cryptic splice donor site located in the LMNA gene due to a de novo mutation, generating a truncated and toxic protein known as progerin. Progerin accumulation in the nuclear membrane and within the nucleus distorts the nuclear architecture and negatively affects nuclear processes including DNA replication and repair, leading to accelerated cellular aging and premature senescence. The serine-arginine rich splicing factor SRSF1 (also known as ASF/SF2) has recently been shown to modulate alternative splicing of the LMNA gene, with SRSF1 inhibition significantly reducing progerin at both the mRNA and protein levels. In 2014, we hypothesized for the first time that compounds including metformin that induce activation of AMP-activated protein kinase (AMPK), a master metabolic regulator activated by cellular stress (e.g. increases in intracellular calcium, reactive oxygen species, and/or an AMP(ADP)/ATP ratio increase, etc.), will beneficially alter gene splicing in progeria cells by inhibiting SRSF1, thus lowering progerin levels and altering the LMNA pre-mRNA splicing ratio. Recent evidence has substantiated this hypothesis, with metformin significantly reducing the mRNA and protein levels of both SRSF1 and progerin, activating AMPK, and alleviating pathological defects in HGPS cells. Metformin has also recently been shown to beneficially alter gene splicing in normal humans. Interestingly, several chemically distinct compounds, including rapamycin, methylene blue, all-trans retinoic acid, MG132, 1alpha,25-dihydroxyvitamin D3, sulforaphane, and oltipraz have each been shown to alleviate accelerated aging defects in patient-derived HGPS cells. Each of these compounds has also been independently shown to induce AMPK activation. Because these compounds improve accelerated aging defects in HGPS cells either by enhancing mitochondrial functionality, increasing Nrf2 activity, inducing autophagy, or by altering gene splicing and because AMPK activation beneficially modulates each of the aforementioned processes, it is our hypothesis that cellular stress-induced AMPK activation represents an indirect yet common mechanism of action linking such chemically diverse compounds with the beneficial effects of those compounds observed in HGPS cells. As normal humans also produce progerin at much lower levels through a similar mechanism, compounds that safely induce AMPK activation may have wide-ranging implications for both normal and pathological aging.

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.


OBJECTIVE: Antibody responses are often impaired in old age and in HIV-positive (HIV+) infection despite virologic control with antiretroviral therapy but innate immunologic determinants are not well understood. DESIGN: Monocytes and natural killer cells were examined for relationships to age, HIV infection and influenza vaccine responses. METHODS: Virologically suppressed HIV+ (n = 139) and HIV-negative (HIV-) (n = 137) participants classified by age as young (18-39 years), middle-aged (40-59 years) and old (>/=60 years) were evaluated preinfluenza and postinfluenza vaccination. RESULTS: Prevaccination frequencies of inflammatory monocytes were highest in old HIV+ and HIV-, with old HIV+ exhibiting higher frequency of integrin CD11b on inflammatory monocytes that was correlated with age, expression of C-C chemokine receptor-2 (CCR2) and plasma soluble tumor necrosis factor receptor-1 (sTNFR1), with inverse correlation with postvaccination influenza H1N1 antibody titers. Higher frequencies of CD11b inflammatory monocytes (CD11b, >48.4%) compared with low frequencies of CD11b inflammatory monocytes (<15.8%) was associated with higher prevaccination frequencies of total and inflammatory monocytes and higher CCR2 MFI, higher plasma sTNFR1 and CXCL-10 with higher lipopolysaccharide stimulated expression of TNFalpha and IL-6, concomitant with lower postvaccination influenza antibody titers. In HIV+ CD11b expressers, the depletion of inflammatory monocytes from peripheral blood mononuclear cells resulted in enhanced antigen-specific CD4 T-cell proliferation. Immature CD56 natural killer cells were lower in young HIV+ compared with young HIV- participants. CONCLUSION: Perturbations of innate immunity and inflammation signified by high CD11b on inflammatory monocytes are exacerbated with aging in HIV+ and negatively impact immune function involved in Ab response to influenza vaccination.


Sexual violence is associated with increased risk of HIV acquisition/transmission in women. Forced sex can result in physical trauma to the reproductive tract as well as severe psychological distress. However, immuno-biological mechanisms linking sexual violence and HIV susceptibility are incompletely understood. Using the Women's Interagency HIV Study repository, a total of 77 women were selected to form 4 groups, stratified by HIV serostatus, in the following categories: 1) no sexual abuse history and low depressive symptom score (below clinically significant cut-off, scores <16)
(Control); 2) no sexual abuse history but high depressive symptom score, >/=16 (Depression); 3) chronic sexual abuse exposure and low depressive symptom score (Abuse); 4) chronic sexual abuse exposure and high depressive symptom score (Abuse+Depression). Inflammation-associated cytokines/chemokines/proteases (TNF-alpha, IL-6, IL-1alpha, IL-1beta, TGF-beta MIP-3alpha, IP-10, MCP-1, Cathepsin B), anti-inflammatory/anti-HIV mediators (Secretory leukocyte protease inhibitor (SLPI), Elafin, beta defensin 2 (HBD2), alpha defensins (HNP 1-3), Thrombospondin (TSP-1), Serpin A1, A5, Cystatin A, B), and wound-healing mediators (Gro-alpha, VEGF, PDGF, EGF, FGF, IGF), were measured in cervical-vaginal lavage (CVL) using ELISA. Linear regression was used to model association of biomarkers with depression and abuse as predictor variables; the interaction between depression and abuse was also tested. Anti-HIV activity in CVL was tested using TZM-bl indicator cell line. In HIV-uninfected women, median levels of IL-6 (p = 0.04), IL-1alpha (p<0.01), TGF-beta (p = 0.01), IP-10 (p = <0.01), PDGF (p<0.01) and FGF (p<0.01), differed significantly between groups. Specifically, an association was found between chronic sexual abuse and increased IL-1alpha (p<0.01), MIP-3alpha (p = 0.04), IP-10 (p<0.01), Serpin B1 (p = 0.01), FGF (p = 0.04) and decreased TGF-beta (p<0.01), MCP-1 (p = 0.02), PDGF (p<0.01). Further, there was evidence of significant interactions between chronic sexual abuse and current depression for IL-1alpha, IP-10, Serpin A1, Cystatin B, and FGF. In HIV-infected women, median levels of TNF-alpha (p<0.01), IL-6 (p = 0.05), MIP-3alpha (p<0.01), and MCP-1 (p = 0.01), differed significantly between groups. Specifically, an association was found between chronic sexual abuse and increased MCP-1 (p = 0.03), Gro-alpha (p = 0.01) and decreased TNF-alpha (p<0.01), IL-1alpha (p = 0.02), MIP-3alpha (p<0.01) and Cathepsin B (p = 0.03). Current depressive symptoms were associated with significantly decreased MIP-3alpha (p<0.01). There was evidence of significant interactions between chronic sexual abuse and current depression for MCP-1 and FGF. No significant differences were observed in anti-HIV activity among all eight groups. Heat-map analyses revealed distinct immune network patterns, particularly in the Abuse groups for both HIV-infected and uninfected women. Our data indicates a complex relationship between chronic sexual abuse exposure, depressive symptoms, and FRT immune mediators that are also affected by HIV status. Association of chronic sexual abuse with increase in inflammation-associated cytokine/chemokine expression, along with impaired wound-healing associated growth-factors can create a microenvironment that can facilitate HIV infection. Evaluation of longitudinal changes in exposures and biomarkers are needed to untangle the immuno-biological mechanisms that may put women who endure life-long sexual abuse at increased risk for HIV.


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: Injectables 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]
BACKGROUND: Throughout the world, there are antiretroviral therapy-naive HIV+ individuals who maintain elevated peripheral CD4 T-cell counts, historically referred to as long-term nonprogressors (LTNPs). With recent improvements in viral load (VL) detection methods to levels as low as 20 copies per milliliter, 2 subsets of LTNPs have been defined: elite controllers (ECs), with undetectable VLs for at least 6-12 months, and viremic controllers (VCs), with VLs between 200 and 2000 copies per milliliter. ECs and VCs have been extensively studied in the developed world to determine underlying mechanisms responsible for virologic control. In sub-Saharan Africa, most studies have characterized LTNPs based on immunologic criteria making it difficult to compare findings with the Western cohorts, which use virologic criteria. Here, we describe a cohort of Uganda ECs and VCs attending a large HIV ambulatory center in Kampala, Uganda, based initially on CD4 counts and confirmed by repeated VL measurements. METHODS: A cross-sectional study was conducted among 14,492 HIV-infected, antiretroviral therapy-naive individuals aged 18 years and older under care for at least 5 years with serial peripheral CD4 counts >/=500 cells/μL. Among those, we determined the frequency of individuals with VLs <2000 copies per milliliter for at least 6 months. RESULTS: We report a prevalence of 0.26% (38/14,492) of HIV controllers in the clinic. We identified 36 ECs and 2 VCs. These individuals were middle-aged with an average CD4 count of 858 +/- 172 (mean +/- SD, 95% confidence interval: 795 to 921). Their average duration in HIV care was 7.4 +/- 2.1 years (mean +/- SD, 95% confidence interval: 6.6 to 8.1). The majority of EC/VCs were women (87%, 33/38), reflecting the demographics of the urban clinic. CONCLUSIONS: For the first time, this study demonstrates the frequency of EC/VCs in a large urban clinic in Uganda. Further study of these East African subjects may provide insights into how some individuals are able to control HIV in the absence of medications.


Background In high-income countries, inflammation has been associated with increased morbidity and mortality in human immunodeficiency virus (HIV)–infected individuals despite treatment with antiretroviral therapy (ART). However, these findings may not be generalizable to low-income settings. Methods In this cross-sectional study, multivariable linear regression was used to compare 28 inflammatory biomarker levels in HIV-infected and -uninfected participants. Correlations between biomarkers and Veterans Aging Cohort Study (VACS) index, Fibrosis-4 (FIB-4) score, and Framingham risk score were assessed. Results Plasma samples from 304 Kenyans were analyzed. Compared to HIV-uninfected controls, virologically suppressed HIV-infected participants had higher levels of CCL5, CXCL10, fatty acid binding protein (FABP) 2, fas ligand (FASLG), matrix metalloproteinase (MMP) 1, MMP7, soluble CD14 (sCD14), and soluble CD163 (sCD163) and lower MMP9 (P <.01). CD4+/HLA-DR+CD38+ (ρ = 0.32; P <.001), sCD14 (ρ = 0.25; P =.004), and sCD163 (ρ = 0.24; P =.006) were correlated with the VACS index. FABP2 was positively correlated (ρ = 0.29; P =.002), whereas MMP1 (ρ =−.32; P <.001) and MMP2 (ρ =−.28; P =.002) were inversely correlated with the FIB-4 score. Conclusions Differences in biomarker levels exist between well-controlled HIV-infected participants on ART and uninfected controls. Some biomarkers are correlated to scoring indices predictive of morbidity and mortality. These biomarkers could serve as prognostic indicators and inform therapeutic development. [ABSTRACT FROM AUTHOR]


To explore reasons for the disproportionate metabolic and cardiovascular disease burdens among older HIV-infected persons, we investigated whether associations of CD4 count and HIV viral load (VL) with non-high-density lipoprotein cholesterol (non-HDL-C) and high-density lipoprotein cholesterol [HDL-C] differed by age. Longitudinal
clinical and laboratory data were collected between 2011 and 2016 for HIV-infected outpatients in the DC Cohort study. Using data for patients aged >/=21 years with >/=1 cholesterol result and contemporaneous CD4/VL results, we created multivariable linear regression models with generalized estimating equations. Among 3,912 patients, the median age was 50 years, 78% were male, 76% were non-Hispanic black, 93% were using antiretroviral therapy, 8% had a CD4 count <200 cells/μL, and 18% had an HIV VL >/=200 copies/mL. Overall, CD4 count <200 (vs. >500) cells/μL and VL >/=200 copies/mL were associated with lower non-HDL-C concentrations (p < .01), but associations were more positive with increasing age (CD4-age/VL-age interactions, p < .01). CD4 count <200 cells/μL was associated with lower non-HDL-C among patients aged <50 years [β = -7.8 mg/dL (95% confidence interval, CI: -13.2 to -2.4)] but higher non-HDL-C among patients aged 60-69 years [β = +8.1 mg/dL (95% CI: 0.02-16.2)]. VL >/=200 copies/mL was associated with lower non-HDL-C among patients aged <50 years [β = -3.3 mg/dL (95% CI: -6.7 to 0.1)] but higher non-HDL-C among patients aged >/=70 years [β = +16.0 mg/dL (95% CI: -1.4 to 33.3)], although precision was reduced in age-stratified analyses. Although no age differences were detected for HDL-C, VL >/=200 copies/mL was more strongly associated with lower HDL-C concentrations when CD4 count was <200 cells/μL [β = -7.0 mg/dL (95% CI: -9.7 to -4.3)] versus 200-500 cells/μL [β = -4.2 (95% CI: -5.9 to -2.6)] or >500 cells/μL [β = -2.2 (95% CI: -3.7 to -0.8)] (CD4-VL interaction, p < .01). We detected a novel age-modified relationship between immunosuppression and viremia and atherogenic cholesterol patterns. These findings may contribute to our understanding of the high risk of dyslipidemia observed among persons aging with HIV.


Background: Both aging and treated human immunodeficiency virus (HIV)-infected populations exhibit low-level chronic immune activation of unknown etiology, which correlates with morbidity and mortality. Cytomegalovirus (CMV) infection is common in both populations, but its relation to immune activation is unknown. Methods: T cells from men who have sex with men (22 virologically suppressed HIV+, 20 HIV-) were stimulated with peptides spanning 19 CMV open reading frames, and intracellular cytokine responses were assessed. Soluble and cellular inflammatory markers were assessed by multiplex electrochemiluminescence and flow cytometry, respectively. Frailty was assessed by the Fried criteria. Results: All men had responses to CMV. Proportions of CMV-responsive T cells correlated strongly (r >/= 0.6 or </= -0.6; P < .05) with immunologic markers, depending on donor HIV and frailty status. Markers significantly correlated in some groups after adjustment for multiple comparisons included interferon-gamma, tumor necrosis factor-alpha, interleukin-6, and several chemokines in serum, and the proportion of activated T cells. The magnitude of the CD4 IL-2 response significantly predicted onset of frailty in HIV- nonfrail men, but not in HIV+ nonfrail men. Conclusions: T-cell responses to CMV may strongly influence chronic immune activation in HIV-uninfected and virologically suppressed HIV-infected men, and may predict frailty in HIV-uninfected men.


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.


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.;


BACKGROUND: Cytokines play an important role in controlling the homeostasis of the immune system and infection with Human Immunodeficiency virus (HIV) leads to deregulated production of both pro- and anti-inflammatory cytokines. This study was designed to determine the effects of HIV and Highly Active Antiretroviral Therapy (HAART) on the levels of pro-and anti-inflammatory cytokines in HIV infected subjects. METHOD: A total of 50 HIV infected and 50 HIV seronegative control participants were recruited for the study. The HIV infected subjects were recruited before commencement of antiretroviral therapy and were followed up for 12 months. Blood samples were collected at 3 different points: before initiation of therapy, 6 months into therapy and 12 months into therapy. Serum cytokines were analyzed using ELISA method while CD4+ T cells and viral load counts were measured using standard laboratory methods. RESULT: The results showed that pro-inflammatory cytokines: Tumour necrosis factor-alpha (TNF-alpha), Interleukin-6 (IL-6) and anti-inflammatory cytokines Interleukin-4 (IL-4), Interleukin-10 (IL-10) and Transforming growth factor-beta (TGF-beta) were significantly elevated in HIV infected subjects before commencement of therapy compared
to 6 months and 12 months into therapy (P < 0.01) and compared to control participants (P < 0.01). TNF-alpha, TGF-beta remained significantly elevated even after 12 months of therapy compared to control participants (P < 0.01), while IL-4, IL-6, and IL-10 showed no significant difference compared to control participants after 12 months of therapy (P > 0.05). INF-gamma was significantly reduced before commencement of therapy and after 12 months of therapy compared to control participants (P < 0.05) respectively. CONCLUSION: TNF-alpha and TGF-beta remained significantly elevated even after 12 months of therapy, while IFN-gamma remained significantly reduced after 12 months of therapy. Regulating these cytokines which were unresponsive to therapy could serve as a potential measure of therapy for HIV infected subjects. The positive effect of 12 months therapy on IL-4, IL-6 and IL-10 levels can be used to monitor disease prognosis during therapy especially in resource poor setting where regular viral load monitoring is unavailable.


BACKGROUND: Cataracts occur earlier among HIV-infected adults and this is attributed to various intraocular inflammatory processes that result in early degeneration. In this study we purposed to investigate whether HIV infected individuals with cataracts developed heightened intraocular inflammatory processes compared to their HIV negative counterparts by determining the concentration of 8 cytokines in the aqueous humour of HIV-positive adults with cataracts and their HIV-negative counterparts. METHODS: A cross-sectional study was conducted among consecutive adults with cataracts that were operated in an ophthalmology surgical camp in western Uganda. We determined levels of Granulocyte macrophage stimulating factor (GM-CSF), interleukin 6 (IL-6), interleukin 8 (IL-8), tumour necrotic factor alpha (TNF-a), interferon gamma (IFN-g), interleukin 4 (IL-4), interleukin 2 (IL-2), and interleukin (IL-10) in the aqueous fluid using a multiplexed cytokine analysis. Data was entered in the SPSS version 10 and analyzed using STATA statistical software version 7.0. Categorical and continuous variables were compared using the chi2 test, Fisher's exact test and the Student's t-test. Bonferroni correction was used to cater for multiple comparison of p values for the various cytokines. RESULTS: The 50 adults that underwent cataract surgery were outdoor peasants with similar exposure hours to UV radiation. The HIV-positive patients were younger [median age 43 years (SD 11.741)] compared to the HIV-negative patients [median age 66.5 years (SD 21.4)]. The mean CD4+ T cell count of the HIV-positive patients was 161 cells/mm3, and 12(48%) had started anti-retroviral therapy (ART). Pro-inflammatory cytokines, GM-CSF, IL-8 and IL-10 were significantly higher among HIV-positive individuals (p = 0.001, 0.030, < 0.001 respectively). HIV-positive individuals on ART also showed significantly higher levels of GM-CSF, IL-8 and IL-10 (p = 0.002, 0.021, < 0.001 respectively). TNF-a and IL-4 were significantly higher among those with a CD4+ T cell count greater than 200 cells/mm3 compared to those with CD4+ T cell count less than 200 cells/mm3 (p = 0.022, 0.032 respectively). CONCLUSION: Cataracts among HIV-positive adults were associated with higher intraocular inflammation relative to the healthy elderly individuals with cataracts. There is need to explore the potential role of intra-ocular anti-inflammatory agents in the management of cataracts among HIV positive patients.


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 persistent inflammation aggravated by a disordered immune response is considered to be the major cause of CD4(+) T cell depletion in lymphoid tissue, which impels the progression of AIDS. Here, we report that heat shock factor 1 (HSF1) works as an innate repressor of HIV-induced inflammation. The activation of HSF1 was found to accompany inflammation during HIV infection. Further research uncovered that HSF1 activation inhibited HIV-induced inflammation. In addition, HSF1 overexpression suppressed the inflammatory response induced by HIV, while HSF1 deficiency exacerbated that inflammation. Mechanistically, HSF1 was found to compete with nuclear factor-kappaB (NF-kappaB) in the nucleus. Generally, our report highlights that HSF1 is an important host factor in regulating HIV-induced inflammation and may work as a potential target for curing AIDS.


Oropharyngeal candidosis (OPC) is an opportunistic fungal infection that is commonly found in HIV-infected patients, even in the twenty-first century. Candida albicans is the main pathogen, but other Candida species have been isolated. OPC usually presents months or years before other severe opportunistic infections and may indicate the presence or progression of HIV disease. The concept of OPC as a biofilm infection has changed our understanding of its pathobiology. Various anti-fungal agents (both topical and systemic) are available to treat OPC. However, anti-fungal resistance as a result of the long-term use of anti-fungal agents and recurrent oropharyngeal infection in AIDS patients require alternative anti-fungal therapies. In addition, both identifying the causative Candida species and conducting anti-fungal vulnerability testing can improve a clinician’s ability to prescribe effective anti-fungal agents. The present review focuses on the current findings and therapeutic challenges for HIV-infected patients with OPC.


INTRODUCTION: Non-alcoholic fatty liver disease is characterized by the presence of hepatic steatosis and can be associated with fibrosis progression, development of cirrhosis and liver-related complications. Data on the prevalence of liver fibrosis and steatosis in HIV patients remain contradictory in resource-limited settings. We aimed to describe the prevalence and factors associated with liver fibrosis and steatosis in patients with HIV mono-infection under long-term antiretroviral therapy (ART) in Rio de Janeiro, Brazil. METHODS: Clinical assessment, fasting blood collection and liver stiffness measurement (LSM)/controlled attenuation parameter (CAP) by transient elastography
were performed on the same day for this cross-sectional study (PROSPEC-HIV study; NCT02542020). Patients with viral hepatitis co-infection, ART-naive or missing data were excluded. Liver fibrosis and steatosis were defined by LSM ≥ 8.0 kPa and CAP ≥ 248 dB/m respectively. HIV history, cumulative and current ART regimens were evaluated. Multivariate logistic regression models adjusted for age and gender were performed. RESULTS: In total, 395 patients (60% female; median age of 45 (IQR, 35 to 52) years, body mass index = 25.7 (23.2 to 29.4) kg/m(2), alanine aminotransferase = 30 (23 to 42) IU/L, duration of ART for 7 (4 to 14) years) were included. LSM and CAP were reliable in 93% (n = 367) and 87% (n = 344) respectively. The prevalence of fibrosis and steatosis were 9% (95% confidence interval (CI), 7 to 13) and 35% (95% CI, 30 to 40) respectively. The following factors were associated with fibrosis (odds ratio (OR) (95% CI)): older age (per 10 years; 1.80 (1.27 to 2.55); p = 0.001) and CD4+ count <200 cells/mm(3) (7.80 (2.09 to 30.10), p = 0.002). Type 2 diabetes had a trend towards the presence of liver fibrosis (2.67 (0.96 to 7.46), p = 0.061). Central obesity (10.74 (4.40 to 26.20), p < 0.001), type 2 diabetes (9.74 (3.15 to 30.10), p < 0.001), dyslipidaemia (2.61 (1.35 to 5.05), p = 0.003) and metabolic syndrome (4.28 (2.45 to 7.46), p < 0.001) were associated with steatosis. A dominant backbone ART regimen of zidovudine (AZT), d4T, ddI or ddC was associated with steatosis (1.90 (1.07 to 3.38), p = 0.028) independently of metabolic features. CONCLUSION: Integrated strategies for preventing non-communicable diseases in people with HIV mono-infection are necessary to decrease the burden of liver diseases. Clinical Trial Number: NCT02542020.


OBJECTIVE: The current study examined the association between diurnal cortisol profiles, inflammation, and functional limitations, among adults ranging in age from 34-84 years. METHOD: Participants (N = 799) completed Waves 2 (between 2004 and 2006) and 3 (between 2014 and 2016) of the Midlife Development in the United States Survey. At Wave 2, participants provided saliva samples across 4 consecutive days, from which cortisol was assayed. Previously validated diurnal cortisol profiles (i.e., normative, flattened, or elevated) were examined in relation to concurrent inflammation risk burden and to predict long-term changes in functional limitations. RESULTS: Compared with participants with normative profiles across all interview days, participants with dysregulated profiles across all interview days (i.e., all days elevated, flattened, or a combination of elevated and flattened) showed greater concurrent inflammation risk burden and more functional limitations at follow-up. Regions of significance testing indicated that the association was significant beginning at age 60 for inflammation risk burden and beginning at age 66 for functional limitations. Variable profiles (i.e., a mix of normative and flattened and/or elevated across the four days of assessment) were not significantly associated with these health indices. CONCLUSIONS: Findings, consistent with the theoretical model of Strength and Vulnerability Integration, illustrate the importance of considering age when examining cortisol and its association with other health indices. (PsycINFO Database Record


It is a well-known fact that DHEA declines on ageing and that it is linked to ageing-related neurodegeneration, which is characterised by gradual cognitive decline. Although DHEA is also associated with inflammation in the periphery, the link between DHEA and neuroinflammation in this context is less clear. This review drew from different bodies of literature to provide a more comprehensive picture of peripheral vs central endocrine shifts with advanced age-specifically in terms of DHEA. From this, we have formulated the hypothesis that DHEA decline is also linked to neuroinflammation and that increased localised availability of DHEA may have both therapeutic and preventative benefit to limit neurodegeneration. We provide a comprehensive discussion of literature on the potential for
extragonadal DHEA synthesis by neuroglial cells and reflect on the feasibility of therapeutic manipulation of localised, central DHEA synthesis.


**BACKGROUND:** Triple-drug regimens are the gold standard for HIV therapy. Nucleos(t)ide reverse transcriptase inhibitors (NRTIs) reducing regimens are used to decrease drugs toxicity, exposure and costs. Aim of our study was to evaluate trends of biochemical and inflammatory indices in patients switching to dual therapy (DT). **METHODS:** We included patients that a) switched to a DT from 2007 to 2015 from a tenofovir/abacavir-based triple regimen b) previously maintained a triple and c) subsequently a dual regimen for 12 months with virological suppression. We retrieved data measured at 5 points (at the switch, 6 and 12 months before and after switch). We used platelet-to-lymphocyte ratio (PLR), neutrophil-to-lymphocyte ratio (NLR) and CD4/CD8 ratio as inflammatory indices. We assessed temporal trends of viro-immunological, biochemical and inflammatory parameters. **RESULTS:** Overall, 364 and 65 patients switched from a tenofovir- and an abacavir-triple regimen, respectively. In the tenofovir-reducing group, creatinine clearance and lipids raised after the switch. There was a significant increase in both CD4+ cells and CD4/CD8. CD8+ cells rose after the switch, while opposite trend was found for PLR. In the abacavir-reducing group total lipids showed a decrease during the first 6 months after the switch and then stabilized. An increase of CD4+ and a decrease of CD8+ cells was observed during the study period, although not statistically significant. While CD4/CD8 remained stable after simplification, PLR decreased significantly after 6 months, then returning to baseline. CD8+ cells increased in the tenofovir-reducing group despite a viro-immunological response. Intriguingly, PLR decreased, maintaining this trend for 12 and 6 months after tenofovir and abacavir interruption respectively. **CONCLUSIONS:** Increased PLR has been linked to hypercholesterolemia and metabolic-syndrome, while high CD8+ cells count to increased risk of non-AIDS-related events regardless of CD4 T-cell recovery and to virological failure. Whether these findings may have clinical implications, and which role DT plays on the immune system and on inflammation should be further investigated.


Endothelial progenitor cells (EPCs) repair damaged vascular endothelium, and low circulating EPC levels have been associated with cardiovascular disease (CVD). CD34(+)/KDR(+) EPCs are commonly reported in the literature and CD34(+)/CD133(+)/KDR(+) EPCs are rare in circulation but highly specific for endothelial lineage. HIV-infected (HIV+) adults have chronic inflammation and increased CVD risk, but the relationship between CVD, vascular inflammation, and EPCs in HIV remains unclear. In a pilot study, EPCs were measured in 57 HIV+ men >/=50 years old, HIV-1 RNA <50 copies/ml on antiretroviral therapy (ART) by real-time flow cytometry using cellular immaturity (CD34 and/or CD133) and endothelial commitment (KDR) markers. Fasting inflammatory biomarker levels were measured by ELISA. Median age was 57 years; CD4(+) T lymphocyte count was 570 cells/mm(3). Prevalent CVD risk factors included 16% diabetes, 28% hypertension, 53% dyslipidemia, and 33% smoking. Median (interquartile range) EPC values were CD34(+)/KDR(+) 0.1 (0.0-0.9) cells/10(5) peripheral blood mononuclear cells (PBMCs) and CD34(+)/CD133(+)/KDR(+) 0.1 (0.0-0.9) cells/10(5) PBMCs. We observed a high prevalence of undetectable CD34(+)/KDR(+) (40%) and CD34(+)/CD133(+)/KDR(+) EPCs (44%). Men with undetectable EPCs were more likely to have >/=2 CVD risk factors, lower interleukin-6 (IL-6), and higher sCD163 levels. In these older HIV+ men on suppressive ART, CD34(+)/KDR(+) and CD34(+)/CD133(+)/KDR(+) EPC levels were low and often undetectable. Undetectable EPC levels were associated with greater CVD risk factor burden, lower IL-6 (consistent with decreased EPC production stimulus), and higher sCD163 (consistent with monocyte activation
and prior CVD associations) levels, suggesting a potential relationship between EPCs and atherosclerotic burden in this population.


BACKGROUND: Various individual biomarkers of inflammation and micronutrient status, often correlated with each other, are associated with adverse treatment outcomes in human immunodeficiency virus (HIV)-infected adults. The objective of this study was to conduct exploratory factor analysis (EFA) on multiple inflammation and micronutrient biomarkers to identify biomarker groupings (factors) and determine their association with HIV clinical treatment failure (CTF) and incident active tuberculosis (TB). METHODS: Within a multicountry randomized trial of antiretroviral therapy (ART) efficacy (PEARLS) among HIV-infected adults, we nested a case-control study (n = 290; 124 cases, 166 controls) to identify underlying factors, based on EFA of 23 baseline (pre-ART) biomarkers of inflammation and micronutrient status. The EFA biomarker groupings results were used in Cox proportional hazards models to study the association with CTF (primary analysis where cases were incident World Health Organization stage 3, 4 or death by 96 weeks of ART) or incident active TB (secondary analysis). RESULTS: In the primary analysis, based on eigenvalues > 1 in the EFA, three factors were extracted: (1) carotenoids), (2) other nutrients, and (3) inflammation. In multivariable-adjusted models, there was an increased hazard of CTF (adjusted hazard ratio (aHR) 1.47, 95% confidence interval (CI)1.17-1.84) per unit increase of inflammation factor score. In the secondary incident active TB case-control analysis, higher scores of the high carotenoids and low interleukin-18 factor was protective against incident active TB (aHR 0.48, 95% CI 0.26-0.87). CONCLUSION: Factors identified through EFA were associated with adverse outcomes in HIV-infected individuals. Strategies focused on reducing adverse HIV outcomes through therapeutic interventions that target the underlying factor (e.g., inflammation) rather than focusing on an individual observed biomarker might be more effective and warrant further investigation.


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 (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.

BACKGROUND: The effects of methamphetamine (MA) on caries have been well documented. Little, however, is known about its effects on the periodontium. The authors conducted this study to determine the prevalence and severity of periodontal disease in an urban population of HIV-positive MA users. METHODS: This cross-sectional survey was conducted in one of the most populous urban areas of Los Angeles County, California, beset with high rates of MA use. Participants were recruited by a combination of street outreach methods, referral from drug treatment centers, and word of mouth. Participants were eligible if they were older than 18 years, spoke English or Spanish, used MA in the past 30 days, were willing to undergo a dental examination and psychosocial assessments, and were willing to provide a urine sample. Periodontal assessments were completed for 541 participants by 3 trained and calibrated dentists. RESULTS: The prevalence and severity of periodontal disease were high in this population of HIV-positive and -negative MA users. Cigarette smoking and age were identified as risk factors. CONCLUSIONS: The HIV-positive and -negative cohorts were remarkably similar, suggesting that their lifestyles contributed more to their destructive periodontal disease than their MA use. PRACTICAL IMPLICATIONS: MA users are at high risk of developing destructive periodontal disease and badly broken-down teeth. Clinicians should plan accordingly for timely management of the patients' care, knowing that MA users have extensive periodontal and restorative treatment needs.


Black people living with HIV (BPLWH) are less likely to adhere to antiretroviral treatment than are members of other racial/ethnic groups. Data were combined from two studies of BPLWH (n = 239) to estimate adherence trajectories using a semiparametric, group-based modeling strategy over three time-points (spanning 6 months). Analyses identified three groups of individuals (high-stable, moderately low-stable, low-decreasing). Multinomial logistic regressions were used to predict trajectory membership with multiple levels of socio-ecological factors (structural, institutional/health system, community, interpersonal/network, individual). Older age was associated with being in the high-stable group, whereas substance use, lower perceived treatment effectiveness, and lower quality healthcare ratings were related to being in the moderately low-stable group. In sum, multiple socio-ecological factors contribute to adherence among BPLWH and thus could be targeted in future intervention efforts.


OBJECTIVE: To explore the safety and efficacy of fish oil to modulate parameters of inflammation and immunosenescence in HIV-infected older adults. DESIGN: This study uses a randomized, controlled, double-blind clinical trial. SETTING: The study was conducted in an outpatient HIV/AIDS clinic in a large urban Midwestern city in the United States. SUBJECTS: A total of 37 clinically stable HIV-infected adults between the ages of 40 and 70 years of age participated. INTERVENTIONS: Fish oil 1.6 g/day was administered for 12 weeks or placebo. OUTCOME MEASURES: Inflammatory cytokine production, surface markers of immunosenescence, and adverse events were measured. RESULTS: After 12 weeks of supplementation, there were no significant differences between the treatment and control
groups on any measures of inflammation or immunosenescence in both CD4(+) and CD8(+) T lymphocytes. More participants in the treatment group reported adverse gastrointestinal events compared with the control group.

CONCLUSIONS: A 12-week supplementation regimen of 1.6 g/day of fish oil did not favorably modulate parameters of inflammation or immune senescence in HIV-infected adults. Future studies should test agents that directly target mechanisms that underlie HIV-related inflammation to determine whether reducing inflammation can reverse immunosenescence.


BACKGROUND: Lifestyle physical activity (ie, moderate physical activity during routine daily activities most days of the week) may benefit human immunodeficiency virus (HIV)-positive adults who are at high risk for cardiovascular disease. OBJECTIVE: The aims of this study were to describe lifestyle physical activity patterns in HIV-positive adults and to examine the influence of lifestyle physical activity on markers of cardiovascular health. Our secondary objective was to compare these relationships between HIV-positive adults and well-matched HIV-uninfected adults. METHODS: A total of 109 HIV-positive adults and 20 control participants wore an ActiGraph accelerometer, completed a maximal graded cardiopulmonary exercise test, completed a coronary computed tomography, completed anthropomorphic measures, and had lipids and measures of insulin resistance measured from peripheral blood. RESULTS: Participants (N = 129) had a mean age of 52 +/- 7.3 years, 64% were male (n = 82), and 88% were African American (n = 112). On average, HIV-positive participants engaged in 33 minutes of moderate-to-vigorous physical activity per day (interquartile range, 17-55 minutes) compared with 48 minutes in controls (interquartile range, 30-62 minutes, P = .05). Human immunodeficiency virus-positive adults had poor fitness (peak oxygen uptake [VO2], 16.8 +/- 5.2 mL/min per kg; and a ventilatory efficiency, 33.1 [4.6]). A marker of HIV disease (current CD4+ T cell) was associated with reduced peak VO2 (r = -0.20, P < .05) and increased insulin resistance (r = 0.25, P < .01) but not with physical activity or other markers of cardiovascular health (P >/= 0.05). After controlling for age, gender, body mass index, and HIV status, physical activity was not significantly associated with peak VO2 or ventilatory efficiency. CONCLUSION: Human immunodeficiency virus-positive adults have poor physical activity patterns and diminished cardiovascular health. Future longitudinal studies should examine whether HIV infection blunts the beneficial effects of physical activity on cardiovascular health.


The inflammatory context of HIV infection has been posited to contribute to the higher comorbidity risk noted in HIV-infected populations. One possible pathway may involve 1,25-dihydroxyvitamin D [1,25(OH)2D], which plays a wide biologic role in many tissues. We sought to investigate whether inflammation was associated with vitamin D metabolites in a cohort of HIV-infected (HIV+) men receiving treatment and HIV-uninfected (HIV-) men. Vitamin D metabolites, including 25-hydroxyvitamin D [25(OH)D] and 1,25(OH)2D, were measured along with 24 inflammatory markers among Multicenter AIDS Cohort Study participants. Exploratory factor analysis reduced inflammatory marker data to a smaller set of inflammatory processes (IPs). Multivariate linear regression was used to evaluate associations between vitamin D metabolites and IPs. There were 466 HIV+ and 100 HIV- men, who contributed 658 stored samples from 1998 to 2008. We found three IPs with IP 1 characterized by sTNF-R2, sIL-2R alpha, sCD27, BAFF, sgp130, sCD14, CXCL10 (IP-10), and sIL-6R. While none of the three IPs was associated with 25(OH)D levels in either HIV+ or HIV-, higher levels of IP 1 were significantly associated with the reduced levels of 1,25(OH)2D in HIV+, and a similar although nonsignificant trend was seen in HIV-. The association between 1,25(OH)2D and inflammation found among HIV-infected men suggests a possible mechanism whereby inflammation leads to the increased comorbidity risk noted among HIV-infected individuals.

Fish oil is a natural product that has shown efficacy for managing inflammatory conditions with few side effects. There is emerging evidence that crosstalks between gut epithelial cells and immune cells contribute to chronic infectious diseases. HIV-infected (HIV+) older adults show age-related co-morbidities at a younger age than their uninfected counterparts. Persistent inflammation related to the chronic viral infection and its sequelae is thought to contribute to this disparity. However, little is known about whether fish oil reduces intestinal inflammation in HIV+ patients. We measure inflammation and gut barrier function in HIV+ older adults (median age = 52, N = 33), following 12 weeks of fish oil supplementation (a total daily dose of 1.6 g of omega-3 fatty acids). We showed a reduction in inflammation and gut permeability as measured by CD14, inflammatory cytokines, lipopolysaccharide, and lipopolysaccharide binding protein. The results indicate that older HIV+ adults may benefit from a diet supplemented with the omega-3 fatty acids found in fish oil.


BACKGROUND: Chronic inflammation and immune dysfunction occur in human immunodeficiency virus (HIV)-infection despite stable antiretroviral therapy (ART). Red blood cell distribution width (RDW) has been shown to correlate with markers of inflammation in non-HIV conditions. The study objective was to determine associations between RDW with cellular markers of immune activation and immune dysfunction including soluble inflammatory mediators in ART treated HIV infection. METHODS: We performed a cross-sectional analysis of the Hawaii Aging with HIV-Cardiovascular study. RDW was defined as one standard deviation of RBC size divided by mean corpuscular volume multiplied by 100%. Correlations were analyzed between RDW, soluble inflammatory biomarkers and T cell activation (CD38 + HLA-DR+), senescence (CD28-CD57+), and immune exhaustion (PD-1, TIGIT, TIM-3 expression). RESULTS: Of 158 participants analyzed, median age was 50 years, duration of ART 12.6 years, virally suppressed 84.4%, and CD4 count 503 cells/mm3. Significant positive correlations were identified between RDW and soluble biomarkers including sICAM, IL-8, IL-6, SAA, TNF-alpha, sE-selection, fibrinogen, D-dimer, CRP, CD4/CD8 ratio, and frequency of multiple CD8 T-cell populations such as CD38 + HLA-DR + T-cells, single TIGIT+, and dual expressing of TIGIT + PD1+, TIGIT + TIM3+, and TIM3 + PD1 + CD8+ T-cell subsets (p < .05). Frequencies of CD38 + HLA-DR + CD8+ T-cells and TIGIT + CD8+ T-cells remained significant adjusting for baseline variables (p < .01). CONCLUSION: Our study revealed correlations between RDW with systemic inflammatory biomarkers and CD8+ T-cell populations related to immune activation and exhaustion in HIV-infected individuals on ART. Further studies are warranted to determine the utility of RDW as a marker of immune dysregulation in HIV.

Kidney/Renal

BACKGROUND AND OBJECTIVES: Tenofovir disoproxil fumarate (tenofovir) is associated with elevated concentrations of biomarkers of kidney damage and dysfunction in individuals with HIV. The relationship of these kidney biomarkers with longitudinal kidney function decline is unknown. DESIGN, SETTING, PARTICIPANTS, & MEASUREMENTS: We evaluated associations of 14 urinary biomarkers of kidney injury with changes in eGFR among 198 men and women with HIV who initiated tenofovir between 2009 and 2015 in the Multicenter AIDS Cohort Study and Women's Interagency HIV Study. Urinary biomarkers included albumin-to-creatinine ratio, alpha-1-microglobulin, beta-2-microglobulin, cystatin C, kidney injury molecule-1 (KIM-1), IL-18, neutrophil gelatinase-associated lipocalin (NGAL), clusterin, osteopontin, uromodulin, monocyte chemoattractant protein-1, EGF, trefoil factor 3, and chitinase 3-like protein 1. We used multivariable linear mixed-effect models controlling for demographics, traditional kidney disease risk factors, and HIV-related risk factors to evaluate associations of baseline biomarkers with first-year changes in eGFR, and associations of year 1 and first-year change in biomarkers with changes in eGFR from year 1 to year 3. We used the least absolute shrinkage and selection operator method to identify a parsimonious set of biomarkers jointly associated with changes in eGFR. RESULTS: Median eGFR before tenofovir initiation was 103 (interquartile range, 88-116) ml/min per 1.73 m(2). During the first year of tenofovir use, eGFR decreased on average by 9.2 (95% confidence interval, 6.5 to 11.9) ml/min per 1.73 m(2) and was stable afterward (decrease of 0.62; 95% confidence interval, -0.85 to 2.1 ml/min per 1.73 m(2) per year). After multivariable adjustment, higher baseline beta-2-microglobulin, KIM-1, and clusterin were associated with larger first-year eGFR declines, whereas higher baseline uromodulin was associated with a smaller eGFR decline. First-year increase in urinary cystatin C and higher year 1 IL-18 were associated with larger annual eGFR declines from year 1 to year 3. The parsimonious models identified higher pre-tenofovir clusterin and KIM-1, lower pre-tenofovir uromodulin, and higher year 1 IL-18 as jointly associated with larger eGFR declines. CONCLUSIONS: Urinary biomarkers of kidney injury measured before and after tenofovir initiation are associated with subsequent changes in eGFR in individuals with HIV. PODCAST: This article contains a podcast at https://www.asn-online.org/media/podcast/CJASN/2018_08_28_CJASNPodcast_18_9_S.mp3.


Introduction Antiretroviral therapy has improved the life expectancy of patients living with HIV. However, lipodystrophy syndrome (LD) remains prevalent, affecting mostly patients treated with first-generation antiretroviral drugs. This syndrome is characterized by changes in body fat distribution with or without associated metabolic changes. Here, we studied whether clinically evaluated LD is independently associated with chronic kidney disease (CKD) development (sustained estimated glomerular filtration rate [eGFR] < 60 ml/min per 1.73 m2) in HIV-positive patients.

Methods We conducted a prospective cohort study among all the patients from the Swiss HIV Cohort Study (SHCS) with an eGFR >60 ml/min per 1.73 m2 upon their entry into the cohort with more than 3 months of follow-up from January 2002 to August 2016. Cox regression models were used to estimate the association between LD and CKD development.

Results Among the 5384 patients included, 1341 (24.9%) developed LD during the follow-up. The mean follow-up time was 72.3 months (SD ±48.4). In total, 252 patients (4.7%) reached the primary endpoint after a median time of 51.3 months (±SD 39.9 months) from inclusion. A diagnosis of LD significantly increased the risk of an eGFR at univariate (hazard ratio [HR] = 2.72; 95% confidence interval [95% CI] = 2.07–3.58; P < 0.001) and remained significantly higher after adjustment for known HIV and non-HIV risk factors for CKD (HR = 2.37; 95% CI = 1.67–3.36; P < 0.001). The effect of LD on CKD was not mediated through the use of nephrotoxic antiretroviral drugs.

Conclusion Lipodystrophy syndrome is independently associated with CKD after adjustment for previously reported risk factors.

INTRODUCTION: The widespread use of antiretroviral therapies (ART) has increased life expectancy in HIV patients, predisposing them to chronic non-communicable diseases including Chronic Kidney Disease (CKD). We performed a systematic review and meta-analysis (PROSPERO registration number CRD42016036246) to determine the global and regional prevalence of CKD in HIV patients. METHODS: We searched PubMed, Web of Science, EBSCO and AJOL for articles published between January 1982 and May 2016. CKD was defined as estimated glomerular filtration rate (eGFR) <60ml/min using the MDRD, Cockcroft-Gault or CKD-EPI equations. Random effects model was used to combine prevalence estimates from across studies after variance stabilization via Freeman-Tukey transformation. RESULT: Sixty-one eligible articles (n = 209,078 HIV patients) in 60 countries were selected. The overall CKD prevalence was 6.4% (95%CI 5.2-7.7%) with MDRD, 4.8% (95%CI 2.9-7.1%) with CKD-EPI and 12.3% (95%CI 8.4-16.7%) with Cockcroft-Gault; p = 0.003 for difference across estimators. Sub-group analysis identified differences in prevalence by WHO region with Africa having the highest MDRD-based prevalence at 7.9% (95%CI 5.2-11.1%). Within Africa, the pooled MDRD-based prevalence was highest in West Africa [14.6% (95%CI 9.9-20.0%)] and lowest in Southern Africa (3.2%, 95%CI 3.0-3.4%). The heterogeneity observed could be explained by WHO region, comorbid hypertension and diabetes mellitus, but not by gender, hepatitis B or C coinfection, CD4 count or antiretroviral status. CONCLUSION: CKD is common in HIV-infected people, particularly in Africa. HIV treatment programs need to intensify screening for CKD with added need to introduce global guidelines for CKD identification and treatment in HIV positive patients.


Acute kidney injury (AKI) is characterized by a rapid decline of renal function associated with worse outcomes. The purpose of the authors is to perform a critical review of the incidence, risk factors, pathogenesis and outcome of AKI in HIV-infected patients. Human immunodeficiency virus (HIV)-infected patients have an increased risk of developing AKI, to which contribute both HIV-dependent and HIV-independent factors as well as the nephrotoxicity of drugs used.
The increased risk of AKI in HIV-infected patients and its negative impact on prognosis highlights the need for identification of patients at risk, creation of prevention strategies and management. HIV-infected patients have an increased risk of developing AKI, to which both HIV-dependent and HIV-independent factors contribute, as well as the nephrotoxicity of drugs used. The increased risk of AKI in HIV-infected patients and its negative impact on prognosis highlight the need for identification of patients at risk, creation of prevention strategies and management.


POURPOSE 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.


We conducted an observational cohort study of end-stage kidney disease (ESKD) in >7000 African and Caribbean people with HIV in the UK. Using Poisson regression and East Africans as the reference group, the adjusted incidence rate ratio (95% confidence interval) of ESKD was 3.14 (1.26-7.84) in Southern Africans, 6.35 (2.53-15.96) in West Africans, and 5.26 (1.91-14.43) in Caribbeans. Higher CD4 cell count and suppressed HIV replication were associated with reduced risk of ESKD. The risk of ESKD varied among HIV-positive people of African heritage, with the highest rates observed in those of West African descent.


AIM: To determine the prevalence of chronic kidney disease (CKD) and the epidemiological, clinical, and laboratory factors associated with CKD in Mexican HIV-infected patients. METHODS: Cross-sectional study. We included 274 patients with HIV/AIDS. CKD was defined by the estimated glomerular filtration rate ($\text{eGFR} < 60 \text{ mL/min}/1.73 \text{ m}^2$ assessed by CKD-EPI) and albuminuria criteria from KDIGO guidelines. Clinical, epidemiological, and laboratory characteristics were compared between patients with and without CKD. The factors associated with CKD were assessed by logistic regression analysis. RESULTS: The mean age was 41+/−11 years, and 72.3% of the patients were men. The global prevalence of CKD was 11.7% ($n = 32$); 7.2% ($n = 20$) were defined by eGFR criterion; 7.6% ($n = 21$), by the albuminuria criterion; and 3.2% ($n = 9$), by both CKD criteria. The most frequently observed stages of CKD were KDIGO G3A1 stage with 4.7% ($n = 13$), KDIGO G1A2 stage with 3.6% ($n = 10$) and KDIGO G3A2 stage with 1.7% ($n = 5$). The
factors associated with CKD were use of abacavir/lamivudine (OR 3.2; 95% CI 1.1-8.9; p = 0.03), a CD4 lymphocyte count < 400 cells/µL (OR 2.6; 95% CI 1.03-6.4; p = 0.04), age (OR 1.1; 95% CI 1.04-1.2, p = 0.001) and albuminuria (OR 19.98; 95% CI: 5.5-72.2; p < 0.001). CONCLUSIONS: CKD was a frequent complication in HIV-infected patients. These findings confirm the importance of screening and the early detection of CKD, as well as the importance of identifying and treating traditional and non-traditional risk factors associated with CKD.


BACKGROUND: Kidney injury is a serious comorbidity among HIV-infected patients. Intravenous drug use is listed as one of the risk factors for impaired renal function; however, this group is rarely assessed for specific renal-related risks. METHODS: Patients attending methadone program from 1994 to 2015 were included in the study. Data collected included demographic data, laboratory tests, antiretroviral treatment history, methadone dosing and drug abstinence. Patients' drug abstinence was checked monthly on personnel demand. We have evaluated two study outcomes: (1) having at least one or (2) three eGFR < 60 ml/min (MDRD formula). RESULTS: In total, 267 persons, with 2593 person-years of follow-up were included into analyses. At the time of analyses, 251 (94%) were on antiretroviral therapy (ARV). Fifty-two (19.5%) patients had 1eGFR and 20 (7.5%) 3eGFR < 60. In univariate analysis, factors significantly increasing the odds of impaired renal function were: female gender, detectable HIV RNA on ART, age at registration per 5 years older, atazanavir use and time on antiretroviral treatment per 1 year longer. In the multivariate model, only female gender (OR 4.7; p = 0.002), time on cART (OR 1.11; p = 0.01) and baseline eGFR (OR 0.71; p = 0.001) were statistically significant. CONCLUSIONS: We have demonstrated a high rate of kidney function impairment among HIV-1 positive patients in the methadone program. All risk factors for decreased eGFR in this subpopulation of patients were similar to those described for general HIV population with very high prevalence in women. These findings imply the need for more frequent kidney function monitoring in this subgroup of patients.


BACKGROUND: In the era of combined antiretroviral therapy, classic focal segmental glomerulosclerosis (FSGS) is the most common histopathological finding in African American HIV-positive patients with kidney disease. We sought to determine whether HIV suppression is associated with lower risk of progression to end-stage renal disease (ESRD) among HIV-positive African Americans with biopsy-confirmed classic FSGS. METHODS: HIV-positive African Americans who underwent kidney biopsies at a single tertiary hospital between January 1996 and June 2011 were confirmed as having classic FSGS by the presence of segmental glomerulosclerosis without features of HIV-associated nephropathy. Multivariable Cox proportional hazards models were used to examine the independent association of viral suppression (HIV-RNA < 400 copies per milliliter at biopsy) with time to progression to ESRD. RESULTS: Of the 55 HIV-positive African Americans with classic FSGS, 26 had suppressed viral loads at the time of biopsy. Compared to viremic patients, those who were virally suppressed had a significantly higher mean CD4 cell count (452 vs. 260 cell/mm, respectively; P = 0.02) and median estimated glomerular filtration rate (53.5 vs 35.5 ml/min/1.73 m, respectively; P = 0.002). Adjusting for sex and baseline CD4 cell count, estimated glomerular filtration rate, and proteinuria, those with HIV-RNA levels <400 copies per milliliter at baseline had a 75% lower risk of progressing to ESRD (hazard ratio = 0.25; 95% CI: 0.07 to 0.88) during a median follow-up time of 2.70 years (interquartile range: 0.80-5.15 years). CONCLUSIONS: HIV suppression is associated with significantly lower risk of progression to ESRD among HIV-infected African Americans with classic FSGS, supporting the potential role of combined antiretroviral therapy for this histopathology in addition to HIV-associated nephropathy among HIV-positive individuals.

Ledipasvir/sofosbuvir (LDV/SOF), an antiviral treatment for hepatitis C virus (HCV), and tenofovir disoproxil fumarate (TDF), an antiretroviral for treating human immunodeficiency virus (HIV), may be coadministered in patients coinfected with these viruses. A drug interaction between LDV and TDF could increase TDF-associated nephrotoxicity rates; however, there is minimal clinical evidence describing acute kidney injury (AKI) rates in this population. This study was conducted at a Ryan White-funded facility in Atlanta, Georgia, that cares for over 5,000 patients with AIDS. This retrospective cohort used chart review to assess occurrence of and risk factors for AKI in HIV/HCV-coinfected patients receiving LDV/SOF and antiretroviral therapy (ART). AKI rates were compared between TDF-containing and non-TDF-containing ART groups according to Kidney Disease Improving Global Outcomes (KDIGO) criteria. Additional evaluated risk factors for AKI included chronic kidney disease and use of boosted protease inhibitor-based ART. In the 117 included patients, the overall incidence of AKI was 27.3%. AKI occurred more frequently in the non-TDF group (13/86, 15.1% vs. 19/31, 61.3%, p < .001). All AKI was KDIGO stage 1. From multivariable logistic regression, the only independent predictor of AKI was treatment with non-TDF relative to TDF (adjusted odds ratio 6.51, 95% confidence interval 2.34-18.10, p < .001). In this real-world cohort of HIV/HCV-coinfected patients, KDIGO-defined AKI was common, but occurred less frequently in patients receiving TDF-based ART. Our study suggests that patients with normal baseline renal function can be safely treated with TDF and LDV/SOF without significant nephrotoxicity if renal function is closely monitored.


BACKGROUND: Wide-scale implementation of oral tenofovir-based pre-exposure prophylaxis (PrEP) for HIV prevention is now policy in many settings. However, the optimal frequency for monitoring kidney function remains uncertain. We investigated the impact of 6-monthly compared with 3-monthly creatinine clearance (CrCl) monitoring on the identification of moderate kidney dysfunction, defined as CrCl <60 mL/min. METHODS: Data were from 2 prospective daily oral PrEP studies in Kenya and Uganda: the Partners PrEP Study, a randomized safety, and efficacy trial of PrEP that conducted 3-monthly CrCl monitoring (n = 4404) and the Partners Demonstration Project (n = 954), an open-label delivery study of PrEP that used 6-monthly monitoring. CrCl >/=60 mL/min was required for enrollment in both studies. Abnormal results were followed with confirmatory testing within approximately 1 week. Follow-up was for up to 24 months. RESULTS: Of 5358 participants included in the analysis, 87% were younger than 45 years, a third were female, and 21% had a baseline CrCl between 60 and 90 mL/min. Confirmed CrCl <60 mL/min events were rare, occurring in 52 individuals (<1%) in 24 months. The 12-month cumulative proportion of persons with CrCl <60 mL/min was 0.2% with 3-monthly screening and 0.5% with 6-monthly screening. Older age (>45 years), lower weight (<55 kg), elevated blood pressure (>140 mm Hg), and baseline CrCl between 60 and 90 mL/min were independently associated with CrCl decline <60 mL/min during follow-up. CONCLUSIONS: In these 2 PrEP studies, with generally young participants, the occurrence and pattern of clinically relevant decline in CrCl were not qualitatively different based on 3- or 6-monthly CrCl monitoring schedule. These data suggest that for most persons receiving PrEP for up to 24 months, less frequent CrCl monitoring would be safe and reduce required expenditures for repeat confirmatory testing.


BACKGROUND: Factors affecting kidney function and proteinuria among HIV-positive (HIV+) and HIV-negative (HIV-) persons need better characterization. METHODS: We evaluated estimated glomerular filtration rate (eGFR, ml/min per 1.73 m) changes, proteinuria prevalence (a urine protein-to-creatinine ratio of >/=0.2 at two consecutive visits) and associated factors among HIV+ and HIV- men. RESULTS: There were 917 HIV+ men receiving HAART, 159 HIV+ men not receiving HAART, and 1305 HIV- men seen from October 2003 to September 2014. Median annual eGFR change was -0.5, -0.8% for HIV+ and -0.3% for HIV- men (P < 0.001). Factors significantly (P < 0.05) associated with more than 3% annual eGFR decline were HAART receipt (but no specific antiretroviral drug), age more than 50, hypertension, diabetes, current smoking. Proteinuria existed in 14.9% of visit-pairs among HAART recipients, 5.8% among non-HAART recipients, and 1.9% among HIV- men, and was associated with subsequent annual more than 3% eGFR decline (odds ratio 1.80, P < 0.001). Proteinuria-associated factors also included HAART use (vs. HIV-), age at least 50 (vs. <40), diabetes, hypertension, current smoking, hepatitis C virus-infection (all P < 0.05) and, among HIV+ men, lower CD4 cell count, didanosine, saquinavir, or nelfinavir use (all P < 0.05). After adjusting for proteinuria, among HAART users, having a detectable HIV RNA, cumulative use of tenofovir disoproxil fumarate, emtricitabine, ritonavir, atazanavir, any protease inhibitor, or fluconazole were associated with more than 3% annual eGFR decline. CONCLUSION: Longitudinal kidney function decline was associated with HAART use but no individual antiretroviral drug, and traditional kidney disease risks. Proteinuria was nearly seven times more common in HAART-treated men than HIV- men, reflected recent eGFR decline and predicted subsequent eGFR decline.


The purpose of our systematic review of research on chronic kidney disease (CKD) in persons living with HIV (PLWH) was to (a) compare and contrast diagnostic criteria for CKD, (b) identify risk factors of CKD in PLWH, and (c) elucidate the prevalence ofCKD in PLWH. Keyword searches of PubMed and PsycInfo databases were followed by manual searches of references from 2000 through 2016; 21 studies met inclusion criteria. Sample sizes ranged from 8 to 15,140, with a mean age of 50 years, and represented diverse ethnicities/races and countries of origin. Fourteen studies were cross-sectional, six were cohort studies, and one was a case study. Major risk factors were related to hypertension, diabetes, and age. Prevalence ranged from 2.3% to 53.3% across a variety of countries and patient populations. The wide range in prevalence may have been due to differences in risk factors for the sample populations.


OBJECTIVES: As data on chronic kidney disease (CKD) incidence among Asian HIV patients has been limited, the present study aimed to estimate the CKD incidence in HIV-infected patients who received standard antiretroviral therapy in Thailand and to compare baseline demographics and clinical characteristics of the patients who developed CKD with those who do not. DESIGN: A multicenter, observational prospective cohort of HIV patients with normal kidney functions who received standard antiretroviral therapy. METHODS: CKD was diagnosed based on the KDIGO 2012 criteria, using Chronic Kidney Disease Epidemiology Collaboration based estimated glomerular filtration rate with and without urine protein. The cumulative probability of CKD incidence was analyzed using Kaplan-Meier estimation. RESULTS: Of 5552 patients, 96 patients with pre-existing CKD and 26 patients with incomplete data were excluded, and
5430 patients were analyzed. Their mean age was 39.87 years, 41.52% were women, and 49.45% were homosexual. They were followed up for 49.41 months on average, with 229 incident cases (4.22%) being identified during 22 035 person-years at risk. Overall CKD incidence rate was 10.39 per 1000 person-years. Average time to CKD was 26.4 months (95% confidence interval: 24.44-28.83). The adjusted relative hazard significantly increased by 8.6% and 10.3% for each additional year of patient age and each additional log10 copies/ml of HIV viral load, respectively. Patients with diabetes mellitus and hypercholesterolemia had significantly higher adjusted relative hazard (3.37 and 1.41; P < 0.001 and P = 0.014), respectively. CONCLUSION: CKD incidence among the Thai HIV-infected patients was lower than in white and non-Southeast Asian populations. Diabetes, hypercholesterolemia, age, and HIV viral load were the significant risk factors. TRIAL REGISTRATION: ClinicalTrials.gov identifier: NCT01328275.


Background: Renal disease is an important cause of morbidity and mortality in populations with HIV infection. Widespread use of combination antiretroviral therapy has altered the spectrum of renal disease. Studies among the HIV affected population in India are few. Objectives: The study was carried out to determine the various histopathological lesions in HIV patients with renal dysfunction, undergoing a renal biopsy, and to establish the clinico-pathological correlation. Patients and Methods: Thirty HIV-positive patients, diagnosed by enzyme-linked immunosorbent assay (ELISA) method according to the National AIDS Control Organization (NACO) guidelines, undergoing a renal biopsy for renal dysfunction were studied. Descriptive statistics were applied. Results: Rather than the classic human immunodeficiency virus associated nephropathy (HIVAN) or a few prototypical lesions, the cases were spread across the entire spectrum of glomerular and tubulointerstitial pathologies described in the HIV population. A higher proportion of diabetic nephropathy, IgA nephropathy and chronic interstitial nephritis were encountered in the present study. Conclusions: In the present scenario of increasing incidence of HIV infection, studying its various manifestations are relevant. As none of the clinical or laboratory variables are found to predict glomerular versus non-glomerular lesions on biopsy, a renal biopsy is indicated in renal dysfunction associated with HIV, to make an accurate diagnosis and for therapy. [ABSTRACT FROM AUTHOR]


OBJECTIVE: HIV-related mortality is still high, especially in developed countries. The aim of this study is to investigate factors associated to death in HIV-infected patients. METHODS: This is a cross-sectional study with all HIV adult patients admitted to a tertiary infectious diseases hospital in Fortaleza, Northeast Brazil, from January 2013 to December 2014. Patients were divided into two groups: survivors and non-survivors. Demographical, clinical and laboratory data were compared and a logistic regression was performed in order to investigate risk factors for death. P values < =0.05 were considered statistically significant. RESULTS: A total of 200 patients with mean age of 39 years were including in the study, 69.5% males. Fifteen patients (7.5%) died. Non-survivors presented a higher percentage of males
Non-survivors presented AKI (73.3 vs. 10.3%, \( p < 0.001 \)), liver dysfunction (33.3 vs. 11.5, \( p = 0.031 \)), dyspnea (73.3 vs. 33.0%, \( p = 0.002 \)) and disorientation (33.3 vs. 12.4%, \( p = 0.025 \)) more frequently. Non-survivors also had higher levels of urea (73.8 +/− 52.7 vs. 36.1 +/− 29.1 mg/dL, \( p < 0.001 \)), creatinine (1.98 +/− 1.65 vs. 1.05 +/− 1.07 mg/dL, \( p < 0.001 \)), aspartate aminotransferase (130.8 vs. 84.8 U/L, \( p = 0.03 \)), alanine aminotransferase (115.6 vs. 85.4 U/L, \( p = 0.045 \)) and lactate dehydrogenase (LDH) (1208 vs. 608 U/L, \( p = 0.012 \)), as well as lower levels of bicarbonate (18.0 +/− 4.7 vs. 21.6 +/− 4.6 mEq/L, \( p = 0.016 \)) and PCO2 (27.8 +/− 7.7 vs. 33.0 +/− 9.3 mmHg, \( p = 0.05 \)). In multivariate analysis, disorientation (\( p = 0.035, OR = 5.523, 95\%CI = 1.130 - 26.998 \)), dyspnoea (\( p = 0.046, OR = 4.064, 95\%CI = 1.028 - 16.073 \)), AKI (\( p < 0.001, OR = 18.045, 95\%CI = 4.308 - 75.596 \)) and disseminated histoplasmosis (\( p = 0.016, OR = 12.696, 95\%CI = 1.618 - 99.646 \)) and LDH > 1000 U/L (\( p = 0.038, OR = 4.854, 95\%CI = 1.093 - 21.739 \)) were risk factors for death.

CONCLUSION: AKI and disseminated histoplasmosis (DH) were the main risk factors for death in the studied population. Neurologic and respiratory impairment as well as higher levels of LDH also increased mortality in HIV-infected patients.


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 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]


OBJECTIVE: To evaluate the risk of chronic kidney disease (CKD), cardiovascular disease (CVD), and osteoporotic fractures in human immunodeficiency virus (HIV) patients utilizing data within the Veteran's Affairs (VA) Administration system. METHODS: A retrospective cohort study utilizing VA system claims (January 2000-December 2016) were
extracted from the VA Informatics and Computing Infrastructure (VINCI). Cases included Veterans with an ICD-9/10 for HIV who had at least one prescription for a complete antiretroviral therapy (ART) regimen. Two non-HIV controls were exactly matched on race, sex, month, and year of birth. All patients were followed until the earliest of the following: first incidence of the outcome (identified based on diagnosis codes or laboratory data), last date of VA activity, death, or December 31, 2016. Relative risks (RR) and odds ratios (ORs) were estimated from multivariable Poisson regression models (CVD and osteoporotic fractures) and multivariable logistic regression models (CKD), respectively. Models were adjusted for demographic factors/comorbidities. RESULTS: A total of 79,578 patients (26,526 HIV and 53,052 non-HIV) met all study criteria. The average age was 49.3 years, 38% were black, 32% were white, and 97% were male for both the HIV and control cohorts. The adjusted models demonstrated that HIV was associated with a 78% increased rate of CKD (OR = 1.78, 95% CI = 1.68-1.89), a 32% increased risk of CVD (RR = 1.32, 95% CI = 1.28-1.37), and a 38% increased risk of fractures (RR = 1.38, 95% CI = 1.23-1.56) compared to non-HIV controls. CONCLUSIONS: The risk/rate of the three outcomes were significantly higher in HIV patients compared to controls.


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.


The renal function is a key-issue in HIV/HCV co-infected patients, nevertheless, it has not established so far whether HCV treatment with new direct acting agents could impact on estimated glomerular filtration rate (eGFR) variations. In the present work, we examined the real-life data on renal function that have been prospectively collected in the SIMIT compassionate-use program of ombitasvir/paritaprevir/ritonavir plus dasabuvir (OBV/PTV/r + DSV) in 144 HIV/HCV genotype 1 co-infected patients. The population was 74% male, 30.5% in CDC stage C, with median age of 52 years (48.0-56.5) and median liver stiffness of 7.8 kPa (6.7-9.2). Median baseline eGFR was 102.0 (90.8-108.1), changing to 99.8 (83.5-104.8) at the end of treatment (EoT), and 100.0 (87.3-105.6) 12 weeks after the EoT (FU12), p<0.0001. No patient had grade 3-4 increase of creatinine. At EoT 60/144 (41.7%) patients had >/= 5% reduction in their eGFR, confirmed at FU12 in 39/60 (65.0%) cases. Longer duration of HCV infection (cut-off 12.9 years), lower HCV-RNA viral load (cut-off 1,970,160 IU/ml) and lower platelet count (cut-off 167,000 x106/L) were significantly associated with eGFR decline at logistic analysis (adjOR 2.9, 95%CI 1.0-8.8, p = 0.05; adjOR 3.5, 95%CI 1.2-10.4, p = 0.02; adjOR 2.8, 95%CI 1.1-6.8, p = 0.03, respectively). After repeating the analysis throughout a mixed model, a higher eGFR decline was highlighted in patients concomitantly treated with tenofovir (p = 0.0001), ribavirin (p = 0.0001), or integrase inhibitors (p <0.0001), with longer duration of HIV (p = 0.0002) and HCV infection (p = 0.035), lower baseline HCV RNA (p <0.0001), previous HCV treatment (p<0.0001), and older age (p<0.0001). In conclusion, our study confirms a good renal safety
profile of OBV/PTV/r + DSV treatment in HIV/HCV patients, and the median decline of 2 ml/min in eGFR, albeit statistically significant, is of doubtful clinical significance. The role of aging, concomitant therapies and duration of HIV/HCV infection needs to be further investigated.


OBJECTIVE: The current study aimed to validate existing risk prediction scores and identify predictors of chronic kidney disease (CKD) in the setting of HIV. DESIGN AND METHODS: A retrospective cohort study of HIV-positive individuals (n = 748) with baseline estimated glomerular filtration rate (eGFR) more than 60 ml/min was conducted at the Alfred Hospital, Melbourne, Australia. Multivariable regression analysis was performed to determine factors associated with development of CKD, defined as two consecutive measurements of eGFR less than 60 ml/min. The performance of CKD risk scores proposed by the Data Collection on Adverse Events of Anti-HIV Drugs (D:A:D) Study Group and Scherzer and colleagues were estimated by the area under the receiver operator curve (AUROC). RESULTS: CKD developed in 37 individuals (5.0%), at a median of 4.7 (interquartile range 2.2, 6.2) years. Older age [odds ratio (OR) 3.03, 95% confidence interval (CI): 1.20, 7.65, P = 0.02] and lower baseline eGFR (OR 10.39, 95% CI: 4.73, 22.83, P < 0.001) were associated with the development of CKD. Neither current, nor cumulative tenofovir disoproxil fumarate (TDF) use was associated with progression to CKD [current TDF hazard ratio (HR) 1.05, 95% CI: 0.54, 2.07, P = 0.88; cumulative TDF HR 1.03, 95% CI: 0.86, 1.24, P = 0.75]. The short D:A:D and Scherzer scores were well calibrated, with the short D:A:D score demonstrating superior discrimination (short D:A:D AUROC 0.85, Scherzer AUROC 0.78, P = 0.02).

CONCLUSION: Older individuals and those with a lower baseline eGFR are at higher risk for CKD. Risk prediction tools may be useful in identifying those at greatest risk, who may benefit from aggressive management of risk factors.

Mechanisms/Etiology


Interleukin-18 (IL-18) is a pleiotropic cytokine of the IL-1 family with multiple context dependent functions. We and others have shown that HIV infection is accompanied by increased circulating levels of IL-18 along with decreased levels of its antagonist, Interleukin-18 Binding Protein (IL-18BP). The infection is also accompanied by intestinal inflammation and decreased intestinal integrity as measured by intestinal permeability, regeneration and repair. However, little is known concerning the relation between high level of IL-18 associated with the viral infection and intestinal permeability. Here we demonstrate that HIV treatment increases production of IL-18 and decreases that of IL-18BP production in human intestinal epithelial cell (IEC) lines. IL-18 causes apoptosis of the IEC by activating caspase-1 and caspase-3. It induces epithelial barrier hyperpermeability by decreasing and disrupting both tight and adherens junction proteins, occludin, claudin 2 and beta-catenin. Disorganization of F-actin was also observed in the IEC that were exposed to the cytokine. Moreover IL-18 decreases transepithelial electrical resistance (TEER) in Caco-2 and increases permeability in HT29 monolayers. The cells’ treatment with IL-18 causes an increase in the expression of phosphorylated myosin II regulatory light-chain (p-MLC) and myosin light-chain kinase (MLCK), and a decrease in phosphorylated Signal Transducer and Activator of Transcription (p-STAT)-5. This increase in p-MLC is suppressed by a Rho-kinase (ROCK)-specific inhibitor. Interestingly, the levels of the cytokine correlate with those of LPS in the circulation in three different categories of HIV infected patients (HAART-naive and HAART-treated HIV-infected individuals, and Elite controls) as well.
as in healthy controls. Collectively, these results suggest that the HIV-induced IL-18 plays a role in increased intestinal permeability and microbial translocation observed in HIV-infected individuals. [ABSTRACT FROM AUTHOR]


Several studies have shown an increased accumulation of terminally differentiated T cells during HIV infection, suggestive of exhaustion/senescence, causing dysregulation of T cell homeostasis and function and rapid HIV disease progression. We have investigated whether long-term antiretroviral therapy (ART), which controls viremia and restores CD4 T cell counts, is correlated with reduction in terminally differentiated T cells, improved ratios of naive to memory and function of T cells in 100 virologically controlled HIV-infected patients. We show that while the median frequencies of terminally differentiated CD4+ and CD8+ T cells (CD28-, CD27-, CD57+ and CD28-CD57+), were higher in the virologically controlled HIV-infected patients' cohort compared with uninfected individuals' cohort, the frequencies of these cells significantly decreased with increasing CD4 T cell counts in HIV-infected patients. Although, the naive CD4+ and CD8+ T cells were lower in HIV patients' cohort than uninfected cohort, there was a significant increase in both naive CD4+ and CD8+ T cells with increasing CD4 T cell counts in HIV-infected patients. The underlying mechanism behind this increased naive CD4+ and CD8+ T cells in HIV-infected patients was due to an increase in recent thymic emigrants, CD4+CD31+, as compared to CD4+CD31-. The CD4+ T cells of HIV-infected patients produced cytokines, including IL-2, IL-10 and IFN-gamma comparable to uninfected individuals. In conclusion, virologically controlled HIV-infected patients on long-term ART show a significant reduction in terminally differentiated T cells, suggestive of decreased exhaustion/senescence, and improvement in the ratios of naive to memory and function of T cells.


Even with effective viral control, HIV-infected individuals are at a higher risk for morbidities associated with older age than the general population, and these serious non-AIDS events (SNAEs) track with plasma inflammatory and coagulation markers. The cell subsets driving inflammation in aviremic HIV infection are not yet elucidated. Also, whether ART-suppressed HIV infection causes premature induction of the inflammatory events found in uninfected elderly or if a novel inflammatory network ensues when HIV and older age co-exist is unclear. In this study we measured combinational expression of five inhibitory receptors (IRs) on seven immune cell subsets and 16 plasma markers from peripheral blood mononuclear cells (PBMC) and plasma samples, respectively, from a HIV and Aging cohort comprised of ART-suppressed HIV-infected and uninfected controls stratified by age (<35 or >/=50 years old). For data analysis, multiple multivariate computational algorithms [cluster identification, characterization, and regression (CITRUS), partial least squares regression (PLSR), and partial least squares-discriminant analysis (PLS-DA)] were used to determine if immune parameter disparities can distinguish the subject groups and to investigate if there is a cross-impact of aviremic HIV and age on immune signatures. IR expression on gamma delta (gammadelta) T cells exclusively separated HIV+ subjects from controls in CITRUS analyses and secretion of inflammatory cytokines and cytotoxic mediators from gammadelta T cells tracked with TIGIT expression among HIV+ subjects. Also, plasma markers predicted the percentages of TIGIT+ gammadelta T cells in subjects with and without HIV in PLSR models, and a PLS-DA model of gammadelta T cell IR signatures and plasma markers significantly stratified all four of the subject groups (uninfected younger, uninfected
older, HIV+ younger, and HIV+ older). These data implicate gammadelta T cells as an inflammatory driver in ART-suppressed HIV infection and provide evidence of distinct "inflamm-aging" processes with and without ART-suppressed HIV infection.


The main objective of this study is to evaluate the predictive capacity of T cell activation/senescence in subclinical atherosclerosis (SCA) in a group of HIV-infected patients. So, an observational and longitudinal study was performed on 91 long-term triple-ART therapy HIV-infected patients. Carotid Intima Media Thickness (cIMT) was measured. Binary logistic regression was used to evaluate independent variables associated with SCA. Compared to patients without SCA, patients with SCA (60.4%) were older (41.33+/−9.04 vs. 51.73+/−8.44 years old, p<0.001) and showed Framingham risk score (2.63+/−3.127 vs. 7.66+/−5.84, p=0.008), as well as higher numbers of CD4(+)/CD8(+) double positive T cells (0.50+/−0.42% vs. 0.81+/−0.79%, p=0.037), CD8(+)/CD28(−) T cells (41.70+/−16.96% vs. 50.22+/−16.15%, p=0.018), higher expression of CD28 on CD8(+)/CD28(+) T cells (1865+/−789 vs. 2243+/−917 MFI, P=0.046). In contrast, they showed lower expression of CD38 on CD19(+) B cells (65.38+/−27.47% vs. 42.67+/−30.26%, P<0.001). Logistic multivariable analysis showed that Framingham risk score >10% (OR=14.84, CI95% 1.63-125; p=0.016) and numbers of CD8(+) CD28(−) T cells (OR=1.032, CI 95% 1-1.065; p=0.045) were independent factors associated with SCA. Patients with CD8(+) CD28(−) T cells >/=59% compared to those <59% had higher risk of SCA (OR=4, CI95% 1.19-13.3, p=0.024). Interestingly, 27.4% of patients with low Framingham risk score had elevated levels of CD8(+) CD28(−) T cells. In conclusion, immune senescence represented by accumulation of CD8(+) CD28(−) T cells may contribute to improve the predictive capacity of the Framingham risk score, especially when the scores are low and can explain, at least in part, the higher prevalence of SCA observed in long-term ART-treated stable HIV infected patients.


Promptly after primoinfection, HIV generates a pool of infected cells carrying transcriptionally silent integrated proviral DNA, the HIV-1 reservoir. These cells are not cleared by combined antiretroviral therapy (cART), and persist lifelong in treated HIV-infected individuals. Defining clinical strategies to eradicate the HIV reservoir and cure HIV-infected individuals is a major research field that requires a deep understanding of the mechanisms of seeding, maintenance and destruction of latently infected cells. Although CTL responses have been classically associated with the control of HIV replication, and hence with the size of HIV reservoir, broadly neutralizing antibodies (bNAbs) have emerged as new players in HIV cure strategies. Several reasons support this potential role: (i) over the last years a number of bNAbs with high potency and ability to cope with the extreme variability of HIV have been identified; (ii) antibodies not only block HIV replication but mediate effector functions that may contribute to the removal of infected cells and to boost immune responses against HIV; (iii) a series of new technologies have allowed for the in vitro design of improved antibodies with increased antiviral and effector functions. Recent studies in non-human primate models and in HIV-infected individuals have shown that treatment with recombinant bNAbs isolated from HIV-infected individuals is safe and may have a beneficial effect both on the seeding of the HIV reservoir and on the inhibition of HIV replication. These promising data and the development of antibody technology have paved the way for treating HIV infection with engineered monoclonal antibodies with high potency of neutralization, wide coverage of HIV diversity, extended plasma half-life in vivo and improved effector functions. The exciting effects of these newly designed antibodies in vivo, either alone or in combination with other cure strategies (latency reversing agents or therapeutic vaccines), open a new hope in HIV eradication.

Differences in immune activation were identified as the most significant difference between AIDS-susceptible and resistant species. p38 MAPK, activated in HIV infection, is key to induction of interferon-stimulated genes and cytokine-mediated inflammation and is associated with some of the pathology produced by HIV or SIV infection in AIDS-susceptible primates. As small molecule p38 MAPK inhibitors are being tested in human trials for inflammatory diseases, we evaluated the effects of treating SIV-infected macaques with the p38 MAPK inhibitor PH-797804 in conjunction with ART. PH-797804 had no side effects, did not impact negatively the antiviral immune response and, used alone, had no significant effect on levels of immune activation and did not reduced the viremia. When administered with ART, it significantly reduced numerous immune activation markers compared to ART alone. CD38+/HLA-DR+ and Ki-67+ T-cell percentages in blood, lymph node and rectal CD4+ and CD8+ T cells, PD-1 expression in CD8+ T cells and plasma levels of IFNα, IFNγ, TNFα, IL-6, IP-10, sCD163 and C-reactive protein were all significantly reduced. Significant preservation of CD4+, CD4+ central memory, CD4+/IL-22+ and CD4+/IL-17+ T-cell percentages and improvement of Th17/Treg ratio in blood and rectal mucosa were also observed. Importantly, the addition of PH-797804 to ART initiated during chronic SIV infection reduced immune activation and restored immune system parameters to the levels observed when ART was initiated on week 1 after infection. After ART interruption, viremia rebounded in a similar fashion in all groups, regardless of when ART was initiated. We concluded that the inhibitor PH-797804 significantly reduced, even if did not normalized, the immune activation parameters evaluated during ART treatment, improved preservation of critical populations of the immune system targeted by SIV, and increased the efficacy of ART treatment initiated in chronic infection to levels similar to those observed when initiated in acute infection but did not affect positively or negatively viral reservoirs. [ABSTRACT FROM AUTHOR]


Human immunodeficiency virus (HIV) is a chronic infectious disease currently requiring lifelong antiretroviral therapy (ART). People living with HIV (PLWH) face an increased risk of comorbidities associated with aging, chronic HIV, and the toxicity arising from long-term ART. A literature review was conducted to identify the most recent evidence documenting toxicities associated with long-term ART, particularly among aging PLWH. In general, PLWH are at a greater risk of developing fractures, osteoporosis, renal and metabolic disorders, central nervous system disorders, cardiovascular disease, and liver disease. There remains limited evidence describing the economic burden of long-term ART. Overall, an aging HIV population treated with long-term ART presents a scenario in which the clinical, humanistic, and economic burden for healthcare systems will demand thoughtful policy solutions that preserve access to treatment. Newer treatment regimens with fewer drugs may mitigate some of the cumulative toxicity burden of long-term ART.Funding: ViiV Healthcare. [ABSTRACT FROM AUTHOR]


Regional standardized uptake value ratios (SUVRs) for tau positron emission tomography (PET) were compared among 19 cognitively normal human immunodeficiency virus (HIV)-negative control individuals, 20 HIV-negative patients with symptomatic Alzheimer disease, 15 cognitively normal HIV-positive individuals, and 17 cognitively impaired HIV-positive individuals. Among the HIV-positive participants, the correlation between tau PET SUVRs and both HIV loads and
CD4+ T-cell counts (recent and nadir). Tau PET SUVRs were similar for HIV-positive individuals and HIV-negative control individuals. Individuals with symptomatic Alzheimer disease had elevated tau PET SUVRs. Tau PET SUVRs did not correlate with impairment or clinical markers in HIV-positive participants. Older HIV-positive individuals are not at increased risk of tau-mediated neurodegeneration.


OBJECTIVES: Despite successful antiretroviral therapy, people living with HIV (PLWH) may show signs of premature/accentuated aging. We compared established biomarkers of aging in PLWH, appropriately chosen HIV-negative individuals, and blood donors, and explored factors associated with biological age advancement. DESIGN: Cross-sectional analysis of 134 PLWH on suppressive antiretroviral therapy, 79 lifestyle-comparable HIV-negative controls aged 45 years or older from the Co-morBidity in Relation to AIDS (COBRA) cohort, and 35 age-matched blood donors. METHODS: Biological age was estimated using a validated algorithm based on 10 biomarkers. Associations between 'age advancement' (biological minus chronological age) and HIV status/parameters, lifestyle, cytomegalovirus (CMV), hepatitis B (HBV) and hepatitis C virus (HCV) infections were investigated using linear regression. RESULTS: The average (95% CI) age advancement was greater in both HIV-positive [13.2 (11.6-14.9) years] and HIV-negative [5.5 (3.8-7.2) years] COBRA participants compared with blood donors [-7.0 (-4.1 to -9.9) years, both P’s < 0.001]), but also in HIV-positive compared with HIV-negative participants (P < 0.001). Chronic HBV, higher anti-CMV IgG titer and CD8 T-cell count were each associated with increased age advancement, independently of HIV-status/group. Among HIV-positive participants, age advancement was increased by 3.5 (0.1-6.8) years among those with nadir CD4 T-cell count less than 200 cells/mul and by 0.1 (0.06-0.2) years for each additional month of exposure to saquinavir. CONCLUSION: Both treated PLWH and lifestyle-comparable HIV-negative individuals show signs of age advancement compared with blood donors, to which persistent CMV, HBV co-infection and CD8 T-cell activation may have contributed. Age advancement remained greatest in PLWH and was related to prior immunodeficiency and cumulative saquinavir exposure.


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.


Growing evidence suggests that HIV infection may accelerate biological aging. Insomnia symptoms, particularly in later life, exacerbate cellular aging. We examined the association between insomnia symptoms and leukocyte telomere length (LTL), and further explored how this association was affected by HIV serostatus and age. Data were assessed from 244 HIV-infected individuals >/=40 years and 244 HIV-uninfected individuals who were frequency-matched by age, gender and education level. Insomnia symptoms were assessed by responses to four sleep-related questions covering the past month. We performed multivariable linear regression with logarithmically transformed LTL and reported exponentiated coefficients. HIV-infected individuals had shorter LTL compared to uninfected individuals (geometric mean 0.82 vs 0.89, P=0.052), and this association remained after adjustment for gender, education level, and smoking history (-7.4%, P=0.051) but markedly attenuated after additional adjustment for insomnia and depressive symptoms (-3.7%, P=0.367). Significant interactions between age group (55-82 vs 40-54 years) and insomnia symptoms on LTL were observed in the HIV-infected individuals (-28.4%, P=0.033) but not the uninfected (-17.9%, P=0.250). After stratifying by age group, LTL was independently associated with insomnia symptoms in those 55 years and older among the HIV-infected individuals (-24.5%, P=0.026) but not those 40-54 years old (-9.8%, P=0.428). Our findings suggest that elevated insomnia and depressive symptoms may partly explain the correlation between HIV serostatus and shorter LTL. Significant association between insomnia and shorter LTL observed in elderly HIV-infected but not in uninfected individuals suggest that such adverse effect may begin at an earlier age or is more pronounced in HIV-infected individuals but requires further investigation.


PURPOSE OF REVIEW: Although the HIV-infected population is living longer and getting older under current treatment regimens, significant challenges arise for health management as the infection is associated with various premature aging phenotypes, particularly increased incidence of cardiovascular diseases (CVDs). Here we review the current understanding of HIV-related gut dysbiosis in association with CVD and advances in clinical trials aiming to restore gut microbial diversity. RECENT FINDING: Identification of a unique signature for gut dysbiosis in HIV infection
between different cohorts remains challenging. However, low diversity of microbiota combined with the outgrowth of pathogenic bacterial species together with dysregulated metabolic pathways have been linked to compromised gut immunity, bacterial translocation and systemic inflammation, hence higher CVD risk among different cohorts. Data from recent clinical trials aiming to evaluate the tolerability and efficacy of probiotics in treated HIV+ patients are promising and support a significant increase in microbiota diversity and reduction of systemic inflammation. However, the impact of these microbial and immunological corrections on the prevalence of CVD in HIV+ patients remains unclear.

SUMMARY: Positive immunological outcomes following enrichment of the gut microbial diversity have been documented, and further trials are in progress to evaluate the range of patients, with different immunological backgrounds, who might benefit from these treatments.


The advent of immune checkpoint inhibitors (ICIs) has changed the landscape of cancer treatment. Older adults represent the majority of cancer patients; however, direct data evaluating ICIs in this patient population is lacking. Aging is associated with changes in the immune system known as "immunosenescence" that could impact the efficacy and safety profile of ICIs. In this paper, we review aging-associated changes in the immune system as they may relate to cancer and immunotherapy, with mention of the effect of chronic viral infections and frailty. Furthermore, we summarize the current clinical evidence of ICI effectiveness and toxicity among older adults with cancer.


Hutchinson-Gilford progeria syndrome (HGPS) is a rare genetic disorder characterized by an accelerated aging phenotype that typically leads to death via stroke or myocardial infarction at approximately 14.6 years of age. Most cases of HGPS have been linked to the extensive use of a cryptic splice donor site located in the LMNA gene due to a de novo mutation, generating a truncated and toxic protein known as progerin. Progerin accumulation in the nuclear membrane and within the nucleus distorts the nuclear architecture and negatively affects nuclear processes including DNA replication and repair, leading to accelerated cellular aging and premature senescence. The serine-arginine rich splicing factor SRSF1 (also known as ASF/SF2) has recently been shown to modulate alternative splicing of the LMNA gene, with SRSF1 inhibition significantly reducing progerin at both the mRNA and protein levels. In 2014, we hypothesized for the first time that compounds including metformin that induce activation of AMP-activated protein kinase (AMPK), a master metabolic regulator activated by cellular stress (e.g. increases in intracellular calcium, reactive oxygen species, and/or an AMP(ADP)/ATP ratio increase, etc.), will beneficially alter gene splicing in progeria cells by inhibiting SRSF1, thus lowering progerin levels and altering the LMNA pre-mRNA splicing ratio. Recent evidence has substantiated this hypothesis, with metformin significantly reducing the mRNA and protein levels of both SRSF1 and progerin, activating AMPK, and alleviating pathological defects in HGPS cells. Metformin has also recently been shown to beneficially alter gene splicing in normal humans. Interestingly, several chemically distinct compounds, including rapamycin, methylene blue, all-trans retinoic acid, MG132, 1alpha,25-dihydroxyvitamin D3, sulforaphane, and oltipraz have each been shown to alleviate accelerated aging defects in patient-derived HGPS cells. Each of these compounds has also been independently shown to induce AMPK activation. Because these compounds improve accelerated aging defects in HGPS cells either by enhancing mitochondrial functionality, increasing Nrf2 activity, inducing autophagy, or by altering gene splicing and because AMPK activation beneficially modulates each of the aforementioned processes, it is our hypothesis that cellular stress-induced AMPK activation represents an indirect yet common mechanism of action linking such
chemically diverse compounds with the beneficial effects of those compounds observed in HGPS cells. As normal humans also produce progerin at much lower levels through a similar mechanism, compounds that safely induce AMPK activation may have wide-ranging implications for both normal and pathological aging.


Since the introduction of highly active antiretroviral therapy more than 2 decades ago, HIV-related deaths have dramatically decreased and HIV infection has become a chronic disease. Due to the inability of antiretroviral drugs to eradicate the virus, treatment of HIV infection requires a systemic lifelong therapy. However, even when successfully treated, HIV patients still show increased incidence of age-associated co-morbidities compared with uninfected individuals. Virus-induced immunosenescence, a process characterized by a progressive decline of immune system function, contributes to the premature ageing observed in HIV patients. Although antiretroviral therapy has significantly improved both the quality and length of patient lives, the life expectancy of treated patients is still shorter compared with that of uninfected individuals. In particular, while antiretroviral therapy can contrast some features of HIV-associated immunosenescence, several anti-HIV agents may themselves contribute to other aspects of immune ageing. Moreover, older HIV patients tend to have a worse immunological response to the antiviral therapy. In this review we will examine the available evidence on the role of antiretroviral therapy in the control of the main features regulating immunosenescence.


With the implementation of increasingly effective antiretroviral therapy (ART) over the past three decades, individuals infected with HIV live a much longer life. HIV infection is no longer a terminal but rather a chronic disease. However, the lifespan of infected individuals remains shorter than that of their uninfected peers. Even with ART, HIV infection may potentiate "premature" aging. Organ-associated disease and systemic syndromes that occur in treated HIV-infection are like that of older, uninfected individuals. Brain aging may manifest as structural changes or neurocognitive impairment that are beyond the chronological age. The spectrum of neurological, cognitive, and motor deficiencies, currently described as HIV-associated neurocognitive disorders (HAND), may reflect earlier onset of mechanisms common to HIV infection and aging (accelerated aging). HAND could also reflect the neurological impact of HIV infection superimposed on comorbidities linked to age and chronic inflammation, leading to a higher prevalence of neurocognitive impairment across the age span (accentuated aging). In addition, apolipoprotein E (ApoE), one of the most influential host risk factors for developing Alzheimer’s disease, has been implicated in the development of HAND. But studies differ as to whether ApoE is relevant, and whether age and ApoE interact to impair brain function in the HIV-infected patient. What is clear is that HIV-infected individuals are living longer with HIV, and therefore factors related to aging and health need to be examined in the context of current, effective ART. This review addresses the recent evidence for the influence of aging and ApoE on HIV-associated neurocognitive impairment.


In HIV-infected patients, combined antiretroviral therapy (cART) is associated to adipose tissue redistribution known as lipodystrophy and associated cardiometabolic risk. This study aimed to evaluate the evolution of body composition in HIV-infected patients, with and without lipodystrophy, over 2 yr. We evaluated anthropometric
paramaters and body composition by whole-body dual-energy X-ray absorptiometry in 144 HIV-infected patients on cART. We defined lipodystrophy by fat mass ratio. Lipodystrophy was present in 45.77% of the patients. These patients presented higher HIV infection duration, cART duration, and CD4+ cell count, with no differences regarding gender, age, body mass index, and viral load. Patients with lipodystrophy showed an increase in total fat mass (9.9%) and upper-limbs fat mass (17.6%), with a decrease in total, trunk, and lower-limbs fat-free mass (2.2%; 2.2%, and 3.9%, respectively), over 2 yr. In patients without lipodystrophy, the trunk fat-free mass decreased 1.9% over time, and no changes were observed in the other studied parameters. In patients with lipodystrophy, there was predominantly a central fat mass gain, with no changes in lower limbs, suggesting that peripheral adipocytes lose their regenerative capacity.


• IgG glycans represent an interface between genes and environment. • IgG glycome composition changes in various physiological and pathological states. • IgG glycans are an excellent biomarker of biological age. • Glycosylation of IgG modulates its effector functions. • Knowledge of IgG glycosylation can improve disease biomarkers and vaccination and immunotherapy protocols.

The Immunoglobulin G (IgG) glycome is well known for its heterogeneity and shows a significant degree of variation within populations. IgG glycome composition is influenced both by genes and by environment, making it an excellent biomarker of a person's general health state, i.e. biological age. IgG glycosylation appears to be highly regulated, both during homeostasis and in cases of its disturbance. Changes in IgG glycosylation patterns have been observed in aging and in various diseases. Differential IgG glycosylation is known to modulate IgG effector functions and is involved in disease development and progression, representing both a predisposition and a functional mechanism involved in disease pathology. This makes IgG glycosylation analysis a promising add-on to improve existing disease biomarkers.


PURPOSE OF REVIEW: We summarize what is known about neutrophils in HIV infection, focusing on their potential roles in HIV protection, acquisition, and pathogenesis. RECENT FINDINGS: Recent studies have demonstrated that neutrophil-associated proteins and cytokines in genital tissue pre-infection associate with HIV acquisition. However, recent in vivo assessment of highly exposed seronegative individuals and in vitro studies of anti-HIV functions of neutrophils add to older literature evidence that neutrophils may be important in a protective response to HIV infection. Neutrophils are important for containment of pathogens but can also contribute to tissue damage due to their release of reactive oxygen species, proteases, and other potentially harmful effector molecules. Overall, there is a clear evidence for both helpful and harmful roles of neutrophils in HIV acquisition and pathogenesis. Further study, particularly of tissue neutrophils, is needed to elucidate the kinetics, phenotype, and functionality of neutrophils in HIV infection to better understand this dichotomy.


The aim of this study was to determine, in vitro, the effects of X4 and R5 HIV-1 gp120 and Tat on: (1) endothelial cell senescence and (2) endothelial cell microRNA (miR) expression. Endothelial cells were treated with media without and with: R5 gp120 (100 ng/mL), X4 gp120 (100 ng/mL), or Tat (500 ng/mL) for 24 h and stained for senescence-associated β-galactosidase (SA-β-gal). Cell expression of miR-34a, miR-217, and miR-146a was determined by RT-PCR. X4 and R5 gp120 and Tat significantly increased (~100%) cellular senescence versus control. X4 gp120 significantly increased
cell expression of miR-34a (1.60 ± 0.04 fold) and miR-217 (1.52 ± 0.18), but not miR-146a (1.25 ± 0.32). R5 gp120 significantly increased miR-34a (1.23 ± 0.07) and decreased miR-146a (0.56 ± 0.07). Tat significantly increased miR-34a (1.49 ± 0.16) and decreased miR-146a (0.55 ± 0.23). R5 and Tat had no effect on miR-217 (1.05 ± 0.13 and 1.06 ± 0.24; respectively). HIV-1 gp120 (X4 and R5) and Tat promote endothelial cell senescence and dysregulation of senescence-associated miRs.; © 2018 The Authors. Physiological Reports published by Wiley Periodicals, Inc. on behalf of The Physiological Society and the American Physiological Society.


People living with human immunodeficiency virus (HIV) infection typically have hypovitaminosis D, which is linked to a large number of pathologies, including immune disorders and infectious diseases. Vitamin D (VitD) is a key regulator of host defense against infections by activating genes and pathways that enhance innate and adaptive immunity. VitD mediates its biological effects by binding to the Vitamin D receptor (VDR), and activating and regulating multiple cellular pathways. Single nucleotide polymorphisms in genes from those pathways have been associated with protection from HIV-1 infection. High levels of VitD and VDR expression are also associated with natural resistance to HIV-1 infection. Conversely, VitD deficiency is linked to more inflammation and immune activation, low peripheral blood CD4+ T-cells, faster progression of HIV disease, and shorter survival time in HIV-infected patients. VitD supplementation and restoration to normal values in HIV-infected patients may improve immunologic recovery during combination antiretroviral therapy, reduce levels of inflammation and immune activation, and increase immunity against pathogens. Additionally, VitD may protect against the development of immune reconstitution inflammatory syndrome events, pulmonary tuberculosis, and mortality among HIV-infected patients. In summary, this review suggests that VitD deficiency may contribute to the pathogenesis of HIV infection. Also, VitD supplementation seems to reverse some alterations of the immune system, supporting the use of VitD supplementation as prophylaxis, especially in individuals with more severe VitD deficiency. [ABSTRACT FROM AUTHOR]


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.

Ageing is the result of biological events that progressively and irreversibly compromise the function of vital organs and eventually result in death. There is a general perception that ageing is accelerated in people living with HIV, with an increasing body of evidence to support this view. With the introduction of effective antiretroviral therapy, the life expectancy of people living with HIV has improved. Since people with HIV are living longer than previously, while also ageing faster than the general population, there is an increase in HIV-positive patients living with age-related comorbidities. This brief overview of ageing and HIV discusses aspects of the complications of HIV infection as they impact the ageing process. How diseases of age affect patients with HIV provides clues to help unravel the interactions between HIV and ageing that ultimately should help clinicians understand the basis of 'normal' ageing and manage ageing HIV-positive patients more effectively.


Introduction: Metabolic syndrome affects 20-25% of the adult population globally. It predisposes to cardiovascular disease and Type 2 diabetes. Studies in other countries suggest a high prevalence of metabolic syndrome among HIV-infected patients but no studies have been reported in Kenya. The objective of this study was to assess the prevalence and factors associated with metabolic syndrome in adult HIV-infected patients in an urban population in Nairobi, Kenya. Methods: In a cross-sectional study design, conducted at Riruta Health Centre in 2016, 360 adults infected with HIV were recruited. A structured questionnaire was used to collect data on socio-demography. Blood was collected by finger prick for fasting glucose and venous sampling for lipid profile. Results: Using the harmonized Joint Scientific Statement criteria, metabolic syndrome was present in 19.2%. The prevalence was higher among females than males (20.7% vs. 16.0%). Obesity (AOR = 5.37, P < 0.001), lack of formal education (AOR = 5.20, P = 0.002) and family history of hypertension (AOR = 2.06, P = 0.029) were associated with increased odds of metabolic syndrome while physical activity (AOR = 0.28, P = 0.001) was associated with decreased odds. Conclusion: Metabolic syndrome is prevalent in this study population. Obesity, lack of formal education, family history of hypertension, and physical inactivity are associated with metabolic syndrome. Screening for risk factors, promotion of healthy lifestyle, and nutrition counselling should be offered routinely in HIV care and treatment clinics.


HIV-infected adults may be likely to have metabolic syndrome (MS) at younger ages and in the absence of obesity compared with general population. In the present study, we determined prevalence of MS and its association with oxidative deoxy nucleic acid (DNA) damage in HIV-1 infected patients with different ART status. We used plasma level of the oxidized base, 8-hydroxy-2-deoxyguanosine (8-OHdG), as a biomarker of oxidative DNA damage. To measure plasma 8-OHdG we used 8-OHdG enzyme-linked, immunosorbent assay. The biomarkers of MS were insulin resistance, Cholesterol/HDL ratio, Waist circumference and Hypertension. MS and oxidative DNA damage were significantly higher in HIV-positive patients with second line ART and first line ART than ART-naive patients. In a logistic regression analysis, increased MS was positively associated with the increased DNA damage (OR: 29.68, 95%:13.47, CI: 65.40) P = 0.0001. ART plays a significant role in the development of MS and oxidative DNA damage in HIV-positive patients taking antiretroviral therapy. Awareness and knowledge of MS and DNA damage in HIV/AIDS patients may prove helpful to clinicians to manage non-AIDS diseases such as cardiovascular disease and cancer. To determine exact role of ART in induction of MS and DNA damage larger studies are warranted.

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 naive T cells that parallels an increase in memory T cells, mainly in the cytotoxic CD8(+) T cell population, which can be subdivided into naive, 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 p85alpha 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.


BACKGROUND: HIV is an independent risk factor for chronic obstructive pulmonary disease; however, baseline risk factors for lung function decline remain largely unknown in this population. METHODS: HIV-infected participants in the Pittsburgh Lung HIV Cohort with at least 3 pulmonary function measurements between 2007 and 2016 were included. Pulmonary function testing including postbronchodilator (BD) spirometry and diffusion capacity for carbon monoxide (DLco) was performed every 18 months. We used a mixed-effect linear model to evaluate factors associated with pulmonary function testing and DLco decline and logistic regression models to evaluate factors associated with rapid FEV1 decline (defined as >80 mL per year) and any DLco decline. RESULTS: Two hundred eighty-five HIV-infected participants were included. Median baseline CD4 cell count was 521 cells per micro liter, 61.9% had an undetectable HIV viral load at baseline, and 78.5% were receiving ART. Approximately 20% of participants met Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria for a diagnosis of chronic obstructive pulmonary disease at baseline. Older age and baseline GOLD stage 1 compared with stage 0 were associated with faster decline in post-BD FEV1%, whereas female sex was associated with slower decline. Similarly, female sex was associated with slower decline in DLco%. HIV-related factors including CD4 cell count, viral load, and ART use were not significantly associated with pulmonary function decline. CONCLUSIONS: Older age, male sex, and higher baseline GOLD stage were associated with more rapid post-BD FEV1% decline in HIV-infected individuals.


SIGNIFICANCE: Aging is a complex trait that is influenced by a combination of genetic and environmental factors. Although many cellular and physiological changes have been described to occur with aging, the precise molecular causes of aging remain unknown. Given the biological complexity and heterogeneity of the aging process, understanding the mechanisms that underlie aging requires integration of data about age-dependent changes that occur at the molecular, cellular, tissue, and organismal levels. Recent Advances: The development of high-throughput technologies such as next-generation sequencing, proteomics, metabolomics, and automated imaging techniques provides researchers with new opportunities to understand the mechanisms of aging. Using these methods, millions of biological molecules can be
simultaneously monitored during the aging process with high accuracy and specificity. CRITICAL ISSUES: Although the ability to produce big data has drastically increased over the years, integration and interpreting of high-throughput data to infer regulatory relationships between biological factors and identify causes of aging remain the major challenges. In this review, we describe recent advances and survey emerging omics approaches in aging research. We then discuss their limitations and emphasize the need for the further development of methods for the integration of different types of data. FUTURE DIRECTIONS: Combining omics approaches and novel methods for single-cell analysis with systems biology tools would allow building interaction networks and investigate how these networks are perturbed with aging and disease states. Together, these studies are expected to provide a better understanding of the aging process and could provide insights into the pathophysiology of many age-associated human diseases. Antioxid. Redox Signal. 29, 985-1002.


BACKGROUND: HIV-infected patients are at a higher risk to develop malignancies than general population. Although AIDS-related malignancies are a common feature of late-stage disease, patients under successful antiretroviral therapy also have an increased risk for development of non-AIDS malignancies. OBJECTIVE: To compare the frequency and characteristics of adults HIV-infected patients and general population who died of malignancies in Bahia, Brazil from January 2000 to December 2010. METHODS: National Information System on Mortality (SIM) was searched to identify all deaths in the study period caused by malignancies in general population and in HIV patients. The frequency of malignancies in these two groups was compared. For HIV patients we also recorded the last HIV-1 RNA plasma viral load and CD4+ cells count, retrieved from official databases on laboratory monitoring for HIV patients. RESULTS: In the study period 733,645 deaths were reported, 677,427 (92.3%) of them in individual older than 13 years. Malignancies were the cause of death in 77,174 (11.4%) of them, and 5156 (0.8%) were associated to HIV/Aids. Among deaths of HIV/Aids patients, Kaposi’s sarcoma was the most prevalent malignancy (OR: 309.7; 95% CI: 177-544), followed by non-Hodgkin lymphoma (OR: 10.1; 95% CI: 5.3-19.3), Hodgkin’s lymphoma (OR: 4.3; 95% CI: 2.2-8.4), and cranial nervous malignancies (OR: 3.3; 95% CI:1.6-7.0). HIV patients died at a significantly lower age (43.7 years), than general population (64.5 years, p<0.0001). Patients who had a diagnosis of AIDS-related malignancies had lower CD4+ cells count than those with non-AIDS relates malignancies (p=0.04). CONCLUSION: HIV infection is a clear risk factor for development of some malignancies, and is associated with early mortality, compared to general population. The level of CD4+ cells count predicts the type of malignancies causing death in this population.


BACKGROUND: HIV infection is associated with premature aging, and mitochondrial integrity is compromised during the aging process. Because mitochondrial toxicity is a consequence of antiretroviral therapies (ARTs), we hypothesized HIV and long-term ART would correlate with immunosenescence and mitochondrial DNA (mtDNA) pathology. SETTING: Thirteen older HIV-infected individuals (aged >40 years) with virologic suppression (stratified by duration of ART) were compared with 10 uninfected controls well-matched for age. METHODS: Peripheral blood T-cells were immunophenotyped to measure immune activation, proliferation, and immunosenescence in subsets. mtDNA copies per cell and the relative abundance of mtDNA carrying the "common deletion" (RACD) were quantified by droplet digital polymerase chain reaction. RESULTS: Immune activation was higher in HIV-infected individuals than HIV-uninfected individuals in mature CD4 T-cell subsets (CD4TTM P = 0.025, CD4TEM P = 0.0020) regardless of ART duration. Cell populations from uninfected individuals were more likely to be more senescent populations in mature CD4 T-cell
subsets (TTM P = 0.017), and CD8 (CD8TEMRA+ P = 0.0026). No differences were observed in mtDNA or RACD levels in any CD4 T-cell subsets, while CD8TSCM of infected individuals trended to have more mtDNA (P = 0.057) and reduced RACD (P = 0.0025). CONCLUSIONS: HIV-infected individuals demonstrated increased immune activation, but reduced senescence in more mature T-cell subsets. Increased mtDNA content and lower RACD in CD8TSCM suggest immune activation driven turnover of these cells in HIV-infected persons.


Low bone mineral density (BMD) and fragility fractures are common in individuals infected with HIV, who are undergoing antiretroviral therapy (ART). In high-income countries, dual energy X-ray absorptiometry is typically used to evaluate osteopenia or osteoporosis in HIV infected individuals. However, this technology is unavailable in low and middle-income countries, so a different approach is needed. The aim of this study was to use X-ray scans of the spine to determine the prevalence of and associated risk factors for vertebral fractures in HIV-infected patients in a tertiary-care hospital in Mexico. We conducted a cross-sectional study of outpatients who were >40 years old and receiving ART at the Hospital de Infectología, La Raza National Medical Center in Mexico City, Mexico. We used semi-quantitative morphometric analysis of centrally digitized X-ray images to assess vertebral deformities in the spine. Anterior, middle and posterior vertebral heights were measured, and height ratios were calculated. For each vertebral body, fractures were graded on the basis of height ratio reductions, and a spine deformity index' (SDI) value was calculated by summing the grades of the vertebral deformities: An SDI>1 was indicative of a vertebral fracture. We included 104 patients, 87% of whom were men. The median age was 49 years [interquartile range (IQR) 42-52]. The most common stage of HIV infection, as defined by the Centers for Disease Control, was B2 in 40 (39%) of patients. Forty seven (45%) patients were on ART regimens that included protease inhibitors (PIs) and 100 (96%) being treated with tenofovir. The median time of ART was 6.5 years (IQR 1.6-9.0). Of the 104 patients in our study, 83 (80%) had undetectable viral load, as assessed by HIV-1 RNA levels, 32 (31%) showed evidence of a previous fracture, 4 (4%) were co-infected with hepatitis C virus, and 57 (55%) had a history of corticosteroid treatment. The prevalence of vertebral fractures was 25%, 95% confidence interval 17-34%. We assessed whether gender, HCV co-infection, previous corticosteroid use, AIDS, total HIV viral load, and current and previous use of PIs were associated with fractures in our study group, but we did not observe a significant association between any of these factors and vertebral fractures. The prevalence of vertebral fractures was high among HIV-infected patients. We propose that screening for bone disease should be performed in HIV individuals who are at risk of fragility fractures. Furthermore, we suggest that X-ray based assessment of the spine should be considered in patients who are at increased risk of fragility fractures, irrespective of BMD levels, particularly in elderly patients in low and middle income countries. [ABSTRACT FROM AUTHOR]


The article discusses the potential of host immune profiling to individualize goal-directed management of HIV and to transform research into HIV comorbidities and HIV cure.

Since 2006, meningococcal serogroup C (MenC) conjugate (MCC) vaccines have been supplied by the Brazilian government for HIV-infected children under 13 years old. For measuring protection against MenC, the serum bactericidal antibody (SBA) assay is the method of choice. The characterization of T follicular helper cells (TFH) cells has been an area of intensive study because of their significance in multiple human diseases and in vaccinology. The objective of this study was to characterize the phenotype of peripheral TFH cells and B cells and how they associated with each other and with SBA levels induced by vaccination as well as with serum cytokine levels of HIV-infected and non-infected children and adolescents. We found that CD27(-)IgD(-)CD21(-)CD38(+) (exhausted B cells) as well as short-lived plasmablasts (CD27(+))IgD(-)CD21(-)CD38(+)) are increased in cART treated HIV patients and negatively associated with MCC vaccine induced SBA levels. Baseline frequency of activated peripheral TFH cells was a negative correlate for SBA response to MCC vaccine but positively correlated with circulating plasmablast frequency. Baseline IL4-levels positively associated with SBA response but showed a negative correlation with activated peripheral TFH cells frequency. The increased frequency of activated peripheral TFH cells found in non-responders to the vaccine implies that higher activation/differentiation of CD4 T cells within the lymph node is not necessarily associated with induction of vaccine responses.


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.


BACKGROUND: Effective combined antiretroviral therapy (cART) has improved life expectancy among people living with HIV-1 infection. Treated HIV-1 infection increases the prevalence of metabolic syndrome (MS). Despite sub-Saharan Africa having among the highest rates of HIV-1 infection, the effects of MS in HIV-1-infected individuals on cardiovascular risk is poorly explored. The aim of the study was to assess whether MS and/or HIV-1 treatment correlates with large elastic artery stiffness in HIV-1-infected patients treated with first-line cART. METHODS: The study sample comprised of 102 subjects free of cardiovascular disease and major risk factors divided into two groups based on HIV-1 infection, treatment, and MS status: HIV-1(+)/cART(+)/MS(+) (n = 12); HIV-1(+)/cART(-)/MS(+) (n = 16); HIV-1(-)/ MS(+) (n
= 10); HIV-1(+)/cART(+)/MS(-) (n = 42); HIV-1(+)/cART(-)/MS(-) (n = 32); HIV-1(-)/ MS(-) (n = 39). MS was established according the International Diabetes Federation definition. Large artery stiffness was measured using applanation tonometry to assess aortic pulse wave velocity (aPWV) and aortic augmentation index at heart rate of 75 bpm (Alx@HR75). cART included lamivudine/zidovudine and nevirapine or efavirenz. RESULTS: The prevalence of MS in the HIV-1-infected patients was 28%. There were no significant differences in aPWV in the non-MS groups. However, in subjects with MS, aPWV was significantly higher in the HIV-1 cART patients (9.0 +/- 1.9 m/s) compared with both controls (7.5 +/- 1.8 m/s; P = 0.018) and untreated HIV-1 patients (7.7 +/- 1.3 m/s; P = 0.023), and these differences remained after adjustment for blood pressure and sex. Aortic PWV was significantly elevated (P = 0.009) in HIV-1 cART patients with MS compared to their counterparts without MS. Untreated HIV-1 patients with MS also demonstrated increased aPWV compared to their counterparts without MS (P = 0.05). Aortic Alx@HR75 was, on average, ~ 5% higher in HIV-1 cART patients with MS (28.3 +/- 62% compared with untreated HIV-1 patients with MS (23.5 +/- 9%; P = 0.075). Sub-group multivariate analysis identified MS as an independent predictor of increased aPWV in HIV-1 cART patients.

CONCLUSIONS: Our study established that presence of MS in HIV-1 patients on treatment was associated with increased aPWV and hence increased arterial stiffness in sub-Saharan African HIV-1 patients on first-line cART.


Liver disease is a leading cause of HIV-related mortality. Hepatitis C virus (HCV)-related fibrogenesis is accelerated in the setting of HIV coinfection, yet the mechanisms underlying this aggressive pathogenesis are unclear. We identified formalin-fixed paraffin-embedded liver tissue for HIV-infected patients, HCV-infected patients, HIV/HCV-coinfected patients, and controls at Duke University Medical Center. De-identified sections were stained for markers against the wound repair Hedgehog (Hh) pathway, resident T-lymphocytes, and immune activation and cellular aging. HIV infection was independently associated with Hh activation and markers of immune dysregulation in the liver tissue.


The success of anti-retroviral therapy has improved the quality of life and lifespan of HIV+individuals, transforming HIV infection into a chronic condition. These improvements have come with a cost, as chronic HIV infection and long-term therapy have resulted in the emergence of a number of new pathologies. This includes a variety of the neuropathological and neurocognitive effects collectively known as HIV-associated neurocognitive disorders (HAND) or NeuroHIV. These effects persist even in the absence of viral replication, suggesting that they are mediated the long-term changes in the CNS induced by HIV infection rather than by active replication. Among these effects are significant changes in catecholaminergic neurotransmission, especially in dopaminergic brain regions. In HIV-infected individuals not treated with ARV show prominent neuropathology is common in dopamine-rich brain regions and altered autonomic nervous system activity. Even infected individuals on therapy, there is significant dopaminergic neuropathology, and elevated stress and norepinephrine levels correlate with a decreased effectiveness of antiretroviral drugs. As catecholamines function as immunomodulatory factors, the resultant dysregulation of catecholaminergic tone could substantially alter the development of HIVassociated neuroinflammation and neuropathology. In this review, we discuss the role of catecholamines in the etiology of HIV neuropathogenesis. Providing a comprehensive examination of what is known about these molecules in the context of HIV-associated disease demonstrates the importance of further studies in this area, and may open the door to new therapeutic strategies that specifically ameliorate the effects of catecholaminergic dysregulation on NeuroHIV.
Anti-HIV-1 broadly neutralizing antibodies (BnAbs) exhibit an impressive capacity to protect against chimeric SIV-HIV (SHIV) challenges in macaques and potently reduce viremia in both SHIV-infected macaques and HIV-1-infected humans. There is a body of evidence suggesting Fc-mediated functions of anti-HIV-1 binding antibodies are important in protecting from infection and controlling viremia. The degree to which the efficacy of BnAbs is assisted by Fc-mediated functions is of great interest. Challenge experiments with the older generation BnAb b12 showed that mutating the Fc region to abrogate Fcgamma receptor binding reduced protective efficacy in macaques. Similar data have been generated with newer BnAbs using murine models of HIV-1. In addition, the degree to which therapeutically administered BnAbs reduce viremia suggests that elimination of infected cells through Fc-mediated functions may contribute to their efficacy. Fc-mediated functions that eliminate infected cells may be particularly important for challenge systems involving cell-associated virus. Herein we review data regarding the importance of Fc-mediated functions of BnAbs in mediating protective immunity and control of viremia.


Infection by human immunodeficiency virus (HIV) causes the acquired immune deficiency syndrome (AIDS), which has devastating effects on the host immune system. HIV entry into host cells and subsequent viral replication induce a proinflammatory response, hyperactivating immune cells and leading them to death, disfunction, and exhaustion. Adenosine is an immunomodulatory molecule that suppresses immune cell function to protect tissue integrity. The anti-inflammatory properties of adenosine modulate the chronic inflammation and immune activation caused by HIV. Lack of adenosine contributes to pathogenic events in HIV infection. However, immunosuppression by adenosine has its shortcomings, such as impairing the immune response, hindering the elimination of the virus and control of viral replication. By attempting to control inflammation, adenosine feeds a pathogenic cycle affecting immune cells. Deamination of adenosine by ADA (adenosine deaminase) counteracts the negative effects of adenosine in immune cells, boosting the immune response. This review comprises the connection between adenosinergic system and HIV immunopathogenesis, exploring defects in immune cell function and the role of ADA in protecting these cells against damage.


As HIV-infected patients grow older, some accumulate multiple health problems earlier than the noninfected ones in particular frailty phenotypes. Patients with frailty phenotype are at higher risk of adverse outcomes (worsening mobility, disability, hospitalization, and death within three years). Our study aimed to evaluate prevalence of frailty in elderly HIV-infected patients and to assess whether frailty is associated with HIV and geriatric factors, comorbidities, and precariousness in a French cohort of older HIV infected. This 18-month cross-sectional multicenter study carried in 2013 to 2014 had involved 502 HIV-infected patients aged 50 years and older, cared in 18 HIV-dedicated hospital medical units, located in South of France. Prevalence of frailty was 6.3% and of pre-frailty 57.2%. Low physical activity and weakness were the main frailty markers, respectively 49.4% and 19.9%. In univariate models, precariousness, duration of HIV antiretroviral treatment >15 years, 2 comorbidities or more, risk of depression, activities of daily living disability, and presence of pain were significantly associated with frail and pre-frail phenotype. Multivariate logistic regression analyses showed that only pain was significantly different between frail and pre frail phenotype versus non frail phenotype (odds ratio = 1.2; P = .002). Our study is the first showing a significant association between pain and frailty.
phenotype in older patients infected by HIV. As frailty phenotype could be potentially reversible, a better understanding of the underlying determinant is warranted. Further studies are needed to confirm these first findings.


**BACKGROUND** After introduction of Highly Active Anti-Retroviral Therapy (HAART), the prevalence of hypogonadism among Human Immunodeficiency Virus (HIV) infected males is decreasing. **MATERIALS AND METHODS** Cross-sectional study was undertaken at ART centre of a medical Institute. The study recruited HIV infected males aged 18 to 65 years receiving ART. Patients with any debilitating chronic illness, diabetes mellitus, chronic smokers or alcoholic, currently on opioids or methadone were excluded. Androgen deficiency in aging male (ADAM) questionnaire was used to screen patients for possible presence of hypogonadism. Patients underwent biochemical evaluation for serum total testosterone (TT), luteinising hormone (LH) and CD4 count. Chi-squared test was used to compare different parameters. Pearson’s correlation coefficient was used to assess any relationship between CD4 count, LH and testosterone. A p-value of <0.05 was considered statistically significant. **RESULTS** In the study 120 patients were evaluated. The mean age of the patients was 41.61 years. The mean BMI of the patients was 22.47 kg/m2. The mean duration of ART was 6.13 years and mean CD4 count was 442.63 cells/mm3. Hypogonadism was seen in 20 (23.3%) and majority (85.7%) had secondary hypogonadism. There was significant association between hypogonadism and CD4 count but no association was found with body mass index (BMI) and duration of ART. **CONCLUSION** Hypogonadism is seen in 23.3% of HIV infected males. Majority (85.7%) had secondary hypogonadism. There was significant association of hypogonadism with lower CD4 count.


**INTRODUCTION:** HIV-1-infected smokers are at risk of oxidative damage to neuronal cells in the central nervous system by both HIV-1 and cigarette smoke. Since neurons have a weak antioxidant defense system, they mostly depend on glial cells, particularly astrocytes, for protection against oxidative damage and neurotoxicity. Astrocytes augment the neuronal antioxidant system by supplying cysteine-containing products for glutathione synthesis, antioxidant enzymes such as SOD and catalase, glucose for antioxidant regeneration via the pentose-phosphate pathway, and by recycling of ascorbic acid. Areas covered: The transport of antioxidants and energy substrates from astrocytes to neurons could possibly occur via extracellular nanovesicles called exosomes. This review highlights the neuroprotective potential of exosomes derived from astrocytes against smoking-induced oxidative stress, HIV-1 replication, and subsequent neurotoxicity observed in HIV-1-positive smokers. **Expert opinion:** During stress conditions, the antioxidants released from astrocytes either via extracellular fluid or exosomes to neurons may not be sufficient to provide neuroprotection. Therefore, we put forward a novel strategy to combat oxidative stress in the central nervous system, using synthetically developed exosomes loaded with antioxidants such as glutathione and the anti-aging protein Klotho.

Summary: As women age, susceptibility to systemic and genital infections increases. Tissue-resident memory T cells (TRMs) are CD103+CD8+ long-lived lymphocytes that provide critical mucosal immune protection. Mucosal dendritic cells (DCs) are known to induce CD103 expression on CD8+ T cells. While CD103+CD8+ T cells are found throughout the female reproductive tract (FRT), the extent to which aging impacts their presence and induction by DCs remains unknown. Using hysterectomy tissues, we found that endometrial CD103+CD8+ T cells were increased in postmenopausal compared to premenopausal women. Endometrial DCs from postmenopausal women were significantly more effective at inducing CD103 expression on allogeneic naïve CD8+ T cells than DCs from premenopausal women; CD103 upregulation was mediated through membrane-bound TGFβ signaling. In contrast, cervical CD103+ T cells and DC numbers declined in postmenopausal women with age. Decreases in DCs correlated with decreased CD103+ T cells in endocervix, but not ectocervix. Our findings demonstrate a previously unrecognized compartmentalization of TRMs in the FRT of postmenopausal women, with loss of TRMs and DCs in the cervix with aging, and increased TRMs and DC induction capacity in the endometrium. These findings are relevant to understanding immune protection in the FRT and to the design of vaccines for women of all ages. [ABSTRACT FROM AUTHOR]


The world is witnessing a rapid demographic shift towards an older population, a trend with major medical, social, economic and political implications. Aging is a multifaceted process, involving numerous molecular and cellular mechanisms in the context of different organ systems. A crucial component of aging is a set of functional and structural alterations in the immune system that can manifest as a decreased ability to fight infection, diminished response to vaccination, increased incidence of cancer, higher prevalence of autoimmunity and constitutive low-grade inflammation, among others. In addition to cell-intrinsic changes in both innate and adaptive immune cells, alterations in the stromal microenvironment in primary and secondary lymphoid organs play an important role in age-associated immune dysfunction. This article will provide a broad overview of these phenomena and point out some of their clinical and therapeutic implications.


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 = 0.0006, 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 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 increased TFV 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 increased TFV 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 increased TFV 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.

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.

**BACKGROUND:** Data on accelerated aging in HIV-infected children are limited. In this study, we assess 2 biomarkers of aging—telomere length and DNA methylation (DNAm) age—in a cohort of early-treated HIV-infected children and compare these aging biomarkers with HIV-exposed uninfected (HEU) and HIV-unexposed uninfected (HUU) children. SETTING: Cross-sectional study of 120 HIV-infected, 33 HEU, and 25 HUU children enrolled in a cohort study in Johannesburg, South Africa. The mean age of children was 6.4 years at the time of measurement. HIV-infected children initiated ritonavir-boosted lopinavir-based antiretroviral therapy before 2 years of age and had been on continuous antiretroviral therapy until biomarker measurement. METHODS: Telomere length was determined using multiplex quantitative polymerase chain reaction. DNAm was measured using the Illumina 450K array and DNAm age was calculated as the acceleration residual from regressing DNAm age on chronological age. RESULTS: Telomere length (ln[Kb/genome]) was shorter in HIV-infected children compared with HUU children (4.14 +/- 0.85 vs. 4.53 +/- 0.79, P = 0.038) and in HEU children compared with HUU children (4.05 +/- 0.74 vs. 4.53 +/- 0.79, P = 0.023). Age acceleration residual based on DNAm levels was not different between HIV-infected (-0.003 +/- 2.95), HEU (0.038 +/- 2.39), and HUU (0.18 +/- 2.49) children in unadjusted analysis and after adjustment for cell type proportions. CONCLUSIONS: Unlike reports of accelerated DNAm age in HIV-infected adults, there was no evidence of accelerated biological aging by DNAm levels in this cohort of early-treated HIV-infected children. By contrast, absolute telomere length was shorter in HIV-infected and HEU children compared with HUU children, but did not differ between HIV-infected and HEU children.


**Background:** Severely immunocompromised human immunodeficiency virus (HIV)-infected individuals have high mortality shortly after starting antiretroviral therapy (ART). We investigated predictors of early mortality and "late presenter" phenotypes. Methods: The Reduction of EArly MortaLITY (REALITY) trial enrolled ART-naive adults and children >/=5 years of age with CD4 counts <100 cells/microL initiating ART in Uganda, Zimbabwe, Malawi, and Kenya. Baseline predictors of mortality through 48 weeks were identified using Cox regression with backwards elimination (exit P > .1). Results: Among 1711 included participants, 203 (12%) died. Mortality was independently higher with older age; lower CD4 count, albumin, hemoglobin, and grip strength; presence of World Health Organization stage 3/4 weight loss, fever, or vomiting; and problems with mobility or self-care at baseline (all P < .04). Receiving enhanced antimicrobial prophylaxis independently reduced mortality (P = .02). Of five late-presenter phenotypes, Group 1 (n = 355) had highest mortality (25%; median CD4 count, 28 cells/microL), with high symptom burden, weight loss, poor mobility, and low albumin and hemoglobin. Group 2 (n = 394; 11% mortality; 43 cells/microL) also had weight loss, with high white cell, platelet, and neutrophil counts suggesting underlying inflammation/infection. Group 3 (n = 218; 10% mortality) had low CD4 counts (27 cells/microL), but low symptom burden and maintained fat mass. The remaining groups had 4%-6% mortality. Conclusions: Clinical and laboratory features identified groups with highest mortality following ART initiation. A screening tool could identify patients with low CD4 counts for prioritizing same-day ART initiation, enhanced prophylaxis, and intensive follow-up. Clinical Trials Registration: ISRCTN43622374.

Summary: Aging is associated with immune dysfunction, especially T-cell defects, which result in increased susceptibility to various diseases. Previous studies showed that T cells from aged mice express multiple inhibitory receptors, providing evidence of the relationship between T-cell exhaustion and T-cell senescence. In this study, we showed that T-cell immunoglobulin and immunoreceptor tyrosine-based inhibitory motif (ITIM) domain (TIGIT), a novel co-inhibitory receptor, was upregulated in CD8+ T cells of elderly adults. Aged TIGIT+ CD8+ T cells expressed high levels of other inhibitory receptors including PD-1 and exhibited features of exhaustion such as downregulation of the key costimulatory receptor CD28, representative intrinsic transcriptional regulation, low production of cytokines, and high susceptibility to apoptosis. Importantly, their functional defects associated with aging were reversed by TIGIT knockdown. CD226 downregulation on aged TIGIT+ CD8+ T cells is likely involved in TIGIT-mediated negative immune suppression. Collectively, our findings indicated that TIGIT acts as a critical immune regulator during aging, providing a strong rationale for targeting TIGIT to improve dysfunction related to immune system aging. [ABSTRACT FROM AUTHOR]


While the arrival of combination antiretroviral therapy significantly decreased the prevalence of HIV-associated dementia, between 35 and 70% of all infected adults continue to develop some form of cognitive impairment. These deficits appears to affect multiple neural subsystems, but the mechanisms and extent of damage are not fully understood. In the current study, we utilized magnetoencephalography (MEG), advanced oscillatory analysis methods, and a paired-pulse somatosensory stimulation paradigm to interrogate pre-attentive inhibitory processing in 43 HIV-infected adults and 28 demographically-matched uninfected controls. MEG responses were imaged using a beamformer, and time series data were extracted from the peak voxel in grand-averaged functional brain images to quantify the dynamics of sensory gating, oscillatory power, spontaneous power, and other neural indices. We found a significantly weakened response to the second stimulation compared to the first across groups, indicating significant sensory gating irrespective of HIV-infection. Interestingly, HIV-infected participants exhibited reduced neural responses in the 20-75Hz gamma range to each somatosensory stimulation compared to uninfected controls, and exhibited significant alterations in peak gamma frequency in response to the second stimulation. Finally, HIV-infected participants also had significantly stronger spontaneous activity in the gamma range (i.e., 20-75Hz) during the baseline period before stimulation onset. In conclusion, while HIV-infected participants had the capacity to efficiently gate somatosensory input, their overall oscillatory responses were weaker, spontaneous baseline activity was stronger, and their response to the second stimulation had an altered peak gamma frequency. We propose that this pattern of deficits suggests dysfunction in the somatosensory cortices, which is potentially secondary to accelerated aging.


Background: Age-related gait speed decline is accelerated in men with human immunodeficiency virus (HIV). Mitochondrial genetic variation is associated with frailty and mortality in the general population and may provide insight into mechanisms of functional decline in people aging with HIV. Methods: Gait speed was assessed semiannually in the Multicenter AIDS Cohort Study. Mitochondrial DNA (mtDNA) haplogroups were extracted from genome-wide genotyping data, classifying men aged >/=50 years into 5 groups: mtDNA haplogroup H, J, T, Uk, and other. Differences in gait speed by haplogroups were assessed as rate of gait speed decline per year, probability of slow gait speed (<1.0 m/s), and hazard of slow gait using multivariable linear mixed-effects models, mixed-effects logistic regression models, and the
Andersen-Gill model, controlling for hepatitis C virus infection, previous AIDS diagnosis, thymidine analogues exposure, education, body composition, smoking, and peripheral neuropathy. Age was further controlled for in the mixed-effects logistic regression models. Results: A total of 455 HIV-positive white men aged >/=50 years contributed 3283 person-years of follow-up. Among them, 70% had achieved HIV viral suppression. In fully adjusted models, individuals with haplogroup J had more rapid decline in gait speed (adjusted slopes, 0.018 m/s/year vs 0.011 m/s/year, pinteraction = 0.012) and increased risk of developing slow gait (adjusted odds ratio, 2.97; 95% confidence interval, 1.24-7.08) compared to those with other haplogroups. Conclusions: Among older, HIV-infected men, mtDNA haplogroup J was an independent risk factor for more rapid age-related gait speed decline.


Background: Low Mitochondrial DNA copy number (mtDNA CN) is a predictor of adverse aging outcomes, and its status may be altered in HIV-infected persons. This study evaluated the cross-sectional and longitudinal change of mtDNA CN by HIV markers. Methods: mtDNA CN was measured in participants of the ALIVE cohort of persons with history of injecting drugs. Multivariate linear regression models controlling for demographics, behavior, and HCV seropositive status assessed the relationship of mtDNA CN to HIV markers (CD4 counts, viral load, ART use). Linear mixed models tested the association between HIV markers and age-related mtDNA CN trajectories. Results: Among 741 individuals at baseline, HIV-infected persons (59%) with lower CD4 counts (p=0.01), higher viral load (p<0.01), and not on ART (p<0.01) had significantly lower mtDNA than uninfected persons; there was no difference between those uninfected and with well-controlled HIV. In longitudinal follow-up (507 participants), mtDNA CN declined significantly faster among HIV-infected persons >/=50 years than HIV-uninfected persons (-0.03 unit of change/year vs. 0.006 unit of change/year, p=0.04), even among those with well-controlled HIV. Conclusion: mtDNA CN is similar between well-controlled HIV-infected and uninfected persons before 50, but as they age declines significantly faster among all HIV-infected persons than HIV-uninfected persons.


Over half of individuals infected with human immunodeficiency virus (HIV) suffer from HIV-associated neurocognitive disorders (HANDs), yet the molecular mechanisms leading to neuronal dysfunction are poorly understood. Feline immunodeficiency virus (FIV) naturally infects cats and shares its structure, cell tropism, and pathology with HIV, including wide-ranging neurological deficits. We employ FIV as a model to elucidate the molecular pathways underlying HIV-induced neuronal dysfunction, in particular, synaptic alteration. Among HIV-induced neuron-damaging products, HIV envelope glycoprotein gp120 triggers elevation of intracellular Ca2+ activity in neurons, stimulating various pathways to damage synaptic functions. We quantify neuronal Ca2+ activity using intracellular Ca2+ imaging in cultured hippocampal neurons and confirm that FIV envelope glycoprotein gp95 also elevates neuronal Ca2+ activity. In addition, we reveal that gp95 interacts with the chemokine receptor, CXCR4, and facilitates the release of intracellular Ca2+ by the activation of the endoplasmic reticulum (ER)-associated Ca2+ channels, inositol triphosphate receptors (IP3Rs), and synaptic NMDA receptors (NMDARs), similar to HIV gp120. This suggests that HIV gp120 and FIV gp95 share a core pathological process in neurons. Significantly, gp95’s stimulation of NMDARs activates cGMP-dependent protein kinase II (cGKII) through the activation of the neuronal nitric oxide synthase (nNOS)-cGMP pathway, which increases Ca2+ release from the ER and promotes surface expression of AMPA receptors, leading to an increase in synaptic activity. Moreover, we culture feline hippocampal neurons and confirm that gp95-induced neuronal Ca2+ overactivation is mediated by CXCR4 and cGKII. Finally, cGKII activation is also required for HIV gp120-induced Ca2+
hyperactivation. These results thus provide a novel neurobiological mechanism of cGKII-mediated synaptic hyperexcitation in HAND.


We aimed to analyze markers of immune activation, inflammation, and oxidative stress in 92 asymptomatic HIV-infected patients according to the adequate (AR, >500 cells/mm(3)) or inadequate (IR, <500 cells/mm(3)) CD4(+) T recovery and the presence or absence of antiretroviral treatment (cART). In relation to those newly diagnosed, they were divided into two groups, cART-naive IR (nIR) and cART-naive AR (nAR). Among those diagnosed more than five years ago, the following division was made: the cART-naive long-term nonprogressors (LTNP); patient under cART and AR (tAR); and patients under cART and IR (tIR). We investigated the expression of soluble receptor for advanced glycation end products (sRAGE), high-mobility group-box protein 1 (HMGB1), soluble CD14 (sCD14), IL-8, IL-10, 8-isoprostane, vitamins, and DNA damage. We observed higher levels of sRAGE in tAR as compared to nIR, nAR, LTNP, and more sCD14 than in nIR and nAR. As for IL-10 levels, we found nIR > nAR > LTNP > tAR > tIR. Higher levels of 8-isoprostane were observed in nIR. LTNP presented a higher retinol dosage than tAR and less genotoxic damage induced by oxidative stress than the other groups. We suggest that the therapy, despite being related to lesser immune activation and inflammation, alters the vitamin profile and consequently increases the oxidative stress of patients. In addition, the lowest genotoxic index for LTNP indicates that both VL and cART could be responsible for the increased DNA damage. More studies are needed to understand the influence of cART on persistent immune activation and inflammation.


Background HIV-infected individuals are at increased risk for both sarcopenia and cardiovascular disease. Whether an association between low muscle mass and subclinical coronary artery disease (CAD) exists, and if it is modified by HIV serostatus, are unknown.

Methods We performed cross-sectional analysis of 513 male MACS participants (72% HIV-infected) who underwent mid-thigh computed tomography (CT) and non-contrast cardiac CT for coronary artery calcium (CAC) during 2010–2013. Of these, 379 also underwent coronary CT angiography for non-calcified coronary plaque (NCP) and obstructive coronary stenosis ≥50%. Multivariable-adjusted Poisson regression was used to estimate prevalence risk ratios of associations between low muscle mass (<20th percentile of the HIV-uninfected individuals in the sample) and CAC, NCP and obstructive stenosis.

Results The prevalence of low thigh muscle mass was similar by HIV serostatus (20%). There was no association of low muscle mass with CAC or NCP. However, low thigh muscle mass was significantly associated with a 2.5-fold higher prevalence of obstructive coronary stenosis, after adjustment for demographics and traditional CAD risk factors [PR 2.46 (95% CI 1.51, 4.01)]. This association remained significant after adjustment for adiposity, inflammation, and physical activity. There was no significant interaction by HIV serostatus (p-interaction = 0.90).

Conclusions In this exploratory analysis, low thigh muscle mass was significantly associated with subclinical obstructive coronary stenosis. Additional studies involving larger sample sizes and prospective analyses are needed to confirm the
potential utility of measuring mid-thigh muscle mass for identifying individuals at increased risk for obstructive CAD who might benefit from more aggressive risk factor management.


Age and HIV disease have additive effects on neural systems that support motor functioning. The current study examined the combined impact of aging and HIV on extrapyramidal motor functions, which were hypothesized to influence on activities of daily living (ADLs) and quality of life (QoL). Participants included 336 adults classified by HIV serostatus and age. A research nurse administered the Unified Parkinson’s Disease Rating Scale (UPDRS) and participants completed the modified Lawton & Brody ADL and the Short Form Survey Instrument (SF-36) questionnaires as part of a larger neuropsychological research battery. A convenience subset of 172 participants completed a 14-month follow-up evaluation. At baseline, only older age was associated with mild extrapyramidal signs; however, at 14-month follow-up, independent adverse effects of both HIV status and age group were observed on a 3-level UPDRS change variable. Among older HIV+ adults, the presence of mild UPDRS motor signs was independently associated with basic and instrumental ADL dependence, as well as lower physical (ps < .05), but not mental QoL. In the modern treatment era, older HIV+ adults show higher frequency of mild extrapyramidal signs as compared to younger individuals (but not older HIV- persons) and are at higher risk of incident extrapyramidal signs relative to HIV- persons (but not younger HIV+ persons). When present in older HIV+ adults, extrapyramidal signs are of mild severity but nevertheless increase the risk of daily functioning problems and lower health-related physical QoL.


Background: Individuals lacking immune recovery during suppressive cART will still represent a clinical issue in the years to come, given the high proportion of HIV-infected subjects introducing therapy late in the course of disease. Understanding the mechanisms underlying poor CD4+ T-cell gain is crucial for the correct clinical management of individuals in this context.; Case Presentation: An HIV-infected subject with poor CD4+ T-cell gain in the course of suppressive antiretroviral therapy was extensively investigated to identify the mechanisms behind inadequate CD4+ reconstitution. In particular, we studied the phenotype of circulating T-cells, interleukin-7 signaling in peripheral blood and bone marrow, gut function and microbial translocation markers as well as the composition of the faecal microbiota. Numerous therapeutic interventions ranging from antiretroviral therapy intensification to immunotherapy and anti-hepatitis C virus treatment were also employed in order to target the possible causes of poor immune-recovery.; Conclusions: Poor CD4+ T-cell gain on suppressive antiretroviral therapy is multifactorial and thus represents a clinical challenge. Clinicians should investigate subjects’ immune profile as well as possible causes of chronic antigenic stimulation for the administration of the most appropriate therapeutic strategies in this setting.;


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.


Background: Human immunodeficiency virus (HIV)-infected individuals are at increased risk of age-associated functional impairment, even with effective antiretroviral therapy (ART). A concurrent characterization of skeletal muscle, physical function, and immune phenotype in aviremic middle-aged HIV-infected adults represents a knowledge gap in prognostic biomarker discovery. Methods: We undertook a prospective observational study of 170 middle-aged, HIV-infected ambulatory men and women with CD4+ T-cell counts of at least 350/μL and undetectable plasma viremia while on effective ART, and uninfected control participants. We measured biomarkers for inflammation and immune activation, fatigue, the Veterans Aging Cohort Study mortality index, and physical function. A subset also received a skeletal muscle biopsy and computed tomography scan. Results: Compared to the uninfected participants, HIV-infected participants displayed increased immune activation (P < .001), inflammation (P = .001), and fatigue (P = .010), and in a regression model adjusting for age and sex displayed deficits in stair-climb power (P < .001), gait speed (P = .036), and predicted metabolic equivalents (P = .019). Skeletal muscle displayed reduced nuclear peroxisome proliferator-activated receptor-gamma coactivator 1alpha-positive myonuclei (P = .006), and increased internalized myonuclei (P < .001) that correlated with immune activation (P = .003) and leukocyte infiltration (P < .001). Internalized myonuclei improved a model for HIV discrimination, increasing the C-statistic from 0.84 to 0.90. Conclusions: Asymptomatic HIV-infected middle-aged adults display atypical skeletal muscle profiles, subclinical deficits in physical function, and persistent inflammation and immune activation. Identifying biomarker profiles for muscle dysregulation and risk for future functional decline in the HIV-infected population will be key to developing and monitoring preventive interventions. Clinical Trials Registration: NCT03011957.


Both healthy aging and human immunodeficiency virus (HIV) infection lead to a progressive decline in naive CD8(+) T-cell numbers and expansion of the CD8(+) T-cell memory and effector compartments. HIV infection is therefore often considered a condition of premature aging. Total CD8(+) T-cell numbers of HIV-infected individuals typically stay increased even after long-term (LT) combination antiretroviral treatment (cART), which is associated with an increased risk of non-AIDS morbidity and mortality. The causes of these persistent changes in the CD8(+) T-cell pool remain
debated. Here, we studied the impact of age, CMV infection, and LT successful cART on absolute cell numbers in different CD8(+) T-cell subsets. While naive CD8(+) T-cell numbers in cART-treated individuals (N = 38) increased to healthy levels, central memory (CM), effector memory (EM), and effector CD8(+) T-cell numbers remained higher than in (unselected) age-matched healthy controls (N = 107). Longitudinal analysis in a subset of patients showed that cART did result in a loss of memory CD8(+) T-cells, mainly during the first year of cART, after which memory cell numbers remained relatively stable. As CMV infection is known to increase CD8(+) T-cell numbers in healthy individuals, we studied whether any of the persistent changes in the CD8(+) T-cell pools of cART-treated patients could be a direct reflection of the high CMV prevalence among HIV-infected individuals. We found that EM and effector CD8(+) T-cell numbers in CMV(+) healthy individuals (N = 87) were significantly higher than in CMV(-) (N = 170) healthy individuals. As a result, EM and effector CD8(+) T-cell numbers in successfully cART-treated HIV-infected individuals did not deviate significantly from those of age-matched CMV(+) healthy controls (N = 39). By contrast, CM T-cell numbers were quite similar in CMV(+) and CMV(-) healthy individuals across all ages. The LT expansion of the CM CD8(+) T-cell pool in cART-treated individuals could thus not be attributed directly to CMV and was also not related to residual HIV RNA or to the presence of HIV-specific CM T-cells. It remains to be investigated why the CM CD8(+) T-cell subset shows seemingly irreversible changes despite years of effective treatment.


Reducing the risk of human immunodeficiency virus type 1 (HIV-1) transmission is still a public health priority. The development of effective control strategies relies on the quantification of the effects of prophylactic and therapeutic measures in disease incidence. Although several assays can be used to estimate HIV incidence, these estimates are limited by the poor performance of these assays in distinguishing recent from long-standing infections. To address such limitation, we have developed an assay to titrate p24-specific IgG3 antibodies as a marker of recent infection. The assay is based on a recombinant p24 protein capable to detect total IgG antibodies in sera using a liquid micro array and enzyme-linked immunosorbent assay. Subsequently, the assay was optimised to detect and titrate anti-p24 IgG3 responses in a panel of sequential specimens from seroconverters over 24 months. The kinetics of p24-specific IgG3 titres revealed a transient peak in the 4 to 5-month period after seroconversion. It was followed by a sharp decline, allowing infections with less than 6 months to be distinguished from older ones. The developed assay exhibited a mean duration of recent infection of 144 days and a false-recent rate of ca. 14%. Our findings show that HIV-1 p24-specific IgG3 titres can be used as a tool to evaluate HIV incidence in serosurveys and to monitor the efficacy of vaccines and other transmission control strategies.


Abstract: Fibroblast growth factor 21 (FGF21) has been proposed to be an antiaging hormone on the basis of experimental studies in rodent models. However, circulating FGF21 levels are increased with aging in rodents and humans. Moreover, despite the metabolic health-promoting effects of FGF21, the levels of this hormone are increased under conditions such as obesity and diabetes, an apparent incongruity that has been attributed to altered tissue responsiveness to FGF21. Here, we investigated serum FGF21 levels and expression of genes encoding components of the FGF21-response molecular machinery in adipose tissue from healthy elderly individuals (≥70 years old) and young controls. Serum FGF21 levels were increased in elderly individuals and were positively correlated with insulinaemia and HOMA-IR, indices of mildly deteriorated glucose homeostasis. Levels of β-Klotho, the coreceptor required for cellular responsiveness to FGF21, were increased in subcutaneous adipose tissue from elderly individuals relative to those from
young controls, whereas FGF receptor-1 levels were unaltered. Moreover, total ERK1/2 protein levels were decreased in elderly individuals in association with an increase in the ERK1/2 phosphorylation ratio relative to young controls. Adipose explants from aged and young mice respond similarly to FGF21 “ex vivo”. Thus, in contrast to what is observed in obesity and diabetes, high levels of FGF21 in healthy aging are not associated with repressed FGF21-responsiveness machinery in adipose tissue. The lack of evidence for impaired FGF21 responsiveness in adipose tissue establishes a distinction between alterations in the FGF21 endocrine system in aging and chronic metabolic pathologies. [ABSTRACT FROM AUTHOR]


Damage of the mucosal barrier in HIV infection, microbial translocation, and immune activation can persist even in patients on successful antiretroviral therapy (ART) especially advanced late presenters. The aim of this study was to find factors that determine immune activation and bacterial translocation in HIV-infected advanced late presenters on suppressive ART. Forty-three late presenters (CD4 < 200 cells/microl prior to ART) on successful ART (more than 2 years of ART) with optimal and suboptimal CD4 recovery were enrolled into this study. The serum concentrations of intestinal fatty acid-binding peptide (I-FABP), zonulin-1, programmed cell death-1 protein (PCDP-1), and soluble (s)CD14 were measured using the ELISA test. We found higher serum levels of I-FABP and sCD14 in successfully antiretroviral-treated advanced late presenters compared to healthy subjects (p < 0.0001 and p = 0.0004). The serum concentration of PCDP-1 and zonulin-1 in HIV-infected patients did not differ from healthy controls. The levels of microbial translocation and immune activation markers were not associated with the degree of CD4 recovery. A serum concentration of I-FABP above 2.03 ng/ml was independently associated with a shorter ART (OR 0.78; p = 0.03). Older age was related to serum levels of sCD14 above 2.35 microg/ml (OR 1.1; p = 0.01). Higher serum levels of I-FABP and sCD14 in successfully antiretroviral-treated advanced late presenters compared to healthy subjects suggest an incomplete reconstruction of the intestinal barrier and sustained immune activation despite good CD4 recovery. It was not the CD4 level, but the length of the suppressive ART that was found to be associated with the restoration of the intestinal barrier.


Human immunodeficiency virus (HIV) infection is associated with an increased risk of chronic obstructive pulmonary disease (COPD) independent of cigarette smoke exposure. Previous studies have demonstrated that decreased peripheral leukocyte telomere length is associated with HIV, suggesting an accelerated aging phenomenon. We demonstrate that this process of telomere shortening also occurs in the lungs, with significant decreases in telomere length observed in small airway epithelial cells collected during bronchoscopy. Molecular evidence of accelerated aging in the small airway epithelium of persons living with HIV may be one clue into the predisposition for chronic lung disease observed in this population.


Background We planned this study to evaluate the effects of coenzyme Q10 (CoQ10), a substance with known effects on the immune system, on the occurrence of opportunistic infections and CD4+ T-cell count of HIV-infected patients as markers of their immunologic status.

Methods This was a parallel, double-blind, placebo-controlled, randomized clinical trial in adult (>18 years old) patients with HIV infection on antiretroviral therapy (ART) referring to Ahvaz Behavioral Diseases Consultation Center. The intervention group was given CoQ10, one 200 mg capsule per day, and the controls received placebo, each for 3 months.

Results There was no statistically significant difference in the mean CD4+ T-cell count at the beginning of the study (p = 0.232) and also in its increase after 3 months (p = 0.114) between the two groups; however, the mean CD4+ T-cell count increased significantly by the end of the study in each group (p = 0.045 for intervention, p = 0.001 for controls).

Conclusion This study suggested that CoQ10 had no remarkable effect on the CD4+ T-cell count and the incidence of opportunistic infections in adult HIV-infected patients on ART.


Both aging and HIV infection are associated with an enhanced pro-inflammatory environment that contributes to impaired immune responses and is mediated in part by innate immune pattern-recognition receptors. MINCLE is a C-type lectin receptor that recognizes trehalose 6,6', di-mycolate (TDM) or "cord factor," the most abundant glycolipid in Mycobacterium tuberculosis (MTB). Here, we evaluated MINCLE function in monocytes in a cohort of HIV-infected and uninfected young (21-35) and older adults (60 years) via stimulation of PBMCs with TDB (Trehalose-6,6-dibehenate), a synthetic analog of TDM and measurement of cytokine production (IL-10, IL-12, IL-6, TNF-) by multicolor flow cytometry. Our studies show an age- and HIV-associated increase in cytokine multi-functionality of monocytes both at the population and single cell level that was dominated by IL-12, IL-10 and IL-6. These findings provide insight into the host response to MTB, and possible sources for the pro-inflammatory environment seen in aging and HIV infection.

Mental Health


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
We sought to examine risk and protective factors for Posttraumatic Stress Disorder (PTSD) among African American women living with HIV. This is a cross-sectional analysis of baseline data from a randomized trial of an HIV stigma reduction intervention. We examined data from two-hundred and thirty-nine African American women living with HIV. We examined whether age, marital status, level of education, internalized HIV-related stigma, and social support as potential protective and risk factors for PTSD symptoms using logistic regression. We analyzed bi-variate associations between each variable and PTSD symptoms, and constructed a multivariate logistic regression model adjusting for all variables. We found 67% reported clinically significant PTSD symptoms at baseline. Our results suggest that age, education, and internalized stigma were found to be associated with PTSD symptoms (p < 0.001), with older age and more education as protective factors and stigma as a risk factor for PTSD. Therefore, understanding this relationship may help improve assessment and treatment through evidence-based and trauma-informed strategies.


OBJECTIVE: To establish the correlates of depressive symptoms among Mexican community-dwelling older people living with HIV (PLWHIV). METHODS: Cross-sectional, 2-center study of 328 participants aged 50 or older being followed in the outpatient HIV clinics of 2 tertiary care hospitals in Mexico. Data were obtained through a comprehensive geriatric assessment. Multivariate logistic regression analyses were performed to identify the correlates of depressive symptoms. RESULTS: Mean age of participants was 58.4 years (SD = 7.2), and 82.9% were men. Depressive symptoms were present in 15.9% of participants. The multivariate logistic regression models showed that frailty and disability for activities of daily living were both independently associated with depressive symptoms. CONCLUSION: Frailty and disability were independent correlates of depressive symptoms in older PLWHIV. Future studies should attempt to explore the role of physical frailty and disability on psychosocial morbidity among older PLWHIV.
mononuclear cells (PBMCs), we examined baseline and dexamethasone (Dex)-stimulated changes in the expression of the GC receptor (GR, gene: Nr3c1) and its negative regulator Fkbp5 via quantitative RT-PCR. GR sensitivity was evaluated in vitro by assessing the Dex inhibition of lipopolysaccharide (LPS)-stimulated IL-6 and TNF-alpha levels. Depressive symptoms and HIV serostatus were independently associated with elevated baseline expression of Fkbp5 and Nr3c1. Depressive symptoms, but not HIV status, was independently associated with reduced LPS-induced release of IL-6. Counter to predictions, there was no interactive association of depressive symptoms and HIV on any outcome. Comorbid depressive symptoms with HIV infection were associated with a gene expression and cytokine profile similar to that of healthy control women, a finding that may indicate further disruptions in disease adaptation.


Clinicians will have to face an increasing numbers of older HIV-infected patients in coming years. The age cut-off of 50 years often adopted to define "elderly" patients with HIV/AIDS is younger than that usually used in most other settings. The present contribution discusses the main peculiarities and new outcomes of interest of this class of patient from the clinical psychology perspective; the contribution is divided in three section exploring cognitive disorders, psycho-emotional problems and health-related quality of life proposing both a brief synthesis of the main evidence from the literature and some insights and proposals for the importance of involving a psychologist in the clinical care of these patients.


Introduction Antiretroviral therapy has improved the life expectancy of patients living with HIV. However, lipodystrophy syndrome (LD) remains prevalent, affecting mostly patients treated with first-generation antiretroviral drugs. This syndrome is characterized by changes in body fat distribution with or without associated metabolic changes. Here, we studied whether clinically evaluated LD is independently associated with chronic kidney disease (CKD) development (sustained estimated glomerular filtration rate [eGFR] < 60 ml/min per 1.73 m2) in HIV-positive patients.

Methods We conducted a prospective cohort study among all the patients from the Swiss HIV Cohort Study (SHCS) with an eGFR >60 ml/min per 1.73 m2 upon their entry into the cohort with more than 3 months of follow-up from January 2002 to August 2016. Cox regression models were used to estimate the association between LD and CKD development.

Results Among the 5384 patients included, 1341 (24.9%) developed LD during the follow-up. The mean follow-up time was 72.3 months (SD ±48.4). In total, 252 patients (4.7%) reached the primary endpoint after a median time of 51.3 months (±SD 39.9 months) from inclusion. A diagnosis of LD significantly increased the risk of an eGFR at univariate (hazard ratio [HR] = 2.72; 95% confidence interval [95% CI] = 2.07–3.58; P < 0.001) and remained significantly higher after adjustment for known HIV and non-HIV risk factors for CKD (HR = 2.37; 95% CI = 1.67–3.36; P < 0.001). The effect of LD on CKD was not mediated through the use of nephrotoxic antiretroviral drugs.

Conclusion Lipodystrophy syndrome is independently associated with CKD after adjustment for previously reported risk factors.

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.


Single-nucleotide polymorphisms (SNPs) in CYP2B6 have been shown to predict variation in plasma efavirenz concentrations, but associations between these SNPs and efavirenz-mediated depression and viral suppression are less well described. We evaluated three SNPs in CYP2B6 (rs3745274, rs28399499, and rs4803419) in Ugandan persons living with HIV. To define exposure, we used previously published pharmacokinetic modeling data to categorize participants as normal, intermediate, and poor efavirenz metabolizers. Our outcomes were probable depression in the first 2 years after antiretroviral therapy (ART) initiation (mean score of >1.75 on the Hopkins Symptom Depression Checklist) and viral suppression 6 months after ART initiation. We fit generalized estimating equation and modified Poisson regression models adjusted for demographic, clinical, and psychosocial characteristics with or without individuals with depression at the time of ART initiation. Among 242 participants, there were no differences in the pre-ART depression or viral load by efavirenz metabolism strata (p > .05). Participants were classified as normal (32%), intermediate (50%), and poor (18%) metabolizers. Seven percent (56/242) of follow-up visits met criteria for depression. Eighty-five percent (167/202) of participants who completed a 6-month visit achieved viral suppression. CYP2B6 metabolizer strata did not have a statistically significant association with either depression [adjusted risk ratio (aRR) comparing intermediate or poor vs. normal, 1.46; 95% confidence interval (CI), 0.72-2.95] or 6-month viral suppression (aRR, 1.01; 95% CI, 0.88-1.15). However, in analyses restricted to participants without pre-ART depression, poorer CYP2B6 metabolism was associated with increased odds of depression (adjusted odds ratio, 4.11; 95% CI, 1.04-16.20). Efavirenz-metabolizing allele patterns are strongly associated with risk of incident depression. Future work should elucidate further region-specific gene-environment interactions and whether alternate polymorphisms may be associated with efavirenz metabolism.


INTRODUCTION: Nearly half of HIV-positive patients experience mental health and substance use problems, but many do not receive adequate or ongoing mental health or addiction care. This lack of ongoing care can result in the use of costly acute care services. Prospective evaluations of the relationship between psychiatric and substance use disorders and acute care services use are lacking, and this information is needed to understand unmet needs and improve access to appropriate services. METHODS: We conducted a secondary data analysis from a multicenter, longitudinal, prospective cohort study (n = 3,482 adults) between October 1, 2007 and March 31, 2013. We used explanatory extended Cox proportional hazard regression models to examine the impact of current depression and
recreational drug use on acute care services use, and to explore whether current depression and recreational drug use were associated with potentially avoidable acute care services use. RESULTS: Over our 5.5 year study period, HIV-positive participants with current depression-only (aHR [95% CI]:1.2[1.1-1.4]), recreational drug use-only (1.3[1.1-1.6]), or co-occurring depression and recreational drug use (1.4[1.2-1.7]) were associated with elevated hazard of emergency department (ED) encounters compared to participants without these conditions. Over half of ED encounters were potentially avoidable. Participants with current depression-only (1.3[1.1-1.5];1.3[1.03-1.6]), recreational drug use-only (1.3[1.04-1.6];1.5[1.1-1.9]), or co-occurring depression and recreational drug use (1.3[1.04-1.7];1.4[1.06-1.9]) were associated with elevated hazard of low-acuity or repeated ED encounters respectively. CONCLUSIONS: We found a significant increase in ED services use and potentially avoidable ED encounters (including low-acuity or repeated ED encounters), particularly among those with either current depression or recreational drug use. These findings emphasize the challenges in managing HIV and mental health/addiction co-morbidities in the current HIV care model. Future research should evaluate integrated and collaborative care programs for improving the coordination of care and effectively treat mental health and addiction problems among HIV-positive patients in Ontario.


Little is known about disparities in depression prevalence, treatment, and remission by psychiatric comorbidities and substance use among persons living with HIV (PLWH). We conducted a cross-sectional analysis in a large cohort of PLWH in routine care and analyzed conditional probabilities of having an indication for depression treatment, receiving treatment, receiving indicated treatment adjustments, and achieving remission, stratified by alcohol use, illicit drug use, and panic symptoms. Overall, 34.7% (95% CI 33.9-35.5%) of participants had an indication for depression treatment and of these, 55.3% (53.8-56.8%) were receiving antidepressants. Among patients receiving antidepressants, 33.0% (31.1-34.9%) had evidence of remitted depression. In a subsample of sites with antidepressant dosage data, only 8.8% (6.7-11.5%) of patients received an indicated treatment adjustment. Current drug users (45.8%, 95% CI 43.6-48.1%) and patients reporting full symptoms of panic disorder (75.0%, 95% CI 72.9-77.1%) were most likely to have an indication for antidepressant treatment, least likely to receive treatment given an indication (current drug use: 47.6%, 95% CI 44.3-51.0%; full panic symptoms: 50.8%, 95% CI 48.0-53.6%), or have evidence of remitted depression when treated (22.3%, 95% CI 18.5-26.6%; and 7.3%, 95% CI 5.5-9.6%, respectively). In a multivariable model, drug use and panic symptoms were independently associated with poorer outcomes along the depression treatment cascade. Few differences were evident by alcohol use. Current drug users were most likely to have an indication for depression treatment, but were least likely to be receiving treatment or to have remitted depression. These same disparities were even more starkly evident among patients with co-occurring symptoms of panic disorder compared to those without. Achieving improvements in the depression treatment cascade will likely require attention to substance use and psychiatric comorbidities.


BACKGROUND: Prescription records, manual chart review, and patient self-report are each imperfect measures of depression treatment in HIV-infected adults. METHODS: We compared antidepressant prescription records in an electronic data warehouse with antidepressant treatment and psychotherapy identified via manual chart review and self-report for patients at 6 academic HIV treatment centers. We examined concordance among these three sources, and used latent class analysis (LCA) to estimate sensitivity and specificity of each measure. RESULTS: In our charts sample (n = 586), 59% had chart indication of "any depression treatment" and 46% had a warehouse prescription
record. Antidepressant use was concordant between charts and data warehouse for 77% of the sample. In our self-report sample (n = 677), 52% reported any depression treatment and 43% had a warehouse prescription record. Self-report of antidepressant treatment was consistent with prescription records for 71% of the sample. LCA estimates of sensitivity and specificity for "any depression treatment" were 67% and 90% (warehouse), 87% and 75% (self-report), and 96% and 77% (chart). LIMITATIONS: There is no gold standard to measure depression treatment. Antidepressants may be prescribed to patients for conditions other than depression. The results may not be generalizable to patient populations in non-academic HIV clinics. Regarding LCA, dependence of errors may have led to overestimation of sensitivity and specificity. CONCLUSIONS: Prescription records were largely concordant with self-report and chart review, but there were discrepancies. Studies of depression in HIV-infected patients would benefit from using multiple measures of depression treatment or correcting for exposure misclassification.


HIV self-stigma in HIV positive men who have sex with men (HIVMSM) has been identified as one of the largest challenges of HIV prevention, and associates with numerous negative outcomes, including depression, decreased social support, and less condom use intentions. In the present study, 321 HIVMSM in Chengdu, China were recruited to examine the prevalence of condom use in the past months and intentions to use condoms in next six months; we also identify pathways between HIV self-stigma and intentions to use condoms by the structural equation modeling approach. Results showed that Chinese HIVMSM had the suboptimal prevalence of consistent condom use and low intentions to use condoms consistently. Additionally, depression and decreased social support were significant mediators between HIV self-stigma and condom use intentions. The complex pathways between HIV self-stigma and intentions to use condoms should be taken into account in the HIV prevention and intervention programs.


BACKGROUND: Rates of major depression among people living with HIV (PLWH) are substantially higher than those seen in the general population and this may adversely affect antiretroviral treatment outcomes. Several unique clinical and psychosocial factors may contribute to the development and persistence of depression in PLWH. Given these influences, it is unclear if antidepressant therapy is as effective for PLWH as the general population. OBJECTIVES: To assess the efficacy of antidepressant therapy for treatment of depression in PLWH. SEARCH METHODS: We searched The Cochrane Common Mental Disorders Group's specialised register (CCMD-CTR), the Cochrane Library, PubMed, Embase and ran a cited reference search on the Web of Science for reports of all included studies. We conducted additional searches of the international trial registers including: ClinicalTrials.gov, World Health Organization Trials Portal (ICTRP), and the HIV and AIDS - Clinical trials register. We searched grey literature and reference lists to identify additional studies and contacted authors to obtain missing data. We applied no restrictions on date, language or publication status to the searches, which included studies conducted between 1 January 1980 and 18 April 2017. SELECTION CRITERIA: We included randomized controlled trials of antidepressant drug therapy compared to placebo or another antidepressant drug class. Participants eligible for inclusion had to be aged 18 years and older, from any setting, and have both HIV and depression. Depression was defined according to Diagnostic and Statistical Manual of Mental Disorders or International
Statistical Classification of Diseases criteria. DATA COLLECTION AND ANALYSIS: Two review authors independently applied the inclusion criteria and extracted data. We presented categorical outcomes as risk ratios (RR) with 95% confidence intervals (CIs). Continuous outcomes were presented mean (MD) or standardized mean differences (SMD) with standard deviations (SD). We assessed quality of evidence using the GRADE approach. MAIN RESULTS: We included 10 studies with 709 participants in this review. Of the 10 studies, eight were conducted in high income countries (USA and Italy), seven were conducted prior to 2000 and seven had predominantly men. Seven studies assessed antidepressants versus placebo, two compared different antidepressant classes and one had three arms comparing two antidepressant classes with placebo. Antidepressant therapy may result in a greater improvement in depression compared to placebo. There was a moderate improvement in depression when assessed with the Hamilton Depression Rating Scale (HAM-D) score as a continuous outcome (SMD 0.59, 95% CI 0.21 to 0.96; participants = 357; studies = 6; I(2) = 62%, low quality evidence). However, there was no evidence of improvement when this was assessed with HAM-D score as a dichotomized outcome (RR 1.10, 95% CI 0.89 to 1.35; participants = 434; studies = 5; I(2) = 0%, low quality evidence) or Clinical Global Impression of Improvement (CGI-I) score (RR 1.28, 95% CI 0.93 to 1.77; participants = 346; studies = 4; I(2) = 29%, low quality evidence). There was little to no difference in the proportion of study dropouts between study arms (RR 1.28, 95% CI 0.91 to 1.80; participants = 306; studies = 4; I(2) = 0%, moderate quality evidence). The methods of reporting adverse events varied substantially between studies, this resulted in very low quality evidence contributing to a pooled estimate (RR 0.88, 95% CI 0.64 to 1.21; participants = 167; studies = 2; I(2) = 34%; very low quality evidence). Based on this, we were unable to determine if there was a difference in the proportion of participants experiencing adverse events in the antidepressant versus placebo arms. However, sexual dysfunction was reported commonly in people receiving selective serotonin reuptake inhibitors (SSRIs). People receiving tricyclic antidepressants (TCAs) frequently reported anticholinergic adverse effects such as dry mouth and constipation. There were no reported grade 3 or 4 adverse events in any study group. There was no evidence of a difference in follow-up CD4 count at study termination (MD -6.31 cells/mm(3), 95% CI -72.76 to 60.14; participants = 176; studies = 3; I(2) = 0%; low quality evidence). Only one study evaluated quality of life score (MD 3.60, 95% CI -0.38 to 7.58; participants = 87; studies = 1; very low quality evidence), due to the poor quality evidence we could not draw conclusions for this outcome. There were few studies comparing different antidepressant classes. We are uncertain if SSRIs differ from TCAs with regard to improvement in depression as evaluated by HAM-D score (MD -3.20, 95% CI -10.87 to 4.47; participants = 14; studies = 1; very low quality evidence). There was some evidence that mirtazapine resulted in a greater improvement in depression compared to an SSRI (MD 9.00, 95% CI 3.61 to 14.39; participants = 70; studies = 1; low quality evidence); however, this finding was not consistent for all measures of improvement in depression for this comparison. No studies reported on virological suppression or any other HIV specific outcomes. The studies included in this review had an overall unclear or high risk of bias due to under-reporting of study methods, high risk of attrition bias and inadequate sequence generation methods. Heterogeneity between studies and the limited number of participants, and events lead to downgrading of the quality of the evidence for several outcomes. AUTHORS’ CONCLUSIONS: This review demonstrates that antidepressant therapy may be more beneficial than placebo for the treatment of depression in PLWH. The low quality of the evidence contributing to this assessment and the lack of studies representing PLWH from generalized epidemics in low- to middle-income countries make the relevance of these finding in today's context limited. Future studies that evaluate the effectiveness of antidepressant therapy should be designed and conducted rigorously. Such studies should incorporate evaluation of stepped care models and health system strengthening interventions in the study design. In addition, outcomes related to HIV care and antiretroviral therapy should be reported.


Few studies examine how depression and substance use interact to affect HIV control. In 14,380 persons with HIV (PWH), we used logistic regression and generalized estimating equations to evaluate how symptoms of depression...
interact with alcohol, cocaine, opioid, and methamphetamine use to affect subsequent retention in care, maintaining an active prescription for ART, and consistent virologic suppression. Among PWH with no or mild depressive symptoms, heavy alcohol use had no association with virologic suppression (OR 1.00 [0.95-1.06]); among those with moderate or severe symptoms, it was associated with reduced viral suppression (OR 0.80 [0.74-0.87]). We found no interactions with heavy alcohol use on retention in care or maintaining ART prescription or with other substances for any outcome. These results highlight the importance of treating moderate or severe depression in PWH, especially with comorbid heavy alcohol use, and support multifaceted interventions targeting alcohol use and depression.


OBJECTIVES: To investigate the overall and the sex-specific association of preoperative and one-year post coronary artery bypass (CABG) surgery symptoms of depression and anxiety with 11-year all-cause mortality. METHODS: A multicenter prospective study including 1125 patients who completed the Hospital Anxiety and Depression Scale (HADS) before an elective CABG surgery, of whom 850 completed the HADS again at one-year follow-up. Information on all-cause mortality was obtained through the Israeli Ministry of Internal Affairs Register. Multivariable adjusted Cox regression models quantified the association of symptoms of depression and anxiety with all-cause mortality. RESULTS: Females comprised 22.7% of the cohort and were 5.5 years older than males (70.0+/−9.3 and 64.4+/−10.3 years, respectively). Controlling for sociodemographic and lifestyle factors, illness severity and post-surgery participation in cardiac rehabilitation, there was little evidence of an association between preoperative symptoms of depression and mortality in males (adjusted hazard ratio (aHRmales)=1.03, 95% CI 0.99-1.07, p=0.21) or females (aHRfemales=1.01, 95% CI 0.95-1.08, p=0.7). One-year postoperative symptoms of depression were associated with mortality in both males (aHRmales=1.05, 95% CI 1.01-1.10, p=0.03) and females (aHRfemales=1.07, 95% CI 1.02-1.13, p=0.013). Preoperative symptoms of anxiety were unrelated to mortality overall, but among females postoperative symptoms of anxiety predicted 11-year mortality (aHRfemales=1.07, 95% CI 1.00-1.14, p=0.049). There was no HADS by sex interaction (p for interaction=0.12-0.99). CONCLUSIONS: Symptoms of depression one-year after surgery were positively related to mortality with little evidence for sex differences. These findings underscore the need for identification and treatment of psychiatric symptoms in patients undergoing CABG surgery. CLINICAL TRIAL REGISTRATION: ClinicalTrials.gov: NCT00356863.


Sexual violence is associated with increased risk of HIV acquisition/transmission in women. Forced sex can result in physical trauma to the reproductive tract as well as severe psychological distress. However, immuno-biological mechanisms linking sexual violence and HIV susceptibility are incompletely understood. Using the Women's Interagency HIV Study repository, a total of 77 women were selected to form 4 groups, stratified by HIV serostatus, in the following categories: 1) no sexual abuse history and low depressive symptom score (below clinically significant cut-off, scores <16) (Control); 2) no sexual abuse history but high depressive symptom score, ≥16 (Depression); 3) chronic sexual abuse exposure and low depressive symptom score (Abuse); 4) chronic sexual abuse exposure and high depressive symptom score (Abuse+Depression). Inflammation-associated cytokines/chemokines/proteases (TNF-alpha, IL-6, IL-1alpha, IL-1beta, TGF-beta MIP-3alpha, IP-10, MCP-1, Cathepsin B), anti-inflammatory/anti-HIV mediators (Secretory leukocyte
protease inhibitor (SLPI), Elafin, beta defensin 2 (HBD2), alpha defensins (HNP 1-3), Thrombospondin (TSP-1), Serpin A1, A5, Cystatin A, B), and wound-healing mediators (Gro-alpha, VEGF, PDGF, EGF, FGF, IGF), were measured in cervical-vaginal lavage (CVL) using ELISA. Linear regression was used to model association of biomarkers with depression and abuse as predictor variables; the interaction between depression and abuse was also tested. Anti-HIV activity in CVL was tested using TZM-bI indicator cell line. In HIV-uninfected women, median levels of IL-6 (p = 0.04), IL-1alpha (p<0.01), TGF-beta (p = 0.01), IP-10 (p <0.01), PDGF (p<0.01) and FGF (p<0.01), differed significantly between groups. Specifically, an association was found between chronic sexual abuse and increased IL-1alpha (p<0.01), MIP-3alpha (p = 0.04), IP-10 (p<0.01), Serpin B1 (p = 0.01), FGF (p = 0.04) and decreased TGF-beta (p<0.01), MCP-1 (p = 0.02), PDGF (p<0.01). Further, there was evidence of significant interactions between chronic sexual abuse and current depression for IL-1alpha, IP-10, Serpin A1, Cystatin B, and FGF. In HIV-infected women, median levels of TNF-alpha (p<0.01), IL-6 (p = 0.05), MIP-3alpha (p<0.01), and MCP-1 (p = 0.01), differed significantly between groups. Specifically, an association was found between chronic sexual abuse and increased MCP-1 (p = 0.03), Gro-alpha (p = 0.01) and decreased TNF-alpha (p<0.01), IL-1alpha (p = 0.02), MIP-3alpha (p<0.01) and Cathepsin B (p = 0.03). Current depressive symptoms were associated with significantly decreased MIP-3alpha (p<0.01). There was evidence of significant interactions between chronic sexual abuse and current depression for MCP-1 and FGF. No significant differences were observed in anti-HIV activity among all eight groups. Heat-map analyses revealed distinct immune network patterns, particularly in the Abuse groups for both HIV-infected and uninfected women. Our data indicates a complex relationship between chronic sexual abuse exposure, depressive symptoms, and FRT immune mediators that are also affected by HIV status. Association of chronic sexual abuse with increase in inflammation-associated cytokine/chemokine expression, along with impaired wound-healing associated growth-factors can create a microenvironment that can facilitate HIV infection. Evaluation of longitudinal changes in exposures and biomarkers are needed to untangle the immuno-biological mechanisms that put women who endure life-long sexual abuse at increased risk for HIV.


OBJECTIVE: Major depressive disorder is associated with an increased risk of mortality and aging-related diseases. The authors examined whether major depression is associated with higher epigenetic aging in blood as measured by DNA methylation (DNAm) patterns, whether clinical characteristics of major depression have a further impact on these patterns, and whether the findings replicate in brain tissue. METHOD: DNAm age was estimated using all methylation sites in blood of 811 depressed patients and 319 control subjects with no lifetime psychiatric disorders and low depressive symptoms from the Netherlands Study of Depression and Anxiety. The residuals of the DNAm age estimates regressed on chronological age were calculated to indicate epigenetic aging. Major depression diagnosis and clinical characteristics were assessed with questionnaires and psychiatric interviews. Analyses were adjusted for sociodemographic characteristics, lifestyle, and health status. Postmortem brain samples of 74 depressed patients and 64 control subjects were used for replication. Pathway enrichment analysis was conducted using ConsensusPathDB to gain insight into the biological processes underlying epigenetic aging in blood and brain. RESULTS: Significantly higher epigenetic aging was observed in patients with major depression compared with control subjects (Cohen's d=0.18), with a significant dose effect with increasing symptom severity in the overall sample. In the depression group, epigenetic aging was positively and significantly associated with childhood trauma score. The case-control difference was replicated in an independent data set of postmortem brain samples. The top significantly enriched Gene Ontology terms included neuronal processes. CONCLUSIONS: As compared with control subjects, patients with major depression exhibited higher
epigenetic aging in blood and brain tissue, suggesting that they are biologically older than their corresponding chronological age. This effect was even more profound in the presence of childhood trauma.


OBJECTIVE: Sleep disturbance is a known risk factor for depression, but it is not known whether sleep disturbance contributes to greater risk of depression in those infected with human immunodeficiency virus (HIV+) as compared to those uninfected with HIV (HIV-). METHODS: Using data from the Multicenter AIDS Cohort Study, a population-based prospective study of men who have sex with men (MSM), self-reported sleep disturbance (>2weeks) and depressive symptoms (Clinical Epidemiologic Scale for Depression, CES-D) were assessed every 6months over 12years of follow-up. Adjusted mixed effects logistic regression analyses tested whether sleep disturbance predicted depression (CES-D>/=16) at the immediate subsequent visit, and so on over 12years, in non-depressed HIV+(N=1054; 9556 person-visits) and non-depressed HIV- (N=1217; 12,680 person-visits). In HIV+ vs. HIV- MSM, linearly estimated average incidence of depression and normalized cumulative rate of depression over 12years were compared. RESULTS: In the HIV+ MSM, sleep disturbance was associated with a significant increase in depression 6months later (OR=1.6; 95% CI, 1.30, 1.96), which was significantly greater (P<.05) than in HIV- MSM (OR=1.16; 95% CI, 0.94, 1.44). HIV status and sleep disturbance interacted (P<.001), such that incidence of depression and normalized cumulative rate of depression were greater in HIV+ with sleep disturbance than in HIV+ without sleep disturbance and HIV- groups (all P's<0.001). CONCLUSIONS: HIV+ persons who report sleep disturbance represent a high risk group to be monitored for depression, and possibly targeted for insomnia treatment to prevent depression. FUND: National Institute of Allergy and Infectious Diseases.


Depression is one the most common mental disorders in prisons. People living with HIV are more likely to develop psychological difficulties when compared with the general population. This study aims to determine the efficacy of cognitive group therapy based on schema-focused approach in reducing depression in prisoners living with HIV. The design of this study was between-groups (or "independent measures"). It was conducted with pretest, posttest, and waiting list control group. The research population comprised all prisoners living with HIV in a men's prison in Iran. Based on voluntary desire, screening, and inclusion criteria, 42 prisoners living with HIV participated in this study. They were randomly assigned to an experimental group (21 prisoners) and waiting list control group (21 prisoners). The experimental group received 11 sessions of schema-focused cognitive group therapy, while the waiting list control group received the treatment after the completion of the study. The various groups were evaluated in terms of depression. ANCOVA models were employed to test the study hypotheses. Collated results indicated that depression was reduced among prisoners in the experimental group. Schema therapy (ST) could reduce depression among prisoners living with HIV/AIDS.


Informal caregivers are unpaid individuals who help friends or family members who cannot fully care for themselves. However fulfilling the act of helping debilitated individuals, exposure to another person’s traumatic experiences often results in psychological distress. Caregiver’s stigma towards HIV worsens this. Hence, this study aims to assess the effect of stigma on the mental health of caregivers so that their needs for support can be determined. A cross-sectional hospital-based study was carried out in Mangalore, India on 150 informal caregivers of PLHIV. The HIV Stigma Scale was used to assess stigma and DASS-21 was used to assess depression, anxiety and stress. Of the 150 caregivers, 20% marked one or more items on the stigma scale. Frequency of depression, anxiety, and stress was 46%, 27%, and 8% respectively. Most caregivers who had stigma and anxiety were of those patients diagnosed for a shorter duration of time (≤5 years) n = 20, p = 0.05 and n = 26, p = 0.03 respectively. Spouses of PLHIV (n = 31, p = 0.005), sero-positive caregivers (n = 25, p = 0.03) and those living with patients (n = 39, p = 0.01) suffered most from anxiety. Stress was significantly associated with depression (83%, p = 0.007) and anxiety (66.6%, p = 0.001) in caregivers. In conclusion, more of depression and anxiety was observed among the participants than stress. Stigma was seen in 20% of the participants. Stigma was not significantly associated with depression anxiety and stress.


We used baseline data from a sample of African-American women living with HIV who were recruited to participate in a stigma-reduction intervention in Chicago and Birmingham (2013-2015) to (1) evaluate the relationship between HIV-related stigma and viral suppression, and (2) assess the role of depression and nonadherence to antiretroviral therapy (ART) as mediators. Data from women were included in this secondary analysis if they were on ART, had viral load data collected within 8-weeks of study entry and had complete covariate data. We used logistic regression to estimate the total effect of HIV-related stigma (14-item Stigma Scale for Chronic Illness) on viral suppression (< 200 copies/mL), and serial mediation analysis to estimate indirect effects mediated by depressive symptoms (8-item Patient Health Questionnaire) and ART nonadherence (number of days with missed doses). Among 100 women who met study inclusion criteria, 95% reported some level of HIV-related stigma. In adjusted models, higher levels of HIV-related stigma were associated with lower odds of being virally suppressed (AOR = 0.93, 95% CI = 0.89-0.98). In mediation analysis, indirect effects through depression and ART nonadherence were not significant. Findings suggest that HIV-related stigma is common among African-American women living with HIV, and those who experience higher levels of stigma are less likely to be virally suppressed. However, the mechanisms remain unclear.


BACKGROUND: Depression is prevalent among people living with HIV/AIDS (PLWHA), but there are few longitudinal studies investigating the prevalence of depression among HIV respondents in Taiwan. OBJECTIVES: This study examined the trend in the prevalence of depression and its main predictors among PLWHA in Taiwan. METHODS: This study analyzed the 2-million random-sample data set of the Taiwanese longitudinal health research database using data from 2000 to 2011 and applied the Internal Classification of Diseases, 9th Revision, Clinical Modification diagnostic codes for the detection of HIV infection and depression. Chi-square tests and logistic regression analyses were conducted to determine predictive factors for depression. RESULTS: A total of 769 PLWHA who met the criterion of HIV
infection were extracted from the database. Of these respondents, 20.03% had a diagnosis of depression after their HIV-positive diagnosis. The annual prevalence of depression among the study respondents increased significantly from 1.95% in 2000 to 6.93% in 2011 according to time trend analysis (chi = 6.428, df =11, p = .03). Multivariate, logistic regression analysis indicated a history of drug abuse was the main predictor of a diagnosis of depression. DISCUSSION: The increasing trend in the prevalence of depression revealed an urgent need for the development of care programs for PLWHA with depression. Such programs should take into consideration a history of drug abuse as a strong risk factor for the development of depression.


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.


BACKGROUND: The 10-item Center for the Epidemiological Studies of Depression Short Form (CES-D-10) is a widely used self-report measure of depression symptomatology. The aim of this study is to investigate the psychometric properties of the CES-D-10 in healthy community dwelling older adults. METHODS: The sample consists of 19,114 community-based individuals residing in Australia and the United States who participated in the ASPREE trial baseline assessment. All individuals were free of any major illness at the time. We evaluated construct validity by performing confirmatory factor analysis, examined measurement invariance across country and gender followed by evaluating item discrimination bias in age, gender, race, ethnicity and education level, and assessing internal consistency. RESULTS: High item-total correlations and Cronbach’s alpha indicated high internal consistency. The factor analyses suggested a unidimensional factor structure. Construct validity was supported in the overall sample, and by country and gender subgroups. The CES-D-10 was invariant across countries, and although evidence of marginal gender non-invariance was observed there was no evidence of notable gender specific item discrimination bias. No notable differences in discrimination parameters or group membership measurement non-invariance were detected by gender, age, race,
ethnicity, and education level. CONCLUSION: These findings suggest the CES-D-10 is a reliable and valid measure of depression in a volunteer sample. No noteworthy evidence of invariance and/or item discrimination bias is observed across gender, age, race, language and ethnic groups.


This study investigated the associations between forms of HIV-related optimism, HIV-related stigma, and anxiety and depression among HIV-positive men who have sex with men (MSM) in the United Kingdom and Ireland. HIV health optimism (HHO) and HIV transmission optimism (HTO) were hypothesised to be protective factors for anxiety and depression, while the components of HIV-related stigma (enacted stigma, disclosure concerns, concern with public attitudes, and internalised stigma) were hypothesised to be risk factors. Data were collected from 278 HIV-positive MSM using an online questionnaire. The prevalence of psychological distress was high, with close to half (48.9%) of all participants reporting symptoms of anxiety, and more than half (57.9%) reporting symptoms of depression. Multiple linear regressions revealed that both anxiety and depression were positively predicted by internalised stigma and enacted stigma, and negatively predicted by HHO. For both anxiety and depression, internalised stigma was the strongest and most significant predictor. The results highlight the continued psychological burden associated with HIV infection among MSM, even as community support services are being defunded across the United Kingdom and Ireland. The results point to the need for clinicians and policy makers to implement stigma reduction interventions among this population.


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.;


Background and Objectives: Older adults with HIV face greater health burden than HIV-uninfected counterparts. Little is known about resources that might mediate the influence of physiological health burden on psychological well-being. Informed by the stress process model, we assessed the influence of multifaceted health burden indicators on depressive symptoms and evaluated the mediating effects of social support adequacy. Research Design and Methods: This cross-sectional study used structural equation modeling with data from 640 older men who participated in the Research on Older Adults with HIV study in the United States. Health burden assessment included number of age-related chronic conditions, multiple HIV-related chronic conditions, and self-rated health. Perceptions of instrumental and emotional support adequacy measured support as a coping resource. Depressed mood as assessed by the 10-item Center for Epidemiologic Studies Depression Scale was the indicator of psychological well-being. Results: Higher incidence of age-related conditions and worse self-rated health was significantly associated with more depressed mood. Self-rated health and HIV-related conditions showed a significant indirect effect on depressed mood via emotional support adequacy. Discussion and Implications: Each dimension of health burden demonstrated a distinct pathway to psychological well-being for men with HIV, which should be considered when prioritizing care plans. Complementing research on medical interventions for people with HIV, these findings suggest that nonpharmacological interventions may be important for improving overall well-being.


Contradictory evidence exists on the role of Major depression disorder (MDD) as a predictor of human immunodeficiency virus (HIV) disease progression, particularly regarding the effect of MDD presence versus pattern of illness. The objective of this study was to examine whether MDD status and pattern of illness differentially predict HIV disease progression. Retrospective cohort data from a six-year follow-up of HIV patients at an outpatient clinic were analyzed. MDD trajectories were identified by latent class growth analysis and generalized linear mixed models were used to examine their relation to low CD4+ T-lymphocyte counts (<200 cells/μL) during follow-up. Among 1,494 HIV patients, four MDD trajectory groups were identified: Low-Chronic, Moderate-Ascending, High-Episodic, and High-Chronic. Trajectory group membership was predicted by male sex (P = .04), minority race (P < .01), older age (P < .01) and low baseline CD4 count (P = .04). The High-Chronic group had lower odds of having a low CD4 count than the Low-Chronic group (adjusted Odds Ratio [aOR]: 0.63; 95%CI: 0.49-0.81) while the Moderate-Ascending group had higher odds (aOR: 1.53; 95%CI: 1.08-2.19). The odds of having a low CD4 count were higher among male (aOR: 1.25; 95%CI: 1.03-1.52), minority races (American Indian [aOR: 1.85; 95%CI: 1.38-2.49] and African Americans [aOR: 1.58; 95%CI: 1.33-1.87]), Hispanic (aOR: 1.52; 95%CI: 1.06-2.18), and divorced/separated patients (aOR: 1.62; 95%CI: 1.16-2.28) but decreased over time (P < .01) across trajectory groups. In this study, because MDD trajectories and CD4 counts were determined based on secondary data abstracted from electronic medical records, the results should be interpreted cautiously due to the potential for selection and misclassification bias. Overall, study findings suggest the pattern of MDD illness among HIV patients can be classified into clinically meaningful trajectory groups that appear to be programmed by known risk factors, and are useful for predicting HIV disease progression. Targeted interventions among at-risk patients may be critical to altering MDD illness patterns and curtailing HIV disease progression.

Importance: Depression commonly affects adults with HIV and complicates the management of HIV. Depression among individuals with HIV tends to be chronic and cyclical, but the association of this chronicity with HIV outcomes (and the related potential for screening and intervention to shorten depressive episodes) has received little attention.

Objective: To examine the association between increased chronicity of depression and multiple HIV care continuum indicators (HIV appointment attendance, treatment failure, and mortality).

Design, Setting, and Participants: The study comprised an observational clinical cohort of 5927 patients with 2 or more assessments of depressive severity who were receiving HIV primary care at 6 geographically dispersed US academic medical centers from September 22, 2005, to August 6, 2015.

Main Outcomes and Measures: Missing a scheduled HIV primary care visit, detectable HIV RNA viral load ($\geq 75$ copies/mL), and all-cause mortality. Consecutive depressive severity measures were converted into a time-updated measure: percentage of days with depression (PDD), following established methods for determining depression-free days.

Results: During 10,767 person-years of follow-up, the 5927 participants (5000 men, 926 women, and 1 intersex individual; median age, 44 years [range, 35-50 years]) had a median PDD of 14% (interquartile range, 0%-48%). During follow-up, 10,361 of 55,040 scheduled visits (18.8%) were missed, 6191 of 28,455 viral loads (21.8%) were detectable, and the mortality rate was 1.5 deaths per 100 person-years. Percentage of days with depression showed a dose-response relationship with each outcome. Each 25% increase in PDD led to an 8% increase in the risk of missing a scheduled appointment (risk ratio, 1.08; 95% CI, 1.05-1.11), a 5% increase in the risk of a detectable viral load (risk ratio, 1.05; 95% CI, 1.01-1.09), and a 19% increase in the mortality hazard (hazard ratio, 1.19; 95% CI, 1.05-1.36). These estimates imply that, compared with patients who spent no follow-up time with depression (PDD, 0%), those who spent the entire follow-up time with depression (PDD, 100%) faced a 37% increased risk of missing appointments (risk ratio, 1.37; 95% CI, 1.22-1.53), a 23% increased risk of a detectable viral load (risk ratio, 1.23; 95% CI, 1.06-1.43), and a doubled mortality rate (hazard ratio, 2.02; 95% CI, 1.20-3.42).

Conclusions and Relevance: Greater chronicity of depression increased the likelihood of failure at multiple points along the HIV care continuum. Even modest increases in the proportion of time spent with depression led to clinically meaningful increases in negative outcomes. Clinic-level trials of protocols to promptly identify and appropriately treat depression among adults living with HIV should be conducted to understand the effect of such protocols on shortening the course and preventing the recurrence of depressive illness and improving clinical outcomes.


Cognitive impairments seen in people living with HIV (PLWH) are associated with difficulties in everyday functioning, specifically driving. This study utilized speed of processing cognitive remediation therapy (SOP-CRT) with transcranial direct current stimulation (tDCS) to gauge the feasibility and impact on simulated driving. Thirty PLWH (M age = 54.53, SD = 3.33) were randomly assigned to either: sham tDCS SOP-CRT or active tDCS SOP-CRT. Seven indicators of simulated driving performance and safety were obtained. Repeated measures ANOVAs controlling for driver’s license status (valid and current license or expired/no license) revealed a large training effect on average driving speed. Participants who received active tDCS SOP-CRT showed a slower average driving speed ($p = 0.020, d = 0.972$) than those who received sham tDCS SOP-CRT. Non-significant small-to-medium effects were seen for driving violations, collisions, variability in lane positioning, and lane deviations. Combination tDCS SOP-CRT was found to increase indices of cautionary simulated driving behavior. Findings reveal a potential avenue of intervention and rehabilitation for improving driving safety among vulnerable at-risk populations, such as those aging with chronic disease. [ABSTRACT FROM AUTHOR]
Poor sleep quality leads to increased immune activation and immune activation leads to worse sleep quality. South African HIV positive patients typically have delayed start of treatment, which has been associated with CD4+ effector T cells being more spontaneously activated in chronically treated patients. This cross-sectional study investigated whether subjective sleep quality was associated with CD4+ T lymphocyte reconstitution in treated South African HIV+ patients. One hundred and thirty-nine treated HIV+ patients (109F, age average (SD)=43 (9)) were recruited from Chris Hani Baragwanath Academic Hospital in Soweto, Johannesburg, South Africa. Participants completed questionnaires evaluating their subjective sleep quality (Pittsburgh Sleep Quality Index), daytime sleepiness (Epworth sleepiness scale), pain, and depression severity (Beck Depression Inventory). Univariate and multivariate analyses were run to determine the correlates of sleep quality in this population. Patients had been on antiretroviral treatment for about 4 years and had increased their CD4 counts from a median at baseline of 82 to 467 cells/microL. They had overall poor sleep quality (average (SD) PSQI=7.7 (+/-5), 61% reporting PSQI>5, a marker of lower sleep quality), 41% had clinical depression (average (SD) BDI=17 (+/-12)) and 55% reported pain. In two separate multivariate analyses, both the overall CD4 count increase from baseline (p=0.0006) and higher current CD4 counts (p=0.0007) were associated with worse sleep quality, when adjusting for depression severity (p<0.001), daytime sleepiness (p=0.01) and the presence of pain (p<0.01). In this cohort of treated South African HIV positive patients, poor sleep quality was associated with higher current CD4 counts, when adjusting for depression severity, daytime sleepiness and pain. Further studies should investigate the temporal relationship between HIV-related poor sleep quality and underlying immune activation.

Childhood trauma (CT) - emotional, physical or sexual abuse, or emotional or physical neglect - has been associated with HIV infection and can lead to poor health outcomes and depression in adulthood. Though the impact of CT on depression may be decreased by social support, this may not be true of individuals living with HIV, due to the additive traumatic effects of both CT and acquisition of HIV. This study examined social support, depression, and CT among HIV-infected (n = 134) and HIV-uninfected (n = 306) men and women. Participants (N = 440) were assessed regarding sociodemographic characteristics, CT, depression, and social support. Participants were racially and ethnically diverse, 36 +/-9 years of age on average, and 44% had an income of less than USD$500 a month. Among HIV-uninfected individuals, social support explained the association between depression in persons with CT (b = 0.082, bCI [0.044, 0.130]). Among HIV-infected individuals, after accounting for sociodemographic characteristics, social support did not explain the association between depression and CT due to lower levels of social support among HIV-infected individuals [95% CI: -0.006, 0.265]. The quality of social support may differ among HIV-infected persons due to decreased social support and smaller social networks among those living with HIV. Depressive symptoms among those living with HIV appear to be less influenced by social support, likely due to the additive effects of HIV infection combined with CT.

Sleep problems are prevalent in people living with HIV/AIDS; however, few studies examine how poor sleep affects mental health and quality of life longitudinally. A sample of people living with HIV/AIDS from a randomized trial (N = 240; mean age = 47.18; standard deviation = 8.3; 71.4% male; 61.2% White) completed measures of depression (Montgomery-Asberg Depression Rating Scale), health-related quality of life (AIDS Clinical Trial Group Quality of Life Measure), and life satisfaction (Quality of Life Inventory) at baseline and 4, 8, and 12 months. Controlling for time, condition, and relevant interactions, sleep problems significantly predicted worse outcomes over time (ps < 0.001). Findings have implications for the importance of identifying and treating sleep problems in people living with HIV/AIDS to improve mental health and quality-of-life outcomes.


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.


Recent research into "successful ageing" and "resilience" in the context of ageing with HIV highlights older people living with HIV's (OPLWH) adaptations and coping strategies hitherto neglected by early research's emphasis on difficulties and challenges. Yet "resilience" and "successful ageing" are limited by their inconsistent definition, conflation of personal traits and coping strategies, normative dimension, and inattention to cultural variation and the distinctive nature of older age. This article thus adopts an interpretivist approach to how OPLWH manage the challenges to their mental health and wellbeing of ageing with HIV. Drawing on interviews with 76 OPLWH (aged 50+) living in the United Kingdom, we document both the strategies these participants use (for example, "accentuating the positive" and accessing external support) and the challenges to these strategies' success posed by the need to manage their HIV's social and clinical dimensions and prevent their HIV from dominating their lives. This points to (a) the complex overlaps between challenges to and strategies for improving or maintaining mental health and wellbeing in the context of ageing with HIV, and (b) the limitations of the "resilience" and "successful ageing" approaches to ageing with HIV.

Background: The aim of this longitudinal study was to examine the consistency of health-related quality of life (HRQoL) among people living with HIV (PLWH) by breaking down the variance of repeated HRQoL measures into trait, state, and method components and to test the stability of HRQoL over time. In addition, we wanted to examine whether HRQoL trait components are related to personality traits, while controlling for selected socio-medical variables.

Methods: Three assessments were performed with a six-month lag on each assessment. Each participant filled out a World Health Organization (WHO) Quality of Life-BREF to assess HRQoL and a NEO-FFI to measure Big Five personality traits. Overall, 82 participants out of 141 (58.2% of the initial sample) participated in all the assessments.

Results: The HRQoL among PLWH represented a stable trait to a somewhat greater extent than a situational variability, although the proportions were domain and time variant. More specifically, psychological domain appeared to be the most consistent, whereas social domain appeared to be the most prone to situational influences. The trait component of HRQoL was positively related to being in a relationship, being employed, and being extraverted, and negatively related to neuroticism, which altogether explained 26% of the trait variance.

Conclusions: HRQoL among PLWH is rather distinct from personality and socio-medical data, which indicates its uniqueness in a clinical practise. Thus, there is a need for a more comprehensive assessment of HRQoL among this patient group to capture an additional source of variance in this important theoretical construct.


The Beck Depression Inventory (BDI) is often used to screen individuals for symptoms of major depressive disorder (MDD). Yet, its effectiveness in correctly discriminating between MDD cases and non-cases among individuals seeking HIV testing has not been investigated. We report on the effectiveness of the BDI-I in predicting caseness for MDD with the Structured Clinical Interview for the DSM (SCID) as a gold standard. A total of 500 HIV test-seekers were recruited at five non-medical testing sites in the Western Cape, South Africa. Receiver operating characteristic curve analysis was used to determine the extent to which the screening instrument was able to discriminate between MDD caseness or non-caseness. The SCID-based prevalence of MDD was 14.4%. The BDI-I predicted MDD with 67% sensitivity and 67% specificity, with an area under the curve (AUC) of 77%. The positive and negative predictive values were 0.25 and 0.92, respectively. Even though the BDI-I is often used to screen large numbers of people for depression, especially in psychiatric and medical settings, its ability to predict MDD is limited. Persons screening positive for MDD may still require evaluation with a clinical interview by a trained professional to be diagnosed with depression.


OBJECTIVE: Self-stigma in people living with HIV/AIDS is a survival mechanism to protect themselves from external stigma. Stigma and discrimination in people living with HIV/AIDS can lead to inequality in social life. This inequality can cause inferiority complex, preoccupation, and denial of diagnosis, which correlates with the onset of depression. This study aims to determine the effect of logotherapy, commitment acceptance therapy, and family psychoeducation on self-stigma and depression on housewives living with HIV/AIDS. METHOD: This study used the quasi-experiment pretest-posttest design. The respondents were selected using the purposive sampling technique. The subjects were 60 housewives living with HIV/AIDS. Data were collected using Internalizes Stigma of AIDS Tools and
analyzed using univariate and bivariate analyses. Equality analysis was conducted using the chi-square test and independent t test, and the effects were analyzed using paired t test. RESULTS: The result showed a significant decrease in self-stigma and depression (p value < 0.05) in patients receiving logotherapy, commitment acceptance therapy, and family psychoeducation. CONCLUSIONS: A combination of logotherapy, commitment acceptance therapy, and family psychoeducation is recommended as a therapy package to overcome self-stigma and depression for people living with HIV/AIDS.


It is well established that numerous factors can affect the rate at which we age biologically. Diet, physical activity, lifestyle and our genes all play a major role in influencing the ageing trajectory and longevity. Major trauma affects millions globally, is the major cause of death in young adults and could influence ageing processes but has largely been ignored by biogerontologists. The long-term health consequences of physical trauma are well known in the medical community, how trauma effects the ageing process at a molecular level is not. It has long been difficult to assess ageing trajectories due to the absence of a biomarker of biological rather than chronological age. Recent advances in epigenetics have helped by identifying specific DNA methylation sites as good indicators of biological age. Recent investigations into the impact of psychological trauma and the associated physical stress on accelerating ageing as measured by epigenetic drift are promising. The physical and metabolic stress which is synonymous with physical trauma may also accelerate the ageing process. We suggest that long term epigenetic profiling is required to understand to what degree the ageing trajectory is altered by trauma, which will in turn add support for the development of novel therapies to improve health outcomes for survivors of traumatic injury.


People living with HIV/AIDS (PLH) experience high rates of depression and related psychosocial risk factors that vary by gender. This study examines gender differences in depression severity among antiretroviral therapy (ART) patients (n = 362) from a large government ART clinic in Kolkata, India. Hypotheses for multiple linear regression models were guided by an integrated gendered stress process model focusing on variables reflecting social status (age, partner status), stressors (stigma), and resources (income, social support). Depressive symptoms were assessed with the Hospital Anxiety and Depression Scale (HADS); 22% of the sample reached the cutoff for severe depression, 56% moderate, and 13% mild depression. Compared to men, women reported lower income, education (50% no formal education vs. 20% men), availability of emotional and instrumental support, and were less likely to be married or cohabiting (53% women vs. 72% of men). However, more women had partners who were HIV-positive (78% women vs. 46% men). Overall, depression severity was negatively associated with availability of emotional support and self-distraction coping, and positively associated with internalized HIV/AIDS stigma, availability of instrumental support, and behavioral disengagement coping. Interactions for instrumental support by income and partner status by age varied significantly by gender. Analyses stratified by gender indicated that: 1) Frequently seeking instrumental support from others was protective for men at all income levels, but only for high-income women; and 2) having a partner was protective for men as they aged, but not for women. These results suggest that gender disparities in depression severity are created and maintained by women’s lower social status and limited access to resources. The effect of stigma on depression severity did not vary by gender. These findings may inform the tailoring of future interventions to address mental health needs of PLH in India, particularly gender disparities in access to material and social resources for coping with HIV. Trial Registration: ClinicalTrials.gov registration #NCT02118454, registered April 2014.

Depression is common among people living with HIV (PLHIV). Studies on the relationship between depression and use of antiretroviral therapy (ART) are inconclusive. A meta-analysis was conducted to summarize the relationship between depression and ART use among PLHIV. Ten electronic databases, conference abstracts, and dissertations were searched. A random effects meta-analysis was performed to pool the odds ratio estimates from eligible studies. Subgroup analyses and meta-regression were conducted for moderator analysis. Sensitivity analysis was performed to find influential studies. A funnel plot, the Egger test, and the trim and fill analysis were used to detect publication bias. The pooled sample size was 7375 PLHIV from nine eligible studies. The pooled prevalence of depression was 41% (95% confidence interval [CI] 29-53%). The pooled ART use rate was 52% (95% CI 37-67%). PLHIV with depression were 14% less likely (pooled odds ratio [OR] = 0.86; 95% CI 0.71-1.05) to use ART than those without depression. Subgroup analyses showed that depression was significantly associated with no ART use (pooled OR 0.84; 95% CI 0.71-0.99) among studies with a prospective study design (11 estimates from nine studies). Moderator analyses did not show any statistically significant effects. The publication bias analyses showed small study effects may not exist. Depression was associated with non-use of ART among PLHIV. Studies are needed to explore this association in other countries with varied populations, as most published studies have been conducted in the United States.


We aimed to analyze markers of immune activation, inflammation, and oxidative stress in 92 asymptomatic HIV-infected patients according to the adequate (AR, >500 cells/mm(3)) or inadequate (IR, <500 cells/mm(3)) CD4(+) T recovery and the presence or absence of antiretroviral treatment (cART). In relation to those newly diagnosed, they were divided into two groups, cART-naive IR (nIR) and cART-naive AR (nAR). Among those diagnosed more than five years ago, the following division was made: the cART-naive long-term nonprogressors (LTNP); patient under cART and AR (tAR); and patients under cART and IR (tIR). We investigated the expression of soluble receptor for advanced glycation end products (sRAGE), high-mobility group-box protein -1 (HMGB1), soluble CD14 (sCD14), IL-8, IL-10, 8-isoprostane, vitamins, and DNA damage. We observed higher levels of sRAGE in tAR as compared to nIR, nAR, LTNP, and more sCD14 than in nIR and nAR. As for IL-10 levels, we found nIR > nAR > LTNP > tAR > tIR. Higher levels of 8-isoprostane were observed in nIR. LTNP presented a higher retinol dosage than tAR and less genotoxic damage induced by oxidative stress than the other groups. We suggest that the therapy, despite being related to lesser immune activation and inflammation, alters the vitamin profile and consequently increases the oxidative stress of patients. In addition, the lowest genotoxic index for LTNP indicates that both VL and cART could be responsible for the increased DNA damage. More studies are needed to understand the influence of cART on persistent immune activation and inflammation.


Physical and emotional adversities in mothers have rippling effects across the family system. While an association between individual maternal adversities and problematic mental health outcomes has been established, less is known about co-existing adversities in mothers. Consistent with the syndemic conceptual framework, we examined the co-occurrence of Substance Abuse, Violence, and AIDS/HIV (i.e., SAVA), which are three adversities that uniquely affect racial/ethnic minorities, individuals living in poverty, and people in urban communities. We assessed the relationship between SAVA adversities and depressive symptoms among mothers living with HIV, as well as the
moderating effect of resilience on this relationship. Participants included 55 mothers (Mage = 41.24, SD = 9.01; 81% Black) living with HIV in the U.S. MidSouth. Mothers were recruited from community agencies serving individuals living with HIV and completed hour-long interviews about SAVA, depression, resilience, life stressors, and their child's mental health. Analyses were conducted in PROCESS for SPSS to test the relationship between SAVA and depression, as moderated by resilience. Analyses controlled for the influence of child maladaptive functioning (given known associations with maternal mental health) and maternal life stressors (given established associations with depressive symptoms). Findings indicated that experiencing more than one SAVA variable was associated with greater depressive symptoms (p < .05). Higher resilience was associated with lower depressive symptoms (r = -.45; p < .01). Moderation was supported (beta = -.80; p < .01) as the relationship between more SAVA epidemics and higher depressive symptoms was stronger when resilience was low and weaker when resilience was high. Results not only highlight how co-occurring adversities exacerbate depressive symptoms, but also underscore the role of resilience as a key protective factor among mothers living with HIV. Resilience could therefore be a target of strengths-based treatment to reduce the negative effects of SAVA on depressive symptoms among mothers.


Advances in HIV treatment through highly active antiretroviral therapy (HAART) have led to a steady decline in HIV-related mortality rates. However, HAART requires adherence to strict and often complicated medication regimens, and nonadherence to HAART can significantly decrease its effectiveness. Depression has consistently shown a robust association with medication nonadherence; consequently, numerous psychological interventions have been developed to target depression and increase medication adherence among HIV-infected individuals. The length of these interventions, however, may be prohibitive for certain HIV-infected populations, such as patients in rural areas. Therefore, this study provides an initial investigation of a one-session behavioral activation treatment for depression designed specifically for HIV-infected patients (BATD-HIV) at a community infectious disease clinic serving a largely rural population. In this initial uncontrolled open trial, BATD-HIV was administered to 10 HIV-infected patients with elevated symptoms of depression following their clinic appointment. Depression, anxiety, and stress symptom severity; behavioral activation processes; medication adherence; and CD4 T-cell count were assessed pre- and 1 month postintervention. Participants exhibited significant reductions in anxiety symptom severity and avoidance of negative aversive states and rumination from pre- to 1 month posttreatment. Although nonsignificant, participants also showed medium effect size reductions in depression and stress symptoms and work/school and social impairment, and medium effect size improvements in medication adherence and CD4 T-cell counts. Despite the preliminary nature of this study, results suggest that BATD-HIV may have utility as a brief treatment for HIV-infected patients with depression and warrants further investigation in larger scale randomized controlled trials.


BACKGROUND: Predictor analyses of late-life depression can be used to identify variables associated with outcomes of treatments, and hence ways of tailoring specific treatments to patients. The aim of this review was to systematically identify, review and meta-analyse predictors of outcomes of any type of treatment for late-life depression. METHODS: Pubmed, Embase, CINAHL, Web of Science and PsycINFO were searched for studies published up to December 2016. Primary and secondary studies reported treatment predictors from randomised controlled trials of any treatment for patients with major depressive disorder aged over 60 were included. Treatment outcomes included response, remission and change in depression score. RESULTS: Sixty-seven studies met the inclusion criteria. Of 65
identified statistically significant predictors, only 7 were reported in at least 3 studies. Of these, 5 were included in meta-analyses, and only 3 were statistically significant. Most studies were rated as being of moderate to strong quality and satisfied key quality criteria for predictor analyses. LIMITATIONS: The searches were limited to randomised controlled trials and most of the included studies were secondary analyses. CONCLUSIONS: Baseline depression severity, co-morbid anxiety, executive dysfunction, current episode duration, early improvement, physical illnesses and age were reported as statistically significant predictors of treatment outcomes. Only the first three were significant in meta-analyses. Subgroup analyses showed differences in predictor effect between biological and psychosocial treatment. However, high heterogeneity and small study numbers suggest a cautious interpretation of results. These predictors were associated with various mechanisms including brain pathophysiology, perceived social support and proposed distinct types of depressive disorder. Further investigation of the clinical utility of these predictors is suggested.


BACKGROUND: In Malawi, early retention in HIV care remains challenging. Depression is strongly associated with reduced anti-retroviral therapy (ART) adherence and viral suppression. Appropriate depression care for people initiating ART is likely to be supportive of early and continued engagement in the HIV care continuum. This paper aims to provide an overview of a task-shifting program that integrates depression screening and treatment into HIV care and the strategy used to evaluate this program, describes the implementation process, and discusses key challenges and lessons learned in the first phase of program implementation. METHODS: We are implementing a program integrating depression screening and treatment into HIV care initiation at two clinics in Lilongwe District, Malawi. The program's effect on patients' depression and HIV outcomes will be evaluated using a multiple baseline pre-post study. In this manuscript, we draw from our experiences as program implementers and some of the quantitative data to describe the process of implementation and key lessons learned. RESULTS: We successfully implemented the screening phase of this program at both clinics; 88.3 and 93.2% of newly diagnosed patients have been screened for depression at each clinic respectively. 25% of enrolled patients reported symptoms of mild-to-severe depression and only 6% reported symptoms of moderate-to-severe depression. Key lessons learned from the process show the importance of utilizing existing processes and infrastructure and focusing on iterative and collaborative learning. We continued to face challenges around establishing a sense of program ownership among providers, developing capacity to diagnose and manage depression, and ensuring the availability of appropriate medication. Our efforts to address these challenges provide insight into the technical and managerial support needed to prepare for, roll out, and sustain integrated models of mental health and HIV care. CONCLUSIONS: This activity demonstrates how a depression screening program can successfully be integrated into HIV care within the public health system in Malawi. While this program focuses on integrating depression management into HIV care, most of the lessons learned could apply to integration of mental health into any non-psychiatric specialist setting. TRIAL REGISTRATION: ClinicalTrials.gov ID [ NCT03555669 ]. Retrospectively registered on 13 June 2018.


LGBTQ Seniors and Mental Health: Providing Compassionate Care to Age with Dignity This chapter focuses on LGBTQ senior citizens and how to fulfill their mental health needs. Resources and life […]

BACKGROUND: Many people living with HIV have depressive symptoms, but some individuals do not receive adequate treatment. We developed an online self-help intervention for people with HIV with depressive symptoms on the basis of previous research. The aim of this study was to investigate the effectiveness of the intervention on depressive symptoms in individuals with HIV. METHODS: In this randomised controlled trial, participants recruited from 23 HIV treatment centres in the Netherlands were eligible if they were aged 18 years and older, had been diagnosed with HIV at least 6 months before the study, and had mild to moderate depressive symptoms (Patient Health Questionnaire-9 [PHQ-9] score >4 and <20). Individuals also had to speak English or Dutch and have internet access and an email address. Participants were randomly assigned (1:1) to an internet-based intervention (Living positive with HIV) or an attention-only waiting-list control condition. Randomisation was done using random number tables, with permuted blocks of 12, stratified by treatment centre and sex. Participants, researchers, and coaches were not masked to group allocation. The primary outcome was depressive symptoms assessed with the PHQ-9 and the Center for Epidemiologic Studies Depression Scale (CES-D) at pretest, 8 weeks after baseline, and 3 months after completion of the intervention or control condition (post-test 2). The primary analysis was done by intention to treat. Between group effect size was assessed with Cohen's d. This trial is registered with the Netherlands Trial Registry, number NTR5407.

FINDINGS: Between Feb 1, and Dec 31, 2015, we randomly assigned 188 participants to the intervention group (n=97) or the control group (n=91). Mean pretest PHQ-9 score was 11.74 (SD 2.49) in the intervention group and 11.11 (2.37) in the control group; at the post-test visits it was 6.73 (3.00) and 6.62 (3.03) in the intervention group and 8.60 (3.12) and 8.06 (3.17) in the control group. Mean pretest CES-D score was 24.91 (5.93) in the intervention group and 22.94 (6.48) in the control group; at the post-test visits it was 13.94 (6.39) and 15.71 (6.39) in the intervention group and 19.09 (7.05) and 18.43 (7.05) in the control group. The reduction in depressive symptoms was significantly larger in the intervention group than in the control group [d= -0.56 [95% CI -0.85 to -0.27] for PHQ-9 and -0.72 [-1.02 to -0.42] for CES-D at post-test 1; -0.46 [-0.75 to -0.17] for PHQ-9 and -0.47 [-0.76 to -0.18] for CES-D at post-test 2]. No adverse events were reported. INTERPRETATION: This guided internet-based intervention might be effective for the treatment of depressive symptoms. Future research should focus on the effectiveness of online psychological interventions for people with HIV who have mental health problems in low-income and middle-income countries. FUNDING: Aids Fonds.


The experience of living with HIV, in the global north, has changed significantly over the past 20 years. This is largely the result of effective biomedical methods of treatment and prevention. HIV is now widely considered to be a long-term condition like many others – it has been argued that HIV has been 'normalised'. Drawing on online qualitative survey data, with respondents aged 18–35 years, diagnosed with HIV in the past 5 years, this research explores contemporary subjective experiences of being diagnosed, and living, with HIV in the United Kingdom. The data reveal ambiguous experiences and expectations, as the 'normative' status of HIV exists alongside ongoing experiences of fear, shame and stigma – maintaining its status as the most 'social' of diseases. In rendering HIV 'everyday', the space to articulate (and experience) the 'difference' which attaches to the virus has contracted, making it difficult to express ambivalence and fear in the face of a positive, largely biomedical, discourse. In this article, the concepts of normalisation and chronicity provide an analytical framework through which to explore the complexity of the 'sick role' and 'illness work' in HIV. [ABSTRACT FROM AUTHOR]

BACKGROUND: The number of people living with HIV/AIDS (PLHA) in China continues to increase. Depression, a common mental disorder in this population, may confer a higher likelihood of worse health outcomes. An estimate of the prevalence of this disorder among PLHA is required to guide public health policy, but the published results vary widely and lack accuracy in China. The goal of this study was to estimate the pooled prevalence of depression or depressive symptoms among PLHA in China. METHODS: A systematic literature search of several databases was conducted from inception to June 2017, focusing on studies reporting on depression or depressive symptoms among PLHA in China. The risk of bias of individual studies was assessed using a modified version of the Newcastle-Ottawa scale. The overall prevalence estimates were pooled using random-effects meta-analysis. Differences according to study-level characteristics were examined using stratified meta-analysis and meta-regression. RESULTS: Seventy-four observational studies including a total of 20,635 PLHA were included. The pooled prevalence of depression or depressive symptoms was 50.8% (95% CI: 46.0-55.5%) among general PLHA, 43.9% (95% CI: 36.2-51.9%) among HIV-positive men who have sex with men, 85.6% (95% CI: 64.1-95.2%) among HIV-positive former blood/plasma donors, and 51.6% (95% CI: 31.9-70.8%) among other HIV-positive populations. Significant heterogeneity was detected across studies regarding these prevalence estimates. Heterogeneity in the prevalence of depression among the general population of PLHA was partially explained by the geographic location and baseline survey year. CONCLUSIONS: Because of the significant heterogeneity detected across studies regarding these prevalence estimates of depression or depressive symptoms, the results must be interpreted with caution. Our findings suggest that the estimates of depression or depressive symptoms among PLHA in China are considerable, which highlights the need to integrate screening and providing treatment for mental disorders in the treatment package offered to PLHA, which would ultimately lead to better health outcomes in PLHA.


BACKGROUND: Suicide is a serious cause of mortality worldwide and is considered as a psychiatric emergency. People living with HIV/AIDS (PLWHA) have higher rates of suicidal behavior than the general population. This study assessed the prevalence and verified the syndemic effect of psychosocial health conditions on suicidal ideation among PLWHA in China. METHODS: An institutional-based cross-sectional study was conducted from July to August 2016 in Nanjing, China, using a self-report questionnaire. Sociodemographic characteristics, infection status, psychosocial variables and suicide ideation reports of participants were collected. Logistic regressions were used to identify potential factors associated with suicidal ideation and to verify the syndemic effect of psychosocial factors. Additionally, odds ratios (ORs) with 95% confidence intervals (95% CI) were computed. RESULTS: In total, four hundred sixty-five PLWHA participated, 31.6% (n = 147) of whom had suicidal ideation. The results from univariate analysis showed that older age, low education level, being married, having children, and psychosocial variables (high perceived stigma, depression, low self-esteem, social support and resilience) were significantly associated with increased suicidal ideation. Multiple logistic regression models revealed that depression (OR = 2.70, 95%CI = 1.62-4.51), perceived stigma (OR = 1.97, 95%CI = 1.17-3.32), and low social support (OR = 1.85, 95%CI = 1.08-3.20) and self-esteem (OR = 4.11, 95%CI = 2.06-8.16) were statistically significant. PLWHA with at least two psychosocial health problems were nearly 5 times more likely (OR = 4.72, 95% CI 3.11-7.17) to have had suicidal ideation. CONCLUSIONS: Suicidal ideation is frequent among PLWHA in China and is consistent with prevalence estimates from abroad. Psychosocial health problems were the determining factors associated with suicidal ideation, and a syndemic effect of psychosocial health conditions was confirmed in predicting suicidal ideation. Therefore, early screening of high-risk groups for suicidal ideation and more psychosocial health care among PLWHA are needed.

OBJECTIVE: The causes of neurocognitive and everyday functioning impairment among aging people living with HIV (PLWH) are multifactorial. Exposure to stress and trauma can result in neurocognitive deficits via activation of neurological and other biological mechanisms. METHOD: PLWH (n = 122) and persons without HIV (n = 95), 35-65 years of age, completed four questionnaires that were used to generate a trauma, economic hardship (food insecurity and low socioeconomic status), and stress composite variable (TES). Participants also completed a comprehensive neuropsychological battery and standardized self-reports of activities of daily living (ADLs). We examined the independent and interactive effects of TES and HIV status on neurocognitive performance and ADL declines. RESULTS: PLWH had more traumatic events, more food insecurity, lower socioeconomic status, and higher perceived stress compared with HIV- individuals (all ps < .0001). Among PLWH, a higher composite TES score was associated with worse executive functioning (p = .02), worse learning (p = .02), worse working memory (p = .02), and more ADL declines (p < .0001), even after controlling for relevant demographic, psychiatric, substance use, and HIV disease covariates. On their own, individual TES components did not predict these outcomes. Conversely, no significant relationships were observed between TES and cognitive domains nor ADL declines among HIV- individuals. CONCLUSIONS: A composite score of trauma, economic hardship, and stress was significantly associated with worse neurocognitive performance and functional declines among PLWH. These adverse experiences may contribute to neurocognitive and daily functioning difficulties commonly observed among PLWH. Longitudinal studies are needed to elucidate the relationships between economic/psychosocial adversities and cognitive/functional outcomes over time, and examine potential mediators, such as inflammatory biomarkers. (PsycINFO Database Record (c) 2018 APA, all rights reserved).


This study investigates the relationship between discrimination and mental health in aging transgender adults. Survey responses from 61 transgender adults above 50 (Mage = 57.7, SD = 5.8; 77.1% male-to-female; 78.7% White non-Hispanic) were analyzed. Multivariable logistic regression models examined the relationship between gender- and age-related discrimination, number of everyday discrimination experiences, and past-week depressive distress, adjusting for social support, sociodemographics, and other forms of discrimination. The most commonly attributed reasons for experiencing discrimination were related to gender (80.3%) and age (34.4%). More than half of participants (55.5%) met criteria for past-week depressive distress. In an adjusted multivariable model, gender-related discrimination and a greater number of everyday discrimination experiences were associated with increased odds of past-week depressive distress. Additional research is needed to understand the effects of aging and gender identity on depressive symptoms and develop interventions to safeguard the mental health of this vulnerable aging population.


Transgender people are at high risk for suicide ideation, attempts, and deaths compared to the general population. Several correlates of suicide ideation and attempts have been identified empirically to understand this increased risk. However, few attempts have been made to systematically review this literature. Further, a theory to understand and identify targetable factors for intervention has rarely been applied to this population. In the first systematic review guided by ideation-to-action frameworks of suicide, we systematically reviewed the literature from January 1991 to July 2017 regarding correlates of suicide ideation, attempts, and deaths among transgender people. To be included in the review, articles must have been reported in English, reported on empirical data, included a sample of
subsample of transgender people, and reported separately on correlates of suicide ideation, attempts, or deaths. Two independent reviewers searched three major databases, references of included articles, and unpublished literature, which produced 45 articles for review. The review suggested that ideation-to-action frameworks would be worth investigating within this population, with attention to sources of psychological pain, social connectedness, and capacity/capability for suicide unique to this population. Additionally, other aspects of cultural identity were often studied (e.g., race, religion), suggesting the need to understand intersectionality of identities among transgender people and their effects on suicide risk. Finally, the review highlighted important limitations of the literature, namely measurement of suicide ideation and attempts and sampling method, which future work should seek to improve.

Xiaowen, W., et al. (2018). "Depression and anxiety mediate perceived social support to predict health-related quality of life in pregnant women living with HIV." AIDS Care 30(9): 1147-1155.

Pregnant women living with HIV represent one of the most high-priority groups for HIV treatment and health assessment. Although social support has been shown to be a protective factor for improved health-related quality of life (HRQoL), and depression and anxiety have been identified as two major causes of psychological distress among people living with HIV, it is still unclear how social support, anxiety, and depression interact to influence HRQoL. The objective of our study was to demonstrate the nature of predictors, direct effects and mediator effects among social support, anxiety, depression symptoms and HRQoL in pregnant women living with HIV. We investigated a total of 101 pregnant women living with HIV in Yunnan province in China from April 2016 to June 2016. All participants completed the Social Support Rating Scale (SSRS), the Chinese version of the Hospital Anxiety and Depression Scales (HADS) and Quality of Life instruments (EuroQol Five Dimensions Questionnaire, EQ-5D). The relationships between the variables were examined by Pearson's or Spearman's correlation analysis. Predictor effects were tested using separate multiple regressions, controlling for demographic variables and HIV diagnosis variables. Direct and mediation effects of social support on HRQoL were tested using a structural equation model (SEM). Anxiety and depression symptoms were negatively correlated with subjective social support, support utilization, social support and HRQoL. Social support significantly predicted better HRQoL, and anxiety and depression symptoms significantly predicted poorer HRQoL. Anxiety and depression symptoms partially mediated the associations between social support and HRQoL. Anxiety and depression symptoms completely mediated the associations of objective support and support utilization with HRQoL. Interventions to improve HRQoL in pregnant women living with HIV must consider the mediation effect of anxiety and depression symptoms on the association between social support and HRQoL. Social support interventions are valid only when anxiety and depression symptoms are managed effectively.


BACKGROUND: Previous studies have shown positive association between HIV-related stigma and depression, suicidal ideation, and suicidal attempt among people living with HIV/AIDS (PLWH). But few studies have examined the mechanisms among HIV-related stigma, depression, and suicidal status (suicidal ideation and/or suicidal attempt) in PLWH. The current study examined the relationships among perceived and internalized stigma (PIS), depression, and suicidal status among PLWH in Guangzhou, China using structural equation modeling. METHODS: Cross-sectional study by convenience sampling was conducted and 411 PLWH were recruited from the Number Eight People's Hospital from March to June, 2013 in Guangzhou, China. Participants were interviewed on their PIS, depressive symptoms, suicidal status, and socio-demographic characteristics. PLWH who had had suicidal ideation and suicidal attempts since HIV diagnosis were considered to be suicidal. Structural equation model was performed to examine the direct and indirect associations of PIS and suicidal status. Indicators to evaluate goodness of fit of the structural equation model included
Chi-square Statistic, Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), and Weighted Root Mean Square Residual (WRMR). RESULTS: More than one-third (38.4%) of the PLWH had depressive symptoms and 32.4% reported suicidal ideation and/or attempt since HIV diagnosis. The global model showed good model fit (Chi-square value = 34.42, CFI = 0.98, RMSEA = 0.03, WRMR = 0.73). Structural equation model revealed that direct pathway of PIS on suicidal status was significant (standardized pathway coefficient = 0.21), and indirect pathway of PIS on suicidal status via depression was also significant (standardized pathway coefficient = 0.24). There was a partial mediating effect of depression in the association between PIS and suicidal status. CONCLUSIONS: Our findings suggest that PIS is associated with increased depression and the likelihood of suicidal status. Depression is in turn positively associated with suicidal status and plays a mediating role between PIS and suicidal status. Therefore, to reduce suicidal ideation and attempt in PLWH, targeted interventions to reduce PIS and improve mental health status of PLWH are warranted.

Multimorbidity


As HIV-infected adults on successful antiretroviral therapy (ART) are expected to have close to normal lifespans, they will increasingly develop age-related comorbidities. The objective of this cross-sectional study was to compare in the French Dat’AIDS cohort, the HIV geriatric population, aged 75 years and over, to the elderly one, aged from 50 to 74 years. As of Dec 2015, 16,436 subjects (43.8% of the French Dat’AIDS cohort) were aged from 50 to 74 (elderly group) and 572 subjects (1.5%) were aged 75 and over (geriatric group). Durations of HIV infection and of ART were slightly but significantly different, median at 19 and 18 years, and 15 and 16 years in the elderly and geriatric group, respectively. The geriatric group was more frequently at CDC stage C and had a lower nadir CD4. This group had been more exposed to first generation protease inhibitors and thymidine analogues. Despite similar virologic suppression, type of ART at the last visit significantly differed between the 2 groups: triple ART in 74% versus 68.2%, ART >/= 4 drugs in 4.7% versus 2.7%; dual therapy in 11.6% versus 16.4% in the elderly group and the geriatric group, respectively. In the geriatric group all co-morbidities were significantly more frequent, except dyslipidemia, 4.3% of the elderly group had >/=4 co-morbidities versus18.4% in the geriatric group. Despite more co-morbidities and more advanced HIV infection the geriatric population achieve similar high rate of virologic suppression than the elderly population. A multidisciplinary approach should be developed to face the incoming challenge of aging HIV population.


OBJECTIVES: HIV infection has become a chronic disease requiring long-term treatment. Premature cardiovascular disease resulting from atherosclerosis in the HIV-infected population has been observed. We assessed the prevalence of peripheral artery disease (PAD), a common consequence of atherosclerosis, in HIV-infected patients aged >/= 50 years receiving antiretroviral treatment (ART). METHODS: This cross-sectional study was conducted in 12 community hospitals in Chiang Mai, Thailand. Inclusion criteria were as follows: (1) age >/= 50 years, (2) positive HIV status, and (3) currently receiving ART. Age- and sex-matched hospital patients without documented HIV infection were enrolled as a comparison group. Clinical data were extracted from hospital records. Personal information and details of PAD-related symptoms were obtained through face-to-face interviews. The diagnosis of PAD was made using ankle-brachial index (ABI) measurement. RESULTS: Seven hundred and twenty-four participants were enrolled in the study.
(362 HIV-infected patients and 362 patients in the comparison group). In the HIV-infected group, 43% were male; the mean (+/- standard deviation) age was 57.8 +/- 5.6 years. The mean (+/- standard deviation) times from HIV diagnosis and ART initiation were 10.0 +/- 4.3 and 8.6 +/- 3.5 years, respectively. The prevalence of abnormal ABI (< 1.00) was significantly lower in the HIV-infected group than in the comparison group (20 versus 27%, respectively; P = 0.03), while that of PAD (ABI <= 0.90) was not significantly different between the two groups (5 and 7%, respectively). In the HIV-infected group, female sex and low body mass index were independently associated with abnormal ABI. CONCLUSIONS: The prevalence of PAD when measured by ABI in HIV-infected older adults was relatively low. A follow-up study to determine the incidence of PAD and its persistence with time is warranted.


BACKGROUND: The effect of human immunodeficiency virus (HIV) on the development of peripheral artery disease (PAD) remains unclear. We investigated whether HIV infection is associated with an increased risk of PAD after adjustment for traditional atherosclerotic risk factors in a large cohort of HIV-infected (HIV+) and demographically similar HIV-uninfected veterans. METHODS: We studied participants in the Veterans Aging Cohort Study from April 1, 2003 through December 31, 2014. We excluded participants with known prior PAD or prevalent cardiovascular disease (myocardial infarction, stroke, coronary heart disease, and congestive heart failure) and analyzed the effect of HIV status on the risk of incident PAD events after adjusting for demographics, PAD risk factors, substance use, CD4 cell count, HIV-1 ribonucleic acid, and antiretroviral therapy. The primary outcome is incident peripheral artery disease events. Secondary outcomes include mortality and amputation in subjects with incident PAD events by HIV infection status, viral load, and CD4 count. RESULTS: Among 91,953 participants, over a median follow up of 9.0 years, there were 7708 incident PAD events. Rates of incident PAD events per 1000 person-years were higher among HIV+ (11.9; 95% confidence interval [CI], 11.5-12.4) than uninfected veterans (9.9; 95% CI, 9.6-10.1). After adjustment for demographics, PAD risk factors, and other covariates, HIV+ veterans had an increased risk of incident PAD events compared with uninfected veterans (hazard ratio [HR], 1.19; 95% CI, 1.13-1.25). This risk was highest among those with time updated HIV viral load >500 copies/mL (HR, 1.51; 95% CI, 1.38-1.65) and CD4 cell counts <200 cells/mm(3) (HR, 1.91; 95% CI, 1.71-2.13). In contrast, HIV+ veterans with time updated CD4 cell count >/=500 cells/mm(3) had no increased risk of PAD (HR, 1.03; 95% CI, 0.96-1.11). Mortality rates after incident PAD events are high regardless of HIV status. HIV infection did not affect rates of amputation after incident PAD events. CONCLUSIONS: Infection with HIV is associated with a 19% increased risk of PAD beyond that explained by traditional atherosclerotic risk factors. However, for those with sustained CD4 cell counts <200 cells/mm(3), the risk of incident PAD events is nearly 2-fold higher whereas for those with sustained CD4 cell counts >/=500 cells/mm(3) there is no excess risk of incident PAD events compared with uninfected people.


Stroke is a heterogeneous disease in persons living with HIV (PLWH). HIV is thought to increase the risk of stroke through both HIV-related and traditional stroke risk factors, which vary with respect to the patient’s age and clinical characteristics. Numerous studies show that detectable viremia and immunosuppression increase the risk of stroke across all ages while traditional risk factors are more common in the aging HIV population. As PLWH age and acquire traditional stroke risk factors, the prevalence of stroke will likely continue to rise. Large and small vessel disease are the most common causes of stroke, although it is important to evaluate for infectious etiology as well. Research regarding the management of stroke in HIV patients is scant and recommendations often parallel those for the general population. Treatment of HIV and effective reduction of traditional stroke risk factors is important to reduce the risk of stroke in
PLWH. Future research will help elucidate the pathophysiology of HIV and stroke risk, investigate sex differences in stroke risk, and evaluate the safety and benefits of standard stroke preventative measures and HIV-specific interventions in this population.

Stroke is a heterogeneous disease in persons living with HIV. HIV is thought to increase the risk of stroke through both HIV-related and traditional stroke risk factors. As PLWH age and acquire traditional stroke risk factors, the prevalence of stroke will likely continue to rise. Little is known about optimal effective stroke prevention in PLWH and further research will help to determine whether tailored stroke treatment and prevention approaches are indicated for HIV populations.


Introduction Antiretroviral therapy has improved the life expectancy of patients living with HIV. However, lipodystrophy syndrome (LD) remains prevalent, affecting mostly patients treated with first-generation antiretroviral drugs. This syndrome is characterized by changes in body fat distribution with or without associated metabolic changes. Here, we studied whether clinically evaluated LD is independently associated with chronic kidney disease (CKD) development (sustained estimated glomerular filtration rate [eGFR] < 60 ml/min per 1.73 m2) in HIV-positive patients.

Methods We conducted a prospective cohort study among all the patients from the Swiss HIV Cohort Study (SHCS) with an eGFR >60 ml/min per 1.73 m2 upon their entry into the cohort with more than 3 months of follow-up from January 2002 to August 2016. Cox regression models were used to estimate the association between LD and CKD development.

Results Among the 5384 patients included, 1341 (24.9%) developed LD during the follow-up. The mean follow-up time was 72.3 months (SD ±48.4). In total, 252 patients (4.7%) reached the primary endpoint after a median time of 51.3 months (±SD 39.9 months) from inclusion. A diagnosis of LD significantly increased the risk of an eGFR at univariate (hazard ratio [HR] = 2.72; 95% confidence interval [95% CI] = 2.07−3.58; P < 0.001) and remained significantly higher after adjustment for known HIV and non-HIV risk factors for CKD (HR = 2.37; 95% CI = 1.67−3.36; P < 0.001). The effect of LD on CKD was not mediated through the use of nephrotoxic antiretroviral drugs.

Conclusion Lipodystrophy syndrome is independently associated with CKD after adjustment for previously reported risk factors.


BACKGROUND: One of the key risk factors for cardiovascular disease is hypertension. Hypertension, which leads to heart attacks and strokes, already affects one billion people worldwide, making it a global public health issue. Incidence and prevalence of the condition is on the rise in low- and middle-income countries, with the biggest increase in sub-Saharan Africa and South Africa at the forefront. We examined the prevalence, incidence, predictors, treatment, and control of hypertension among HIV-positive patients on ART in a large South African observational cohort.

METHODS: We conducted a prospective study of ART naive adults initiating ART at a public sector HIV clinic in South Africa between April 2004-2017. Patients with diagnosed hypertension at ART initiation were excluded from the incidence analysis. Log-binomial regression was used to estimate predictors of hypertension at ART initiation, while competing risks regression was used to evaluate the relationship between predictors of incident hypertension, accounting for death as a competing risk. RESULTS: Among 77,696 eligible patients, 22.0% had prevalent hypertension at ART initiation. Of the remaining patients with no hypertension at ART initiation, 8,125 incident hypertension cases were
diagnosed over the period of follow-up, corresponding to an incident rate of 5.4 per 100 person-years (95% confidence interval (CI): 5.3-5.6). We found patients >/=40 years of age and patients with a body mass index (BMI) >/=25kg/m2 were at increased risk of both prevalent and incident hypertension. Male patients and those with pre-hypertension at ART initiation had increased hazards of hypertension over the period of follow-up. When assessing the choice of antiretroviral drug in first-line ART, patients initiated on nevirapine were at 27% increased risk of developing hypertension compared to those initiated on efavirenz, while patients who initiated on either zidovudine or stavudine had a 40% increased risk of developing hypertension compared to patients initiated on tenofovir. Patients with poorer health status at ART initiation (i.e. WHO III/IV stage, low CD4 count, low hemoglobin levels and low BMI) had a decrease risk of prevalent hypertension. We found an inverse relationship in patients with a CD4 count <50 cells/mm3 at ART initiation who had a 25% increased risk of incident hypertension compared to those with a CD4 count >/=350 cells/mm3.

CONCLUSION: Over 20% of patients in our cohort had hypertension at ART initiation, and 13% of those with normal blood pressure at ART initiation developed hypertension while on ART. Older patients, males, those on nevirapine, zidovudine or stavudine, and those who are overweight/obese should be targeted for frequent blood pressure monitoring and the identification of other cardiovascular risk factors to encourage lifestyle modifications. Additionally, these groups should be offered pharmaceutical therapy to help prevent myocardial infarction, heart failure, stroke, and kidney disease. Further research is needed to determine the level of access and adherence to pharmaceutical treatment for hypertension in this population. Additionally, an HIV-negative comparison population is needed to assess the association of the HIV virus itself with hypertension.


BACKGROUND: Antiretroviral therapy dramatically reduced HIV-related morbidity and mortality, prolonging the lifespan of HIV-infected patients. Greater duration of infection and exposure to antiretroviral therapy makes these patients susceptible to traditional cardio-metabolic risk factors and pathologies. The optimal diagnostic protocol for Diabetes Mellitus in these patients is still controversial. Haemoglobin A1c (HbA1c) has been shown to underestimate glycaemia levels and the oral glucose tolerance test (OGTT) has been shown to reveal cases of glucose metabolism disturbances in patients with normal fasting glucose. Thus, this study aimed to determine the prevalence of prediabetes and diabetes in a population of HIV-infected patients undergoing combined antiretroviral therapy, using three different diagnostic methods (fasting glucose, OGTT and HbA1c), to determine the agreement between the different methods and the characteristics associated with each one. METHODS: This study analyzed 220 HIV-infected patients on antiretroviral therapy. Patient characteristics were collected using a standardized protocol. Disturbances of glucose homeostasis were defined by the ADA 2017 criteria. Patients were characterized according to the presence or absence of clinical lipodystrophy, and distributed into four different categories, according to the presence, or absence of either clinical lipoatrophy, or abdominal prominence. Insulin resistance was assessed by HOMA-IR and QUICKI indexes. Agreement between the diagnostic methods was assessed by Cohen’s kappa coefficient. RESULTS: There were no patients diagnosed with diabetes with HbA1c. 5.9% prevalence was obtained when OGTT was used, and 3.2% prevalence when fasting glucose was used. Prediabetes had a prevalence of 14.1% when using HbA1c, 24.1% when using OGTT, and 20% when using fasting glucose. In all three methods, glucose homeostasis disturbances were associated with older age and higher resistance to insulin. Regarding other characteristics, associations varied between the three methods. The agreement between them was fair, or slight. CONCLUSIONS: We observed that HbA1c was the method that diagnosed the least amount of cases and that OGTT was the one that diagnosed the most cases. Accordingly, our results indicate
that HbA1c underestimated glycaemia levels in this population and that the use of OGTT might allow an earlier diagnosis of glucose homeostasis disturbances, potentially making it possible to avoid severe complications of DM.


Immunodeficiency, whether congenital or acquired, iatrogenic (e.g. allograft recipients) or infectious (e.g. human immunodeficiency virus (HIV)), is associated with an increased risk of malignancy. In the case of HIV infection, most cancers are associated with oncogenic virus infection. Although the overall risk of any cancer is increased 2–3-fold in people living with HIV, there are three acquired immune deficiency syndrome (AIDS)-defining cancers whose relative risk is dramatically higher. These three AIDS-defining illnesses are Kaposi's sarcoma, high-grade B cell non-Hodgkin's lymphoma (including primary cerebral lymphoma) and invasive cervical cancer. Since the introduction of combination antiretroviral therapy, the incidence of the AIDS-defining malignancies has declined in populations with access to these medications. In contrast, the effect on the incidence of other cancers has been small; however, the increased longevity of people living with HIV and the ageing of this population mean that there has been a rise in the number of cases of non-AIDS-defining malignancies. Recent advances in the management of malignancy in people with HIV have led to similar outcomes to those for the general population.


Background: Persons living with HIV on combination antiretroviral therapy (cART) may be at increased risk of the development of age-associated non-communicable comorbidities (AANCC) at relatively young age. It has therefore been hypothesised that such individuals, despite effective cART, may be prone to accelerated aging. Objective: The COMorBidity in Relation to AIDS (COBRA) cohort study was designed to investigate the potential causal link between HIV and AANCC, amongst others, in a cohort of middle-aged individuals with HIV with sustained viral suppression on cART and otherwise comparable HIV-negative controls. Methods: Longitudinal cohort study of HIV-positive subjects ≥45 years of age, with sustained HIV suppression on cART recruited from two large European HIV treatment centres and similarly-aged HIV-negative controls recruited from sexual health centres and targeted community groups. Both HIV-positive and HIV-negative subjects were assessed at study entry and again at follow-up after 2 years. Results: Of the 134 HIV-positive individuals with a median (IQR) age of 56 (51, 62) years recruited, 93% were male, 88% of white ethnicity and 86% were men who have sex with men (MSM). Similarly, the 79 HIV-negative subjects had a median (IQR) age of 57 (52, 64) and 92% were male, 97% of white ethnicity and 80% were MSM. Conclusions: The results from the COBRA study will be a significant resource to understand the link between HIV and AANCC and the pathogenic mechanisms underlying this link. COBRA will inform future development of novel prognostic tools for earlier diagnosis of AANCC and of novel interventions which, as an adjunct to cART, may prevent AANCC. [ABSTRACT FROM AUTHOR]


BACKGROUND: Geriatric Patients Living with HIV/AIDS (GEPO) is a new prospective observational multicentre cohort consisting of all the HIV-positive geriatric patients being treated at 10 clinics in Italy, and HIV-negative controls attending a single geriatric clinic. The aim of this analysis of the GEPO cohort was to compare prevalence and risk factors of individual non-communicable diseases (NCD), multi-morbidity (MM) and polypharmacy (PP) amongst HIV positive and HIV negative controls at enrolment into the GEPO cohort. METHODS: This cross-sectional study was conducted between June 2015 and May 2016. The duration of HIV infection was subdivided into three intervals: < 10, 10-20 and > 20 years. The NCD diagnoses were based on guidelines defined criteria, including cardiovascular disease, hypertension, type 2 diabetes, chronic kidney disease, dyslipidaemia, chronic obstructive pulmonary disease. MM was classified as the presence of two or more co-morbidities. The medications prescribed for the treatment of comorbidities were collected in both HIV positive and HIV negative group from patient files and were categorized using the Anatomical Therapeutic Chemical (ATC) classification. PP was defined as the presence of five or more drug components other than anti-retroviral agents. RESULTS: The study involved a total of 1573 patient: 1258 HIV positive and 315 HIV negative). The prevalence of individual comorbidities was similar in the two groups with the exception of dyslipidaemia, which was more frequent in the HIV-positive patients (p < 0.01). When the HIV-positive group was stratified based on the duration of HIV infection, most of the co-morbidities were significantly more frequent than in control patients, except for hypertension and cardiovascular disease, while COPD was more prevalent in the control group. MM and PP were both more prevalent in the HIV-positive group, respectively 64% and 37%. CONCLUSIONS: MM and PP burden in geriatric HIV positive patients are related to longer duration of HIV-infection rather than older age per se.


OBJECTIVES: 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/mm(3) (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: Binge drinking among older adults has increased in the past decade. Binge drinking is associated with unintentional injuries, medical conditions, and lower health-related quality of life. No studies have characterized multimorbidity among older binge drinkers. METHODS: We examined past 30-day binge alcohol use and lifetime medical conditions among adults age $\geq50$ from the National Survey on Drug Use and Health from 2005 to 2014. Self-reported lifetime prevalence of 13 medical conditions and medical multimorbidity ($\geq2$ diseases) among binge drinkers were compared to non-binge drinkers. Multivariable logistic regression models were used to examine correlates of binge alcohol use among older adults with medical multimorbidity. RESULTS: Among adults aged $\geq50$, 14.4% reported past-month binge drinking. Estimated prevalence of medical multimorbidity was lower (21.4%) among binge drinkers than non-binge drinkers (28.3%; $p<0.01$). Binge drinkers were more likely to use tobacco and illegal drugs than non-binge drinkers ($p<0.001$). In the adjusted model, among older adults with multimorbidity, higher income (AOR=1.44, $p<0.05$), past-month tobacco use (AOR=2.55, $p<0.001$) and substance use disorder for illegal drugs (AOR=1.80, $p<0.05$) was associated with increased odds of binge alcohol use. CONCLUSION: The prevalence of multimorbidity was lower among current binge drinkers compared to non-binge drinkers, possibly because older adults in good health are apt to drink more than adults in poorer health. Current use of tobacco and substance use disorder were associated with an increased risk for binge drinking among older adults with multimorbidity. Binge drinking by older adults with multimorbidity may pose significant health risks especially with the concurrent use of other substances.


BACKGROUND: Immune restoration is often incomplete after ART in HIV patients, both quantitatively and qualitatively. We studied the incidence and probability of CD4/CD8 normalization in an adult Thai HIV cohort and explored the predictive value of the ratio for developing of non-AIDS defining events (NAEs). METHODS: We analyzed data from HIV-infected Thai adults between 1996 and 2017 in the HIV-NAT 006 prospective long-term cohort in Bangkok, Thailand. Normalization was defined as CD4/CD8 ratio $\geq1$ on two consecutive visits, and normalization probability was calculated using the Kaplan-Meier method. NAEs were a composite endpoint including cardiovascular or cerebrovascular diseases, chronic kidney diseases, non-AIDS defining malignancies and death. Multivariate Cox regression was used to evaluate demographic, disease and treatment characteristics associated with CD4/CD8 ratio normalization and NAEs. RESULTS: A total of 800 ART-naive patients with baseline CD4/CD8 ratio of $<0.8$ who started combination ART, and had sustained virological suppression were enrolled. Participants were on ART for a median of 8.9 years and virologically suppressed for 6.1 years. The probabilities of CD4/CD8 normalization at 2, 5 and 10 years after virological suppression were 5.1%, 18.6% and 39.1%, respectively. Factors associated with normalization in multivariate analysis were female sex (hazard ratio [HR]: 2.47, 95% CI 1.71-3.56, $p<0.001$) and baseline CD4 counts $\geq350$ cells/mm$^3$ (HR: 3.62, 95% CI 2.36-5.55, $p<0.001$) vs. $<200$ cells/mm$^3$ as reference. The second analysis explored the predictive value of CD4/CD8 ratio for NAEs. Older age (HR: 1.09, 95% CI 1.05-1.13, $p<0.01$) and current CD4/CD8 ratio $<0.3$ (HR: 3.02, 95% CI 1.27-7.21, $p=0.01$) or between 0.3 and 0.45 (HR: 2.03, 95% CI 1.03-3.98, $p=0.04$) vs. $>0.45$ were independently associated with higher risk of progression to NAEs in the multivariate analysis. CONCLUSIONS: Our findings showed that complete immune recovery is uncommon in an Asian setting and earlier ART initiation at higher CD4 counts may have increased the ratio sooner. The findings demonstrate the use of CD4/CD8 ratio as a prognostic marker for clinical progression of NAEs. Trial registration HIV-NAT 006 cohort, clinical trial number: NCT00411983.

The estimated burden of chronic disease among people living with HIV (PLWH) varies considerably by data source, due to differences in case definitions, analytic approaches, and underlying patient populations. We evaluated the burden of diabetes (DM) and chronic kidney disease (CKD) in two large data systems that are commonly queried to evaluate health issues affecting HIV care patients: the Medical Monitoring Project (MMP), a nationally representative sample, and the Centers for AIDS Research Network of Integrated Clinical Systems (CNICS), a clinical cohort. In order to reconcile these two data sources, we addressed issues common to observational data, including selection bias, missing data, and development of case definitions. The overall adjusted estimated prevalence of DM and CKD in MMP was 12.7% and 7.6%, respectively, and the overall prevalence of DM and CKD in CNICS was 9.9% and 8.3%, respectively; prevalence estimates increased with age in both data sources. After reconciling the approach to analyzing MMP and CNICS data, sub-group specific prevalence estimates of DM and CKD was generally similar in both data sources. Both data sources suggest a considerable burden of disease among older adults in HIV care. MMP and CNICS can provide reliable data to monitor HIV co-morbidities in the US.


PURPOSE: A high risk of cardiovascular disease (CVD) is reported for HIV-infected individuals. While a link between abacavir and CVD risk is suggested, an association between abacavir and hypertension remains unclear. This study evaluated hypertension risk with abacavir use in comparison to non-abacavir antiretroviral treatment (ART).

MATERIALS AND METHODS: From a nationwide cohort of HIV-infected individuals on their initial ART, 6493 who were free of hypertension at baseline were analyzed. The use of ART was treated as a time-varying covariate measured as a daily unit. Incidence rate of hypertension was calculated, and Cox proportional hazard models were used to estimate adjusted hazard ratios (HRs) with 95% confidence interval (CI) of incident hypertension overall and among subgroups.

RESULTS: From the 6493 participants, 24072 person-years (PY) of follow-up were contributed during 2008-2016. The incidence rates of hypertension were 4.6 and 3.6 per 100 PY for abacavir and non-abacavir ART users, respectively. The population attributable fraction of abacavir use on hypertension was 12%. Abacavir exposure did not elevate the risk of hypertension among overall study population [HR, 1.2 (95% CI, 1.0-1.4), p=0.061]. However, those with poor ART adherence, defined as a medication possession ratio <50% [HR, 1.9 (95% CI, 1.5-2.4), p<0.0001] or requiring prophylactic antibiotics [HR, 1.2 (95% CI, 1.0-1.3), p=0.023], were at risk of hypertension induced by abacavir, as were men, individuals aged >/=40 years, and patients visiting tertiary hospitals in urban areas. CONCLUSION: When present, poor ART adherence, requiring prophylactic antibiotics, male sex, and older age may warrant additional concern for hypertension in patients treated with abacavir.


INTRODUCTION: Patients with HIV infection may have a higher prevalence of osteoporosis and osteopenia, as well as an increased risk of bone fracture compared with non-HIV-infected individuals. Antiretroviral therapy is thought to be one of factors associated to osteoporosis-related bone fractures. OBJECTIVE: The aim of this study was to assess the effects of long-term exposure to tenofovir disoproxil fumarate (TDF) on the cumulative risk of osteoporosis-related bone fractures in Japanese patients with HIV infection. DESIGN: This observational cohort study comprised a joint HIV-
related drug survey of patients treated with TDF between April 2004 and March 2013. METHODS: Thirty-five healthcare facilities in Japan participated in the survey. The incidence of osteoporosis-related fractures was extracted from all adverse events (AEs) using standardized Medical Dictionary for Regulatory Activities queries, and used to calculate the fracture rate per 10,000 patient-years (PY). Kaplan-Meier analysis was used to estimate the cumulative probability of fracture during the study period. RESULTS: A total of 3251 patients who received TDF or TDF/emtricitabine between April 2004 and March 2013 were analyzed in this study; 93.5% of patients were male. The fracture rate was 13.5 per 10,000 PY in males and 42.2 per 10,000 PY in females. The mean age for male patients with osteoporosis-related fracture was 43.2 years, whereas it was 65.7 years in female patients. The cumulative probability of osteoporosis-related fracture increased after \( \geq 5 \) years of TDF exposure. The rate of hip fracture (95% confidence interval) was 7.2 (3.1-14.2) per 10,000 PY. CONCLUSIONS: Among HIV-infected patients in Japan, treatment with TDF for \( \geq 5 \) years increases the risk of bone fractures in younger men, in addition to that seen in older post-menopausal women.


BACKGROUND: HIV is an independent risk factor for chronic obstructive pulmonary disease; however, baseline risk factors for lung function decline remain largely unknown in this population. METHODS: HIV-infected participants in the Pittsburgh Lung HIV Cohort with at least 3 pulmonary function measurements between 2007 and 2016 were included. Pulmonary function testing including postbronchodilator (BD) spirometry and diffusion capacity for carbon monoxide (DLco) was performed every 18 months. We used a mixed-effect linear model to evaluate factors associated with pulmonary function testing and DLco decline and logistic regression models to evaluate factors associated with rapid FEV1 decline (defined as \( >80 \) mL per year) and any DLco decline. RESULTS: Two hundred eighty-five HIV-infected participants were included. Median baseline CD4 cell count was 521 cells per micro liter, 61.9% had an undetectable HIV viral load at baseline, and 78.5% were receiving ART. Approximately 20% of participants met Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria for a diagnosis of chronic obstructive pulmonary disease at baseline. Older age and baseline GOLD stage 1 compared with stage 0 were associated with faster decline in post-BD FEV1\%, whereas female sex was associated with slower decline. Similarly, female sex was associated with slower decline in DLco\%. HIV-related factors including CD4 cell count, viral load, and ART use were not significantly associated with pulmonary function decline. CONCLUSIONS: Older age, male sex, and higher baseline GOLD stage were associated with more rapid post-BD FEV1\% decline in HIV-infected individuals.


BACKGROUND & AIMS: HIV/hepatitis B virus (HBV) coinfected subjects are thought to have faster progression to end-stage liver disease (ESLD) than HBV mono-infected subjects. We assessed whether this remains in the current cART-era. METHODS: Data from subjects with follow-up completion post-2003 were compared between HIV/HBV coinfected subjects in the Dutch HIV Monitoring database and HBV mono-infected subjects from two centres. The primary outcomes of composite ESLD included portal hypertension, decompensated cirrhosis, hepatocellular carcinoma, liver transplantation and liver-related mortality. Outcomes were analysed using time-dependent cause-specific Cox regression models adjusted for follow-up time and relevant covariates. Subset-analyses were done in subjects with follow-up pre-2003. RESULTS: In the 1336 co- vs 742 mono-infected subjects, coinfected subjects had no increased probability for ESLD compared to mono-infected subjects (cHR 0.7 [95% CI 0.4-1.1], but had increased probabilities for all-cause (cHR 7.4 [4.9-11.1]) and liver-related mortality (cHR 3.4 [1.6-7.5]). In the current combined cohort, treatment with tenofovir or entecavir was inversely associated with ESLD, all-cause and liver-related mortality (cHR 0.4 [95% CI 0.3-
0.7], cHR 0.003 [0.001-0.01]), cHR 0.007 [0.001-0.05]). Other predictors for ESLD were older age, being of Sub-Saharan African descent, increased alanine aminotransferase levels and hepatitis C virus coinfection. While the probability for all-cause mortality was increased in coinfected subjects, this rate decreased compared to pre-2003 (HR 40.2 (95% CI: 8.7-186.2). CONCLUSIONS: HIV/HBV coinfected patients no longer seem to be at increased risk for progression to ESLD compared to HBV mono-infected patients, likely due to widespread use of highly effective cART with dual HBV and HIV activity.


The prevalence of asymptomatic vertebral fracture in HIV-infected patients over 50 was 20%, associated with older age, male sex, longer time since HIV diagnosis, and tubular renal alterations. Vertebral fractures were independent of osteoporosis at lumbar spine, and were not predicted by the use of the FRAX equation. PURPOSE: Vertebral fractures (VF) are the hallmark of osteoporotic fractures. Our objective was to determine the prevalence of asymptomatic VF and associated factors in HIV-infected patients over 50 years, and the role of FRAX equation. METHODS: In a cross-sectional study, a diagnosis of VF was established by the semiquantitative method of Genant in thoracic and lumbar radiographs. Simultaneously, a dual X-ray absorptiometry (DXA), bone and kidney-related analytical, calcium intake, physical exercise, HIV-related factors, and FRAX estimation were evaluated. RESULTS: Overall, 128 patients (35 women, 27%) were included. Mean age was 57 years. Hypophosphatemia and tubular renal dysfunction were observed in 13 and 21%. DXA scan showed osteopenia and osteoporosis at hip in 65 and 7% of patients, and in spine in 39 and 34%, respectively. VF were observed in 26 patients (20%), with a trend to be associated with lower serum phosphate, increased alkaline phosphatase, and with lower daily calcium intake. In a multivariate analysis, older age (OR 1.2 per year; 14% of VF at 50-55; 44% at 65-70), male sex (26 vs 6%), longer time since HIV diagnosis, and renal and tubular dysfunction were the associated factors. VF were not related with osteoporosis at lumbar spine, and could not be predicted by the FRAX equation. CONCLUSIONS: The prevalence of asymptomatic vertebral fractures is high in HIV-infected patients older than 50 years, and is not identified by the presence of osteoporosis in spine neither predicted by the FRAX equation. Spine and lumbar X-rays should be routinely performed in this aging population.


BACKGROUND: Chronic obstructive pulmonary disease (COPD) is a leading cause of death and disability globally. Both cigarette smoking and HIV have been identified as independent risk factors for COPD. We used data from the strategic timing of antiretroviral treatment (START) Pulmonary Substudy to quantify the impact of smoking on rate of lung function decline in HIV. METHODS: We included START Pulmonary Substudy participants who contributed at least 2 good quality spirometry measures during the study. Slope of forced expiratory volume in 1 second (FEV1) was estimated using a repeated-measures model adjusted for the treatment group (immediate vs deferred treatment arm of START), age, sex, race, baseline COPD, and region. RESULTS: Of 1026 START Pulmonary Substudy participants, 915 (89%) were included in this analysis. Median follow-up time was 3.9 years. Smokers and nonsmokers were similar in baseline age (median 36 years), but smokers were more likely to be white, male, and from Europe/Israel/Australia. Smokers had faster average FEV1 decline compared with nonsmokers [-38.3 mL/yr vs -25.1 mL/yr; difference of -13.2 mL/yr (95% confidence interval: -23.6 to -2.7); P = 0.013], were more likely to meet criteria for rapid FEV1 decline [7.2%-11.7% more
likely (P = 0.09–P = 0.002), depending on the definition of rapid decline, and had borderline, but not statistically significant, higher incident COPD during follow-up (9.7% vs 5.8%, P = 0.06). CONCLUSIONS: Compared to nonsmokers, HIV-positive smokers experience faster decline in lung function. These results underscore the need for a better understanding of how to best support smoking cessation among HIV-positive populations.


OBJECTIVES: At present, data are limited on the comorbidity profiles associated with aging people with HIV in the developing world, where most such people live. The aim of this study was to compare the disease burden between older HIV-positive subjects and HIV-negative matched controls in Brazil. METHODS: This was a cross-sectional analysis of the South Brazilian HIV Cohort. Individuals aged 50 years and older were enrolled at Hospital de Clínicas de Porto Alegre and matched with HIV-negative controls from the primary practice unit of the same hospital. Multimorbidity (the presence of two or more comorbid conditions) and the number of non-infectious comorbidities were compared. Poisson regression was used to identify factors associated with multimorbidity. RESULTS: A total of 208 HIV-positive subjects were matched to 208 HIV-negative controls. Overall, the median age was 57 years and 56% were male. The prevalence of multimorbidity was higher in HIV-positive subjects than in HIV-negative controls (63% vs. 43%, p<0.001), and the median number of comorbidities was 2, compared to 1 in controls (p<0.001). The duration of HIV infection (p=0.02) and time on treatment in years (p=0.015) were associated with greater multimorbidity in HIV-positive persons. CONCLUSIONS: In this large cohort from the developing world, multimorbidity was found to be more common in HIV-positive subjects than in HIV-negative controls. The duration of HIV and time on antiretrovirals were associated with multimorbidity.


BACKGROUND: HIV-infected patients are at a higher risk to develop malignancies than general population. Although AIDS-related malignancies are a common feature of late-stage disease, patients under successful antiretroviral therapy also have an increased risk for development of non-AIDS malignancies. OBJECTIVE: To compare the frequency and characteristics of adults HIV-infected patients and general population who died of malignancies in Bahia, Brazil from January 2000 to December 2010. METHODS: National Information System on Mortality (SIM) was searched to identify all deaths in the study period caused by malignancies in general population and in HIV patients. The frequency of malignancies in these two groups was compared. For HIV patients we also recorded the last HIV-1 RNA plasma viral load and CD4+ cells count, retrieved from official databases on laboratory monitoring for HIV patients. RESULTS: In the study period 733,645 deaths were reported, 677,427 (92.3%) of them in individual older than 13 years. Malignancies were the cause of death in 77,174 (11.4%) of them, and 5156 (0.8%) were associated to HIV/AIDS. Among deaths of HIV/Aids patients, Kaposi’s sarcoma was the most prevalent malignancy (OR: 309.7; 95% CI: 177-544), followed by non-Hodgkin lymphoma (OR: 10.1; 95% CI: 5.3-19.3), Hodgkin’s lymphoma (OR: 4.3; 95% CI: 2.2-8.4), and cranial nervous malignancies (OR: 3.3; 95% CI: 1.6-7.0). HIV patients died at a significantly lower age (43.7 years), than general population (64.5 years, p=0.0001). Patients who had a diagnosis of Aids-related malignancies had lower CD4+ cells count than those with non-AIDS relates malignancies (p=0.04). CONCLUSION: HIV infection is a clear risk factor for development of some malignancies, and is associated with early mortality, compared to general population. The level of CD4+ cells count predicts the type of malignancies causing death in this population.
Low bone mineral density (BMD) and fragility fractures are common in individuals infected with HIV, who are undergoing antiretroviral therapy (ART). In high-income countries, dual energy X-ray absorptiometry is typically used to evaluate osteopenia or osteoporosis in HIV infected individuals. However, this technology is unavailable in low and middle income countries, so a different approach is needed. The aim of this study was to use X-ray scans of the spine to determine the prevalence of and associated risk factors for vertebral fractures in HIV-infected patients in a tertiary-care hospital in Mexico. We conducted a cross-sectional study of outpatients who were >40 years old and receiving ART at the Hospital de Infectología, La Raza National Medical Center in Mexico City, Mexico. We used semi-quantitative morphometric analysis of centrally digitized X-ray images to assess vertebral deformities in the spine. Anterior, middle and posterior vertebral heights were measured, and height ratios were calculated. For each vertebral body, fractures were graded on the basis of height ratio reductions, and a spine deformity index (SDI) value was calculated by summing the grades of the vertebral deformities: An SDI>1 was indicative of a vertebral fracture. We included 104 patients, 87% of whom were men. The median age was 49 years (interquartile range (IQR) 42-52). The most common stage of HIV infection, as defined by the Centers for Disease Control, was B2 in 40 (39%) of patients. Forty seven (45%) patients were on ART regimens that included protease inhibitors (PIs) and 100 (96%) being treated with tenofovir. The median time of ART was 6.5 years (IQR 1.6-9.0). Of the 104 patients in our study, 83 (80%) had undetectable viral load, as assessed by HIV-1 RNA levels, 32 (31%) showed evidence of a previous fracture, 4 (4%) were co-infected with hepatitis C virus, and 57 (55%) had a history of corticosteroid treatment. The prevalence of vertebral fractures was 25%, 95% confidence interval 17-34%. We assessed whether gender, HCV co-infection, previous corticosteroid use, AIDS, total HIV viral load, and current and previous use of PIs were associated with fractures in our study group, but we did not observe a significant association between any of these factors and vertebral fractures. The prevalence of vertebral fractures was high among HIV-infected patients. We propose that screening for bone disease should be performed in HIV individuals who are at risk of fragility fractures. Furthermore, we suggest that X-ray based assessment of the spine should be considered in patients who are at increased risk of fragility fractures, irrespective of BMD levels, particularly in elderly patients in low and middle income countries. [ABSTRACT FROM AUTHOR]


In 2016, two thirds of diagnosed human immunodeficiency virus (HIV) infections in the United States were attributed to male-to-male sexual contact (1). The risk for sexual acquisition and transmission of HIV changes through the lifespan (2); to better guide prevention efforts for gay, bisexual, and other men who have sex with men (MSM*), CDC analyzed National HIV Surveillance System(dagger) (NHSS) data for MSM aged >/=13 years by age group (13-29, 30-49, and >/=50 years) in 50 states and the District of Columbia (DC). During 2008-2016, the annual number of diagnoses of HIV infection increased 3% per year among MSM aged 13-29 years, decreased 4% per year among those aged 30-49 years and was stable for MSM aged >/=50 years. The number of HIV diagnoses among MSM aged 13-29 years was four times that of MSM aged >/=50 years. During 2008-2015, the number of MSM aged >/=50 years living with diagnosed HIV infection (prevalence of HIV infection) increased an average of 11% per year and at year-end 2015 was three times that of MSM aged 13-29 years. Racial/ethnic disparities in HIV infection persisted, particularly among younger black/African American MSM who accounted for 49% of all diagnoses among MSM aged 13-29 years during 2008-2016. To avert the most infections and improve health outcomes (3), sexually active MSM at risk for HIV infection should be tested at least once a year, and, if positive, linked to and retained in HIV medical care to achieve viral suppression (4). Those testing negative should be provided HIV prevention services, including preexposure prophylaxis (PrEP) (5).

BACKGROUND: Effective combined antiretroviral therapy (cART) has improved life expectancy among people living with HIV-1 infection. Treated HIV-1 infection increases the prevalence of metabolic syndrome (MS). Despite sub-Saharan Africa having among the highest rates of HIV-1 infection, the effects of MS in HIV-1-infected individuals on cardiovascular risk is poorly explored. The aim of the study was to assess whether MS and/or HIV-1 treatment correlates with large elastic artery stiffness in HIV-1-infected patients treated with first-line cART. METHODS: The study sample comprised of 102 subjects free of cardiovascular disease and major risk factors divided into two groups based on HIV-1 infection, treatment, and MS status: HIV-1(+)/cART(+)/MS(+) (n = 12); HIV-1(+)/cART(-)/MS(+) (n = 16); HIV-1(-)/MS(+) (n = 10); HIV-1(+)/cART(+)/MS(-) (n = 42); HIV-1(+)/cART(-)/MS(-) (n = 32); HIV-1(-)/MS(-) (n = 39). MS was established according the International Diabetes Federation definition. Large artery stiffness was measured using applanation tonometry to assess aortic pulse wave velocity (aPWV) and aortic augmentation index at heart rate of 75 bpm (Alx@HR75). cART included lamivudine/zidovudine and nevirapine or efavirenz. RESULTS: The prevalence of MS in the HIV-1-infected patients was 28%. There were no significant differences in aPWV in the non-MS groups. However, in subjects with MS, aPWV was significantly higher in the HIV-1 cART patients (9.0 +/- 1.9 m/s) compared with both controls (7.5 +/- 1.8 m/s; P = 0.018) and untreated HIV-1 patients (7.7 +/- 1.3 m/s; P = 0.023), and these differences remained after adjustment for blood pressure and sex. Aortic PWV was significantly elevated (P = 0.009) in HIV-1 cART patients with MS compared to their counterparts without MS. Untreated HIV-1 patients with MS also demonstrated increased aPWV compared to their counterparts without MS (P = 0.05). Aortic Alx@HR75 was, on average, ~ 5% higher in HIV-1 cART patients with MS (28.3 +/- 62% compared with untreated HIV-1 patients with MS (23.5 +/- 9%); P = 0.075). Sub-group multivariate analysis identified MS as an independent predictor of increased aPWV in HIV-1 cART patients.

CONCLUSIONS: Our study established that presence of MS in HIV-1 patients on treatment was associated with increased aPWV and hence increased arterial stiffness in sub-Saharan African HIV-1 patients on first-line cART.


The article presents information on human immunodeficiency virus type 1 (HIV-1) and its impact on central nervous system and production of amyloid precursor proteins. HIV-1 does not affect neurons in a direct way. However, secretion of host proteins and viral proteins from brain-resident HIV-1 infected cells is believed to result in inflammation which in turn may cause neuronal dysfunction and even death.


OBJECTIVES: The prevalence of non-AIDS-related comorbidities is increasing in HIV-infected patients receiving antiretroviral therapy. In Thailand, data regarding the prevalence of non-AIDS comorbidities and factors associated with metabolic complications in HIV-infected patients have not been well-documented. METHODS: This cross-sectional study was conducted in 2011 and included 874 HIV-infected patients. RESULTS: The age of patients was 45(8) years represented as mean (standard deviation [SD]). The current CD4 count was 502(247) cells/mm(3). In all, 388 (44%) of the included patients had at least 1non-AIDS comorbidity. The most frequently documented comorbidities were hyperlipidemia in 271 (70%) patients. Using multivariate analysis, older age(odds ratio [OR] = 1.82, 95% confidence interval [CI] = 1.51-2.19), male sex (OR = 1.55, 95%CI = 1.14-2.11), high current CD4 count(OR = 1.00, 95%CI = 1.00-1.00), and taking abacavir (ABC)-containing(OR = 2.59, 95%CI = 1.16-5.78)and didanosine (ddl)-containing antiretroviral
regimens (OR = 4.16, 95%CI = 1.09-15.84) were associated with the presence of metabolic complications (all Ps<.05).

CONCLUSION: The prevalence of comorbidities is substantially high. Clinical monitoring and effective management of these comorbidities and metabolic complications are recommended, especially in HIV-infected patients who present with these associated factors.


Objective: Peripheral neuropathy (PN) is a common complication of HIV. There is increasing awareness that some forms of PN, particularly small-fiber neuropathies, can be associated with chronic widespread pain syndromes. Given the high prevalence of both PN and chronic pain in HIV, we sought to determine whether patients with a diagnosis of HIV-PN were more likely to experience other chronic pain syndromes. Methods: Data were obtained from the Clinical Data Warehouse maintained by our institution. All HIV-infected patients receiving standard of care antiretroviral therapy in our institution’s primary care HIV clinic (N = 638) were included. Diagnoses of HIV-PN and other chronic pain disorders were established based on clinician-assigned ICD-9/10 codes. Results: Sixty-eight patients (11%) had a diagnosis of HIV-PN. Patients with HIV-PN were more than twice as likely to have other chronic pain disorders (66% vs 32%, chi2 = 30.3, P < 0.001). Patients with HIV-PN were also older and more likely to have substance use and psychiatric disorders; however, the association of HIV-PN with other chronic pain disorders persisted after adjusting for relevant confounders (chi2(5) = 81.38, P < 0.001). Conclusions: Patients with HIV-PN commonly experience other chronic pain disorders. Clinicians managing HIV-PN should seek a broad understanding of patients' pain experience as this may alter management strategies. Researchers studying HIV-PN should consider how the presence of other pain disorders might affect outcomes.


OBJECTIVES: To understand trends in health care use among people living with HIV/AIDS (PLWHA), this study compared trends in hospitalization rates, comorbidities, and hospital death rates of hospitalized PLWHA with the overall hospitalized population in Illinois during 2008-2014. METHODS: This study identified principal hospitalizations (the principal discharge diagnosis coded with an HIV-related billing code) and secondary HIV hospitalizations (a non-principal discharge diagnosis coded with an HIV-related billing code) from 2008-2014 Illinois hospital discharge data. Hospitalization rates among PLWHA were calculated using prevalence data from the Illinois Electronic HIV/AIDS Registry; US Census population estimates were used to calculate overall Illinois hospitalization rates. Joinpoint regression analysis was used to assess trends overall and among demographic subgroups. Comorbidities and discharge status for all hospitalizations were identified. RESULTS: In 2014, the hospitalization rate was 2.2 times higher among PLWHA than among the overall Illinois hospitalized population. From 2008 to 2014, principal HIV hospitalization rates per 1000 PLWHA decreased by 48% (from 71 to 37) and secondary HIV hospitalization rates declined by 26% (from 296 to 218). The decline in the principal HIV hospitalization rate was steepest from 2008 to 2011 (annual percentage change = -16.0%; P = .003). Mood disorders, substance-related diagnoses, and schizophrenia accounted for 18% to 22% of principal hospitalizations among PLWHA compared with 7% to 8% of overall Illinois hospitalizations. Hepatitis as a comorbidity was more common among hospitalized PLWHA (18%-22%) than among the overall Illinois hospitalized population (1.4%-1.5%). Hospitalized PLWHA were 3 times more likely than the overall Illinois hospitalized population to die while hospitalized. CONCLUSIONS: HIV hospitalizations are largely preventable with appropriate treatment and adherence. Additional efforts to improve retention in HIV care that address comorbidities of PLWHA are needed.
This narrative review discusses literature on chronic obstructive pulmonary disease (COPD) in people living with HIV (PLWH). Existing data indicate that HIV itself, independent of smoking, constitutes a pathogenic agent implicated in this disease condition. COPD can be viewed not exclusively as a pulmonary disease but rather as a systemic syndrome sparked and fueled by a persistent low-grade HIV-attributable inflammatory state. We speculate that even in the absence of airflow obstruction on spirometry, HIV-related lung disease can manifest with respiratory symptoms and structural lung derangement. Although not fully satisfying the global initiative for obstructive lung disease criteria for COPD, this phenotype of small airways lung disease is related to significant impairment of lung health and is associated with a high comorbidity burden. Within the specific context of the aging epidemic affecting HIV patients characterized by a high burden of comorbidities, frailty, and disabilities HIV-related lung disease has to be fit into the framework of the general comorbidity burden that PLWH experience, due to both HIV infection and to incidental HIV-unrelated risk factors. In this review, we will also provide a list of research gaps and an agenda for future studies in HIV patients.


Low-income and middle-income countries (LMICs) are undergoing an epidemiological transition, in which the burden of noncommunicable diseases (NCDs) is rising and mortality will shift from infectious diseases to NCDs. Specifically, cardiovascular disease, diabetes, renal diseases, chronic respiratory diseases, and cancer are becoming more prevalent. In some regions, particularly sub-Saharan Africa, the dual HIV and NCD epidemics will pose challenges because their joint burden will have adverse effects on the quality of life and will likely increase global inequities. Given the austere clinical infrastructure in many LMICs, innovative models of care delivery are needed to provide comprehensive care in resource-limited settings. Improved data collection and surveillance of NCDs among HIV-infected persons in LMICs are necessary to inform integrated NCD-HIV prevention, care, and treatment models that are effective across a range of geographic settings. These efforts will preserve the considerable investments that have been made to prevent the number of lives lost to HIV, promote healthy aging of persons living with HIV, and contribute to meeting United Nations Sustainable Development Goals.


INTRODUCTION: HIV-1 infection leads to chronic inflammation and to an increased risk of non-AIDS mortality. Our objective was to determine whether AIDS-defining events (ADEs) were associated with increased overall and cause-specific non-AIDS related mortality after antiretroviral therapy (ART) initiation. METHODS: We included HIV treatment-naive adults from the Antiretroviral Therapy Cohort Collaboration (ART-CC) who initiated ART from 1996 to 2014. Causes of death were assigned using the Coding Causes of Death in HIV (CoDe) protocol. The adjusted hazard ratio (aHR) for overall and cause-specific non-AIDS mortality among those with an ADE (all ADEs, tuberculosis (TB), Pneumocystis jiroveci pneumonia (PJP), and non-Hodgkin's lymphoma (NHL)) compared to those without an ADE was estimated using a marginal structural model. RESULTS: The adjusted hazard of overall non-AIDS mortality was higher among those with any ADE compared to those without any ADE (aHR 2.21, 95% confidence interval (CI) 2.00 to 2.43). The adjusted hazard
of each of the cause-specific non-AIDS related deaths were higher among those with any ADE compared to those without, except metabolic deaths (malignancy aHR 2.59 (95% CI 2.13 to 3.14), accident/suicide/overdose aHR 1.37 (95% CI 1.05 to 1.79), cardiovascular aHR 1.95 (95% CI 1.54 to 2.48), infection aHR (95% CI 1.68 to 2.81), hepatic aHR 2.09 (95% CI 1.61 to 2.72), respiratory aHR 4.28 (95% CI 2.67 to 6.88), renal aHR 5.81 (95% CI 2.69 to 12.56) and central nervous aHR 1.53 (95% CI 1.18 to 5.44)). The risk of overall and cause-specific non-AIDS mortality differed depending on the specific ADE of interest (TB, PJP, NHL). CONCLUSIONS: In this large multi-centre cohort collaboration with standardized assignment of causes of death, non-AIDS mortality was twice as high among patients with an ADE compared to without an ADE. However, non-AIDS related mortality after an ADE depended on the ADE of interest. Although there may be unmeasured confounders, these findings suggest that a common pathway may be independently driving both ADEs and NADE mortality. While prevention of ADEs may reduce subsequent death due to NADEs following ART initiation, modification of risk factors for NADE mortality remains important after ADE survival.


Objectives: This study aims to investigate how human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV) affect the production of immunoglobulin M (IgM)-rheumatoid factor (RF). Patients and methods: The study included 405 voluntary participants (139 males, 266 females; mean age 39.4±17.9 years; range 3 to 88 years) randomly recruited by a consecutive sampling technique in the main health facilities of the Center, East, Far North, Littoral and West regions of Cameroon. We excluded persons under treatment or hospitalized for any form of primary autoimmune disease. Blood samples were collected and used for serological analyses. We sought for the HIV antibodies (Ab); the core antibody (HBcAb), the surface antigen (HBsAg), and the replicative antigen (HBeAg) of the HBV; HCVAb of HCV and the IgM-RF. Results: The prevalence of HIVAb was 7.61%, 38.7% for HBcAb, 5.43% for HBsAg, 1.26% for HBeAg and 6.41% for IgM-RF in the study population. The Far North region had the highest prevalence of IgM-RF (9.8%) and the Littoral region had the lowest prevalence (3.2%). The prevalence of RF was 6.7% and 5.7% for females and males, respectively (sex ratio of 2.25). The IgM-RF prevalence was 9.7%, 8.9%, 9.1%, and 27.8% in participants with positive serological results for HIVAb, HBcAb, HBsAg, and HCV, respectively. Conclusion: Infection by HIV and HBV showed to poorly stimulated IgM-RF production. However, IgM-RF was highly produced in HCV infected participants. Increased IgM-RF production may contribute to cytotoxicity in tissues or organs of HCV-infected patients, leading to the onset of autoimmune diseases. [ABSTRACT FROM AUTHOR]


Human immunodeficiency virus (HIV) is a kind of lentivirus that infects the human immune system and could cause acquired immunodeficiency syndrome (AIDS). Most patients with HIV infection will require lifelong treatment with combined highly active antiretroviral therapy (HAART). Ischemic stroke has emerged as a particularly significant neurological complication of HIV infection. A variety of mechanisms has been postulated, including opportunistic infections, cardioembolism (CE), HIV-associated vasculopathy and coagulation disorders. By summarizing the latest literatures, this article will review the pathogenesis of HIV-related ischemic stroke, so as to improve the understanding of this disease. [ABSTRACT FROM AUTHOR]

PURPOSE OF REVIEW: Widespread use of antiretroviral therapy (ART) has led to near-normal life expectancy in people with human immunodeficiency virus (HIV) infection. However, neurologic complications of HIV remain common; can affect any part of the neuraxis; and are due to direct effects of the virus, immunosuppression because of untreated HIV infection, aberrant immune responses in the setting of ART initiation, and ART toxicities. RECENT FINDINGS: HIV-associated neurocognitive disorder (HAND) remains one of the most common neurologic complications of HIV encountered today, but milder forms predominate in people on ART. No specific treatments for HAND exist, but small trials and epidemiologic evidence suggest paroxetine, intranasal insulin, and maraviroco may have utility in its treatment; further trials of these agents are ongoing. Widespread ART use has decreased the incidence of central nervous system opportunistic infections, but prognosis often remains poor in those who develop opportunistic infections. High-titer positive serum cryptococcal antigen is strongly predictive of cryptococcal meningitis and provides a tool to enhance diagnosis in areas with limited resources. HIV is an independent risk factor for stroke, and accelerated aging associated with HIV infection results in neurologic diseases of older age occurring at much younger ages in individuals infected with HIV. Ongoing HIV replication in the CSF despite peripheral virologic suppression may contribute to the development of HAND and may not improve despite adjusting the ART regimen to increase central nervous system penetration.

SUMMARY: Neurologists are likely to encounter patients infected with HIV in clinical practice. This article reviews the presentation, diagnosis, and management of the most common neurologic conditions associated with HIV infection and ART.


This study examines the importance of four psychosocial factors-personality, cognitive appraisal of quality of life, social support, and current reserve-building-in predicting treatment burden in chronically ill patients. Chronically ill patients (n = 446) completed web-based measures. Structural equation modeling was used to investigate psychosocial factors predicting treatment burden. Reserve-building activities indirectly reduced treatment burden by: (1) reducing health worries appraisals, (2) reducing financial difficulties, (3) increasing calm and peaceful appraisals, and (4) increasing perceived social support. These findings point to key behaviors that chronically ill people can use to attenuate their treatment burden.


Introduction: Despite a range of interventions, annual numbers of new diagnoses of HIV infection among men who have sex with men (MSM) in Australia have not declined in recent years. Peer-based sexual health clinics targeting MSM, such as the M Clinic in Perth (WA, Australia), have been put in place to provide safe sex counselling and to increase testing rates among MSM and who are at high risk of HIV infection. The aim of this study was to assess the incidence of HIV, chlamydia and gonorrhoea among men attending the M Clinic. Methods: This was a historical cohort study of repeated M Clinic clients from January 2011 to June 2015 inclusive. Testing and risk factor data from M Clinic client software were used to estimate the incidence of HIV, chlamydia and gonorrhoea and associated factors. Results: The incidence of HIV, chlamydia and gonorrhoea was 1.87, 13.58 and 6.48 per 100 person-years respectively. Older men had a higher incidence of HIV infection but a lower incidence of chlamydia and gonorrhoea than younger men. Conclusions: The HIV incidence was higher than found in similar studies in other Australian sexual health clinics, but the incidence of chlamydia and gonorrhoea was similar. The high HIV incidence among clients of the M Clinic points to the importance of making pre-exposure HIV prophylaxis available to clients of the M Clinic and similar services.

OBJECTIVE: To characterize the profile of non-AIDS-related comorbidities (NARC) in the older HIV-1-infected population and to explore the factors associated with multiple NARC. METHODS: This was a multicentre, cross-sectional study including HIV-1-infected patients aged >/=50 years, who were virologically suppressed and had been on a stable antiretroviral therapy (ART) regimen for at least 6 months. A multiple regression model explored the association between demographic and clinical variables and the number of NARC. RESULTS: Overall, 401 patients were enrolled. The mean age of the patients was 59.3 years and 72.6% were male. The mean duration of HIV-1 infection was 12.0 years and the median exposure to ART was 10.0 years. The mean number of NARC was 2.1, and 34.7% of patients had three or more NARC. Hypercholesterolemia was the most frequent NARC (60.8%), followed by arterial hypertension (39.7%) and chronic depression/anxiety (23.9%). Arterial hypertension and diabetes mellitus were the most frequently treated NARC (95.6% and 92.6% of cases, respectively). The linear regression analysis showed a positive relationship between age and NARC (B=0.032, 95% confidence interval 0.015-0.049; p=0.0003) and between the duration of HIV-1 infection and NARC (B=0.039, 95% confidence interval 0.017-0.059; p=0.0005). CONCLUSIONS: A high prevalence of NARC was found, the most common being metabolic, cardiovascular, and psychological conditions. NARC rates were similar to those reported for the general population, suggesting a larger societal problem beyond HIV infection. A multidisciplinary approach is essential to reduce the burden of complex multi-morbid conditions in the HIV-1-infected population.


BACKGROUND: With advances in antiretroviral therapy, most deaths in people with HIV are now attributable to noncommunicable illnesses, especially cardiovascular disease. We determine the association between HIV and cardiovascular disease, and estimate the national, regional, and global burden of cardiovascular disease attributable to HIV. METHODS: We conducted a systematic review across 5 databases from inception to August 2016 for longitudinal studies of cardiovascular disease in HIV infection. A random-effects meta-analysis across 80 studies was used to derive the pooled rate and risk of cardiovascular disease in people living with HIV. We then estimated the temporal changes in the population-attributable fraction and disability-adjusted life-years (DALYs) from HIV-associated cardiovascular disease from 1990 to 2015 at a regional and global level. National cardiovascular DALYs associated with HIV for 2015 were derived for 154 of the 193 United Nations member states. The main outcome measure was the pooled estimate of the rate and risk of cardiovascular disease in people living with HIV and the national, regional, and global estimates of DALYs from cardiovascular disease associated with HIV. RESULTS: In 793 635 people living with HIV and a total follow-up of 3.5 million person-years, the crude rate of cardiovascular disease was 61.8 (95% CI, 45.8-83.4) per 10 000 person-years. In comparison with individuals without HIV, the risk ratio for cardiovascular disease was 2.16 (95% CI, 1.68-2.77). Over the past 26 years, the global population-attributable fraction from cardiovascular disease attributable to HIV increased from 0.36% (95% CI, 0.21%-0.56%) to 0.92% (95% CI, 0.55%-1.41%), and DALYs increased from 0.74 (95% CI, 0.44-1.16) to 2.57 (95% CI, 1.53-3.92) million. There was marked regional variation with most DALYs lost in sub-Saharan Africa (0.87 million, 95% CI, 0.43-1.70) and the Asia Pacific (0.39 million, 95% CI, 0.23-0.62) regions. The highest population-attributable fraction and burden were observed in Swaziland, Botswana, and Lesotho. CONCLUSIONS: People living with HIV are twice as likely to develop cardiovascular disease. The global burden of HIV-associated cardiovascular disease has tripled over the past 2 decades and is now responsible for 2.6 million DALYs per annum with the greatest impact in sub-Saharan Africa and the Asia Pacific regions. CLINICAL TRIAL REGISTRATION: URL: https://www.crd.york.ac.uk/prospero . Unique identifier: CRD42016048257.

• We report the first multinational study specifically focusing on perceived stress and multimorbidity in older adults. • We noted a linear increase in levels of perceived stress with increasing numbers of chronic conditions. • For single chronic conditions, notably high scores for perceived stress were observed for depression, stroke, and hearing problems.

Background Stress in chronic conditions or multimorbidity (≥2 chronic conditions) has been reported to affect clinical outcomes but there are no studies on the association between stress and chronic conditions/multimorbidity among older adults in low- and middle-income countries (LMICs). Thus, we investigated this association among adults aged ≥50 years across six LMICs.

Methods A cross-sectional analysis using data from the World Health Organization's Study on Global Ageing and Adult Health (China, Ghana, India, Mexico, Russia, South Africa) was conducted. A perceived stress score [range 0 (lowest stress) – 100 (highest stress)] was computed based on two questions from the Perceived Stress Scale. Thirteen chronic conditions were assessed. Multivariable linear regression analyses were conducted.

Results 34,129 adults with a mean age of 62.4 (SD=16.0) years (52.1% females) were included. Overall, 56.6% (95% CI=55.0%-58.2%) had multimorbidity. In the adjusted model including all countries, compared with those with no chronic conditions, higher numbers of chronic conditions were significantly associated with higher stress levels, dose dependently. In a countrywide meta-analysis, multimorbidity was associated with significantly higher stress levels in all countries (especially India and Ghana) although characterized by moderate heterogeneity (I²=54.6%). For single chronic conditions, notably high stress scores were observed for depression, stroke, and hearing problems.

Conclusion Chronic conditions and multimorbidity are associated with higher levels of stress in older adults in LMICs. Given that perceived stress and chronic conditions are collectively associated with worse health outcomes, low-cost, population-level integrated interventions to address stress among those with chronic conditions are urgently needed.


In the era of combination antiretroviral therapy, the diagnosis and management of HIV-associated neurocognitive disorders (HANDs) has arisen. Traditionally, severe HAND was seen in those with untreated HIV infection and had a guarded prognosis. Antiretroviral therapy has provided longevity and viral control to many living with the disease, revealing an increase in prevalence of less severe forms of HAND. Despite peripheral blood and cerebrospinal fluid viral suppression, cognitive impairment occurs and progresses for reasons that are unclear at present. This article provides a review of current theories behind the development of HAND, clinical and pathologic findings, recent developments, and future research opportunities.


PURPOSE OF REVIEW: The introduction of antiretroviral therapy (ART) has revolutionized HIV infection management, resulting in improved outcomes and survival for people living with HIV (PLWH). However, as PLWH are living longer and aging, non-AIDS-defining cancers (NADCs) represent a significant source of morbidity and mortality in the HIV-infected population. Here, we review the epidemiology of NADCs in PLWH. RECENT FINDINGS: Cancer mortality
among PLWH is much higher than that among the general population. Up to 10% of deaths among PLWH have been attributed to NADCs. Furthermore, PLWH have an increased risk for specific NADCs, including lung cancer, hepatocellular carcinoma, head and neck cancers, anal cancer, and Hodgkin lymphoma. In the past decade, the incidence rates of AIDS-defining cancers (ADCs) have been decreasing while the incidence rates of NADCs have been increasing. In particular, the incidence of specific NADCs are changing at different rates. For example through 2010, the incidence rates for anal, liver, and prostate cancers among PLWH had increased, while incidence rates for lung cancer had decreased and incidence rates for colorectal cancer remained relatively stable over time. However, as early ART becomes more prevalent and the percentage of PLWH over 50 increases, these trends may evolve further. Incidence of NADCs should be expected to increase further as the PLWH population continues to age. Screening and prevention for these cancers among the HIV-infected population should be emphasized.


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 1 s/ 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.


Objectives: This study aims to identify the differences in functional abilities between stroke survivors who are human immunodeficiency virus (HIV)-positive and HIV-negative. Patients and methods: This was a retrospective, longitudinal record review of stroke survivors’ files between April 2005 and December 2010. Of a total of 173 stroke survivors who were admitted to the rehabilitation unit, 141 (75 males, 66 females; mean age 52.7±14.3 years; range, 19 to 86 years) met the inclusion criteria. The patients were divided into two groups as HIV-positive (n=21) and HIV-negative (n=120). Functional ability was recorded using the admission and discharge BETA® scores. Results: Ischemic strokes were more prevalent than hemorrhagic strokes (74.5% vs. 25.5%, respectively) with hypertension as the most common (31.9%) stroke risk factor. The mean age of stroke onset for HIV-positive patients and HIV-negative patients was 39.6 years and 54.9 years, respectively. In HIV-positive patients, the mean duration of rehabilitation was 7.5-day
shorter than HIV-negative patients. After receiving rehabilitation from a multidisciplinary team, the HIV-positive group improved with a mean of 40 points and the HIV-negative group improved with a mean of 38 points. The similarities in functional outcome between the HIV-positive and HIV-negative group were related to the fact that HIV-positive stroke survivors were relatively younger than the HIV-negative group. Conclusion: Our study results show that patients who sustain a stroke, are HIV-positive, are receiving antiretroviral therapy and rehabilitation may recover similar to those who are HIV-negative, spending a similar length of stay in a rehabilitation clinic. Therefore, stroke survivors who are HIV-positive should receive full rehabilitation similar to any other stroke survivors. [ABSTRACT FROM AUTHOR]


BACKGROUND: Integrase strand transfer inhibitors (INSTIs) are recommended for first-line antiretroviral therapy in combination with two nucleos(t)ide reverse transcriptase inhibitors. Co-formulated bictegravir, emtricitabine, and tenofovir alafenamide (B/F/TAF), a novel, INSTI-based regimen, is currently approved in the US and EU for the treatment of HIV-1 infection and recommended as first-line treatment in current guidelines. In our current analysis, we aimed to determine changes in patient-reported symptoms over time among HIV-1-infected adults who initiated or switched to B/F/TAF versus another INSTI-based regimen, co-formulated abacavir, dolutegravir, and lamivudine (ABC/DTG/3TC).

METHODS: A planned secondary analysis of patient-reported outcomes was conducted for two double-blind, randomized, phase III studies in HIV-1-infected adults comparing B/F/TAF with ABC/DTG/3TC: one in treatment-naïve individuals (GS-US-380-1489, ClinicalTrials.gov NCT02607930) and the other in virologically suppressed participants (GS-US-380-1844, ClinicalTrials.gov NCT02603120). In both studies, the HIV symptoms distress module (HIV-SI) was administered at baseline (BL) and weeks 4, 12, and 48. Responses to each of the 20 items were dichotomized as bothersome or not bothersome. Treatment differences were assessed using unadjusted and adjusted logistic regression models (adjusted for BL HIV-SI count, age, sex, BL Veterans Aging Cohort Study [VACS] Index, medical history of serious mental illness, BL Short Form [SF]-36 Physical Component Summary [PCS], BL SF-36 Mental Component Summary [MCS], and, for virologically suppressed participants only, years since HIV diagnosis). We conducted longitudinal modeling of bothersome symptoms using a generalized mixed model including treatment, time, time-by-treatment, and additional covariates from the adjusted logistic regression model as described above. The Pittsburgh Sleep Quality Index (PSQI) was administered at the same frequency as the HIV-SI, and the total score was dichotomized as good or poor sleep quality. Similar models to those used for HIV-SI were applied, using BL sleep quality and BL SF-36 MCS as covariates. Statistical significance was assessed using p < 0.05. RESULTS: Across both studies, bothersome symptoms were reported by fewer participants on B/F/TAF than those on ABC/DTG/3TC. In treatment-naïve adults, fatigue/loss of energy, nausea/vomiting, dizzy/lightheadedness, and difficulty sleeping were reported significantly less with B/F/TAF at two or more time points. Fatigue and nausea were also significantly less common for those receiving B/F/TAF in longitudinal models. In virologically suppressed participants, nausea/vomiting, sad/down/depressed, nervous/anxious, and poor sleep quality (from the PSQI) were reported significantly less with B/F/TAF at two or more time points, as well as in longitudinal models. CONCLUSIONS: B/F/TAF was associated with lower prevalence of bothersome symptoms than ABC/DTG/3TC in both treatment-naïve and virologically suppressed adults.


Background: Age-associated conditions are increasingly common among persons living with human immunodeficiency virus (HIV) (PLWH). A longitudinal investigation of their accrual is needed given their implications on
clinical care complexity. We examined trends in the co-occurrence of age-associated conditions among PLWH receiving clinical care, and differences in their prevalence by demographic subgroup. Methods: This cohort study was nested within the North American AIDS Cohort Collaboration on Research and Design. Participants from HIV outpatient clinics were antiretroviral therapy-exposed PLWH receiving clinical care (ie, >/=1 CD4 count) in the United States during 2000-2009. Multimorbidity was irreversible, defined as having >/=2: hypertension, diabetes mellitus, chronic kidney disease, hypercholesterolemia, end-stage liver disease, or non-AIDS-related cancer. Adjusted prevalence ratios (aPR) and 95% confidence intervals (CIs) comparing demographic subgroups were obtained by Poisson regression with robust error variance, using generalized estimating equations for repeated measures. Results: Among 22969 adults, 79% were male, 36% were black, and the median baseline age was 40 years (interquartile range, 34-46 years). Between 2000 and 2009, multimorbidity prevalence increased from 8.2% to 22.4% (P< .001). Adjusting for age, this trend was still significant (P < .001). There was no difference by sex, but blacks were less likely than whites to have multimorbidity (aPR, 0.87; 95% CI, .77-.99). Multimorbidity was the highest among heterosexuals, relative to men who have sex with men (aPR, 1.16; 95% CI, 1.01-1.34). Hypertension and hypercholesterolemia most commonly co-occurred. Conclusions: Multimorbidity prevalence has increased among PLWH. Comorbidity prevention and multisubspecialty management of increasingly complex healthcare needs will be vital to ensuring that they receive needed care.


Neurocognition


Background: Cognitive disorders are a common issue impacting those living with human immunodeficiency virus (HIV). Effective antiretroviral treatment has lessened the severity but not the frequency of these impairments. Such deficits reduce quality of life and present a significant challenge to clinicians in the context of an ageing HIV population with a growing number of comorbidities. Sources of data: This review is based on recent published literature in the field of HIV-associated cognitive impairment (HAND). Areas of agreement: The pathogenesis of HAND is multifactorial and can be categorized into HIV viral factors, antiretroviral factors and individual factors. The risk factors associated with HAND are well documented. Areas of controversy: The prevalence of HAND in HIV populations varies and is dependent on populations studied and assessment batteries used. Disease progression is poorly understood and has important implication for screening programmes. The relative contribution of pathogenic mechanisms causing HAND is unclear, but recent papers point to inflammation as a significant contributor. Growing areas: The role of psychiatric diseases, such as depression, in the development and maintenance of HAND has recently been examined and requires clinical consideration. Furthermore, as the HIV population ages, its clinical management faces new challenges. Areas timely for developing research: Identifying biomarkers for HAND which are practical in a clinical setting and utilizing new imaging technologies to better monitor diagnosis and disease progression. Furthermore, the development of therapeutics targeting inflammation appears of increasing importance.
OBJECTIVE: HIV-associated neurocognitive disorder (HAND) occurs in a significant percentage of HIV-infected (HIV+) adults. Increased intraindividual variability (IIV) in cognitive function may be an early marker of emerging neurocognitive disorder, which suggests that IIV may be a sensitive measure of neurologic compromise in HIV. In the current study, we hypothesize that increased IIV may predict impending morbidity, including future cognitive decline and death. METHOD: In 708 HIV+ participants followed longitudinally for up to 14 years, we assessed the role of dispersion in forecasting death and cognitive decline. Incident neurocognitive impairment was predicted in a mixed-effects ordinal logistic regression model using age, gender, baseline mean cognitive functioning, CD4+, time followed, years of education, and dispersion at the previous visit. Death before the next visit was predicted in a binomial mixed-effects regression model using age, gender, baseline mean cognitive functioning, CD4+, time followed, years of education, and dispersion. RESULTS: Point-in-time dispersion and change in dispersion between visits predict future cognitive decline and death in HIV+ individuals. Individuals with greater dispersion at a visit or who had larger changes in dispersion between visits were more likely to demonstrate greater neurocognitive impairment at the subsequent visit. Greater IIV was also associated with an increased risk of death prior to the subsequent visit, even after controlling for HAND severity and global cognitive functioning. CONCLUSIONS: We conclude that the IIV in cognitive functioning may be more predictive of future disease consequence than mean level of cognitive functioning.
neural injury. The literature also suggests that HIV-associated PM deficits present a strong risk of concurrent problems in a wide range of health behaviors (e.g. medication non-adherence) and activities of daily living (e.g. employment). Early attempts to improve PM in HIV disease have revealed that supporting strategic processes might be effective for some individuals. CONCLUSIONS: HIV-associated PM deficits are common and exert a significant adverse effect on the daily lives and health of infected persons. Much work remains to be done to understand the cognitive architecture of HIV-associated PM deficits and the most efficient means to enhance PM functioning and improve health outcomes in persons living with HIV.


BACKGROUND: Mechanisms leading to neurocognitive impairment (NCI) in people living with HIV (PLWHIV) on stable combination antiretroviral therapy (cART) remain unknown. We investigated the association between immunity against cytomegalovirus (CMV), HIV-specific variables, and NCI in PLWHIV on stable cART and with low comorbidity.

METHODS: Fifty-two PLWHIV on stable cART and 31 HIV-uninfected controls matched on age, sex, education, and comorbidity were tested with a neurocognitive test battery, and CMV-immunoglobulin G (CMV-IgG) levels were measured. In PLWHIV, CMV-specific (CMV-pp65 and CMV-gB) CD4 and CD8 T-cell responses were measured using intracellular cytokine staining and flow cytometry. NCI was defined as a global deficit scale score (GDS score) >/=0.5. GDS scores and domain-specific scores defined severity of NCI. Logistic and linear multivariable regression analyses were used.

RESULTS: NCI was detected in 30.8% of PLWHIV, and HIV was associated with an adjusted odds ratio (aOR) of 5.18 [95% confidence interval (CI): 1.15 to 23.41, P = 0.033] for NCI. In PLWHIV, higher CMV-specific CD4 T-cell responses increased the probability of NCI with an aOR of 1.68 (95% CI: 1.10 to 2.57) for CMV-pp65 or an aOR of 3.73 (95% CI: 1.61 to 16.98) for CMV-gB, respectively. Similar associations were not found with CMV-IgG or CMV-specific CD8 T cells, but when assessing severity of NCI, higher CMV-IgG (per 100 U/mL) was associated with worse GDS scores (beta = 0.08) (0.01-0.16, P = 0.044), specifically in the domain of speed of information processing (beta = 0.20 (0.04-0.36, P = 0.019).

CONCLUSIONS: PLWHIV had increased risk of NCI. Excess risk may be associated with CMV-specific CD4 T-cell responses and CMV-IgG. Larger longitudinal studies investigating the impact of immunity against CMV on risk of NCI are warranted.


BACKGROUND: The objective of this investigation was to detect evidence of the synergism in the effects of HIV-1 and drug abuse on brain function that has been hypothesized but rarely shown. The investigation incorporated several noteworthy improvements in the approach. It used urine toxicology tests to exclude participants complicated by recent methadone use and illicit drug use. Also, it defined drug abuse on a scale that considered symptom severity. Most importantly, it examined inter-trial variability in brain activity as a potentially more sensitive indicator of group differences and functional impairment than the across-trial average.

METHODS: 173 participants were assigned to groups defined by their HIV-1 serostatus and Drug Abuse Screening Test score (DAST < vs. > = 6). They completed a simple letter discrimination task including rare target and rare nontarget stimuli. Event-related electroencephalographic responses and key press responses were measured on each trial. During a separate assessment, posturographic measures were recorded. RESULTS: The inter-trial standard deviation of P300-like activity was superior to the mean amplitude of this activity in differentiating the groups. Unlike the mean, it revealed synergistic statistical effects of HIV and drug abuse. It also correlated significantly with static ataxia. CONCLUSIONS: Inter-trial variability in P300-like activity is a useful marker for detecting subtle and episodic disruptions in brain function. It demonstrates greater sensitivity than
the mean amplitude for detecting differences across groups. Also, as a putative indicator of a disruption in the attentional monitoring of behavior, it predicts subtle impairments in gross motor function.


Introduction: The aim of this study was to compare age-related changes in chronically infected, asymptomatic HIV-positive patients under combination antiretroviral therapy (cART), with age-, gender-, and educational-level-matched healthy subjects, using multi-voxel magnetic-resonance spectroscopy (MRS). Methods: There were 66 chronically infected HIV-positive subjects and 65 age-, gender-, and educational-level-matched control subjects, divided into four groups according to the age: group 1 (20-29 years old), group 2 (30-39), group 3 (40-49) and group 4 (50-59). MRS was performed and ratios of N-acetyl-aspartate (NAA)/creatine (Cr) were analyzed in ten locations of the supracallosal gray matter. For the comparison of NAA/Cr ratios in healthy and HIV-positive subjects, ANCOVA with age and education as covariates was performed. Correlations of NAA/Cr ratios with duration of cART were performed using Pearson's correlation test. Statistical significance was set at p < 0.05. Results: The NAA/Cr ratios were decreased in the 20-29-year-old HIV-positive subjects in 8/10 locations (p < 0.005) compared to the healthy controls, while in the 50-59-year-old groups they were significantly lower only in one location (p = 0.004). There were significant positive correlations of NAA/Cr levels with the duration of cART in the oldest group of HIV-positive subjects, while in the youngest group there were no significant correlations. Conclusion: The aging pattern in chronic HIV infection under cART is accentuated rather than accelerated. There is an initial HIV-related neuronal damage with a significant decline in NAA/Cr ratios; after the initiation of cART, however, NAA/Cr ratios increase continuously to become similar to healthy aging individuals, probably due to beneficial effect of long-standing cART. Summary: Brain aging in chronic HIV infection under cART is accentuated, with an initial HIV-related neuronal damage followed by a subtle NAA/Cr increase after the initiation of cART. Under cART, in advanced age, NAA/Cr ratios become similar to healthy aging individuals.


BACKGROUND: One of the fastest growing populations living with HIV is older adults especially those 65 years of age or older. Current antiretroviral therapy (ART) has prolonged life expectancy of persons with HIV. However, for therapy to be effective, patients need to be adherent. Over time, older persons with HIV may experience HIV-associated neurocognitive disorders or other factors that could affect ART adherence. The use of expedient cognitive tests that help measure medication adherence may be useful for the optimal care of these patients. OBJECTIVE: To investigate the association between cognitive tests and ART adherence. METHODS: This was a prospective study evaluating patients 65 years of age or older with HIV. Cognitive tests used included the Executive Clock-Drawing Task (CLOX) 1 and 2, Trail Making Test parts A and B, and Grooved Pegboard Test (GPB). The medication event monitoring system cap over 1 month was used as the primary measure for adherence. RESULTS: CLOX 1 and GPB were significantly related to adherence ( P < 0.05). Comparison of the magnitude of each measure's relation to adherence suggests that the GPB is a better indicator of ability to adhere ( R = 0.514 vs R = 0.381). Conclusion and Relevance: CLOX 1 and GPB demonstrated an association with adherence in patients 65 years of age or older with HIV. Although the use of these tests to measure adherence in older persons with HIV seems promising, more research is needed to ascertain their ultimate utility.

Environmental factors such as chemicals, stress and pathogens are now widely believed to play important roles in the onset of some brain diseases, as they are associated with neuronal impairment and acute or chronic inflammation. Alzheimer's disease (AD) is characterized by progressive synaptic dysfunction and neurodegeneration that ultimately lead to dementia. Neuroinflammation also plays a prominent role in AD and possible links to viruses have been proposed. In particular, the human immunodeficiency virus (HIV) can pass the blood-brain barrier and cause neuronal dysfunction leading to cognitive dysfunctions called HIV-associated neurocognitive disorders (HAND). Similarities between HAND and HIV exist as numerous factors involved in AD such as members of the amyloid and Tau pathways, as well as stress-related pathways or blood brain barrier (BBB) regulators, seem to be modulated by HIV brain infection, leading to the accumulation of amyloid plaques or neurofibrillary tangles (NFT) in some patients. Here, we summarize findings regarding how HIV and some of its proteins such as Tat and gp120 modulate signaling and cellular pathways also impaired in AD, suggesting similarities and convergences of these two pathologies. [ABSTRACT FROM AUTHOR]


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.


: Abnormalities in cerebral MRI are frequently reported in persons living with HIV (PLWH). We compared clinical cerebral MRI reports in 59 PLWH and 29 lifestyle matched controls. Although clinical abnormalities were highly prevalent (47.7%), and included white-matter lesions (46.6%), microvascular disease (22.7%) and cerebral volume loss
(11.4%), no differences were apparent between PLWH and controls, with abnormalities being associated with age and hypertension rather than HIV serostatus.


Background: Combination antiretroviral therapy (cART) has transformed HIV into a manageable but complex chronic disease, in which it is uncertain which brain insults may relate to age vs initial disease severity. We evaluate N-acetyl-aspartate/creatine (NAA/Cr), white matter hyperintensities (WMH), and mean cortical thickness to identify which subclinical markers of brain insult best relate to CD4 nadir and aging. This is a prospective study of the association between brain markers with age and initial infection severity, based on CD4 nadir, in chronic HIV patients. Methods: Thirty-seven chronic HIV patients (age 25-77 years) with successful viral suppression were scanned on a GE 3T magnetic resonance imaging scanner to obtain NAA/Cr (standardized and averaged over 5 brain regions), log-transformed WMH volume, and mean cortical thickness. The brain measures were fitted with both CD4 nadir and age to evaluate the significance of their relationship. Results: NAA/Cr, WMH, and cortical thickness were all correlated with age and CD4 nadir in unadjusted associations. Stepwise regression models showed that NAA/Cr alone best predicted CD4 nadir (beta = 40.1 +/- 13.3; P = .005), whereas WMH (beta = 2.3 +/- .9; P = .02) and mean cortical thickness (beta = -2.7 +/- 6.6; P < .0001) together produced the best model fit with age. NAA/Cr was higher for HIV stage 1 (CD4 nadir >/= 500 cells/ microL; n = 15) compared with stage 2 (200 >/= CD4 nadir < 500; n = 13) and stage 3 (CD4 nadir < 200; n = 9; P < .01 for both). Conclusions: In patients with effectively suppressed HIV, NAA reflects the subclinical brain impact of initial disease severity related to development of even mild immune compromise, whereas cortical thickness and WMH volume are useful to evaluate age-related changes.


BACKGROUND: There is growing concern about the health impact of heavy alcohol use in people infected with human immunodeficiency virus (HIV+). Mixed findings of past studies regarding the cognitive impact of alcohol use in HIV+ adults have been mixed, with inconsistent evidence that alcohol consumption exacerbates HIV-associated brain dysfunction. This study examined contributions of current heavy drinking, lifetime alcohol use disorder (AUD), and age to cognitive deficits in HIV+ adults, and relative to other HIV-associated clinical factors. METHODS: Cognitive performance of HIV+ adults (n = 104) was assessed, and comparisons were made between heavy current to nonheavy drinkers (NIAAA criteria), lifetime AUD versus no-AUD, and older (>50 years) versus younger participants. Hierarchical regression analyses were conducted to examine the association between cognitive performance and current heavy drinking, lifetime AUD, and older age, while also correcting for HIV clinical factors and history of other substance use. RESULTS: Individuals reporting current heavy drinking and meeting criteria for lifetime AUD demonstrated the greatest degree of deficits across multiple cognitive domains. Deficits were greatest among HIV+ adults with lifetime AUD, and older age was also associated with weaker cognitive performance. Lifetime AUD and older age independently exhibited stronger associations with cognitive performance than HIV clinical factors (e.g., viral load, current CD4, and nadir CD4) or past opiate and cocaine use. CONCLUSIONS: Current heavy drinking and lifetime AUD adversely affect cognitive function in HIV+ adults. Greatest deficits existed when there was a history of AUD and continued current heavy drinking,
indicating that past AUD continues to have an adverse impact and should not be ignored. That alcohol use was more strongly associated with cognitive performance than HIV clinical factors underscore clinical importance of targeting reduction in heavy alcohol consumption in HIV+ adults.


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.


Background: Despite successful antiretroviral therapy, people living with human immunodeficiency virus (PLWH) experience higher rates of age-related morbidity, including abnormal brain structure, brain function, and cognitive impairment. This has raised concerns that PLWH may experience accelerated aging-related brain pathology. Methods: We performed a multicenter longitudinal study of 134 virologically suppressed PLWH (median age, 56.0 years) and 79 demographically similar human immunodeficiency virus (HIV)-negative controls (median age, 57.2 years). To measure cognitive performance and brain pathology, we conducted detailed neuropsychological assessments and multimodality neuroimaging (T1-weighted, T2-weighted, diffusion magnetic resonance imaging [MRI], resting-state functional MRI, spectroscopy, arterial spin labeling) at baseline and at 2 years. Group differences in rates of change were assessed using linear mixed effects models. Results: One hundred twenty-three PLWH and 78 HIV-negative controls completed longitudinal assessments (median interval, 1.97 years). There were no differences between PLWH and HIV-negative controls in age, sex, years of education, smoking or alcohol use. At baseline, PLWH had poorer global cognitive
performance (P < .01), lower gray matter volume (P = .04), higher white matter hyperintensity load (P = .02), abnormal white matter microstructure (P < .005), and greater brain-predicted age difference (P = .01). Longitudinally, there were no significant differences in rates of change in any neuroimaging measure between PLWH and HIV-negative controls (P > .1). Cognitive performance was longitudinally stable in both groups. Conclusions: We found no evidence that middle-aged PLWH, when receiving successful treatment, are at increased risk of accelerated aging-related brain changes or cognitive decline over 2 years.


This study aimed to determine whether people living with HIV (PLHIV) are concerned about HIV associated neurocognitive disorder (HAND) and would find information and resources for HAND beneficial. An online survey focusing on the experience of HAND was distributed via the website of Positive Life New South Wales: a peak peer-support non-government organization in Australia. Of 126 respondents, 94 (74%) had heard of HAND, 52/94 (55%) had experienced concerns and of these, 48/52 (92%) felt anxiety about discussing the subject. Of those who had experienced concerns, 30/52 (58%) had spoken to someone about these concerns and 23/30 (77%) had received a positive response. Across the entire sample, 74 (59%) had noticed symptoms of cognitive decline in themselves and/or others. Respondents who noted a decrease in their ability to organize were on average five years older than those who had not noticed a decline (p = 0.012, effect size -.54). Forty-nine (39%) indicated that they would like guidance to initiate discussion about HAND with their doctor, caregiver or other PLHIV. The survey findings suggest that increasing awareness of HAND among PLHIV and their caregivers, and providing resources to facilitate discussion about HAND may assist to reduce concerns among PLHIV and enhance the effectiveness of clinical review.


BACKGROUND: People with HIV (PLHIV) are aging, and 20% are at risk of developing a neurological complication known as HIV-associated neurocognitive disorder (HAND). Signs and symptoms of HAND may be subtle; however, treatment can improve clinical outcomes. OBJECTIVE: The aim of the study was to identify and agree on a risk assessment and monitoring process for the regular review of patients at risk of HAND. METHODS: Between March and September 2017, 25 experts from four community healthcare services participated in three rounds of a modified Delphi study to reach consensus on the items, monitoring period, and format of assessment tools to identify risk of HAND in PLHIV in the community. RESULTS: More than 80% consensus was reached at all three Delphi rounds. A flow chart, an initial assessment, and an annual monitoring tool were developed for an ongoing assessment of risk of developing HAND. CONCLUSION: Twenty percent of PLHIV may develop HAND, a treatable condition. The use of a modified Delphi method led to the successful development of two risk assessment tools to identify those at risk of HAND. The initial assessment tool may be used as a precursor to formal assessment by medical and nursing staff, whereas the annual monitoring tool may assist community-based health professionals in their ongoing assessment of risk of HAND in PLHIV, facilitating early formal medical review for this condition.


Efavirenz is a highly effective HIV-1 antiretroviral; however, it is also frequently associated with neuropsychiatric adverse events (NPAE) that include abnormal dreams, sleep disturbances, nervousness, anxiety, depression, and dizziness. The incidence of NPAEs upon initiation of treatment with efavirenz-containing medications is high, exceeding 50% in most studies. Although the NPAEs tend to decrease after the first month in many patients, they persist for long periods of time in others. Efavirenz-based treatment is generally well-tolerated in children, although some experience persistent concentration problems, as well as sleep disturbances, psychotic reactions, and seizures. In an effort to link basic with clinical research, parameters associated with efavirenz brain exposure are discussed, and factors that increase efavirenz levels are explored in depth as they are expected to contribute to NPAE risk. These include the role of modifiable and nonmodifiable risk factors such as diet, weight, and drug-drug interactions and sex, age, and ethnicity/pharmacogenetics. In addition to NPAEs, this review explores what is known about antiretroviral (ARV) drugs being used for recreational purposes. Although multiple ARV drugs are covered, special attention is devoted to efavirenz given that the majority of reports of NPAEs and illicit use of ARV drugs concern efavirenz. The evolving molecular mechanistic basis of NPAEs and abuse of efavirenz point to a complex and polymodal receptor pharmacology. Animal studies to date primarily point to a serotonergic mechanism of action. Recently emerging associations between HIV-associated neurocognitive disorder and efavirenz use, and possible contributions of the mitochondrial-immune-inflammatory-redox cascade are explored in the context of the signaling mechanisms that appear to be involved.


Objective: We evaluated the association between cognitive deficits and leukocyte telomere length (LTL) in HIV-1-infected individuals. Design: 73 HIV-1-infected patients undergoing neuropsychological evaluation and 91 healthy controls were included in this study. Fifteen HIV-1 positive patients did not have cognitive disorders whereas 26 had asymptomatic neurocognitive disorder (ANI), 13 presented mild to moderate neurocognitive disorder (MND), and 10 had HIV-associated dementia (HAD). Methods: DNA from the peripheral blood of HIV-1-infected patients was used for measurement of telomere length by real-time PCR. HIV-1 viral load was determined in blood. Results: LTL decreased with age in healthy controls (p=0.0001). Regardless of the HIV status, age-matched LTL from HIV patients, including those with ANI and MND, were shortened in comparison to the healthy control group (p=0.0073); however, no association was found among the HIV-1-infected individuals with cognitive deficits (p=0.01). In addition, no gender-related association with LTL was observed (p=0.80), smoking, physical exercise, and plasma viral load were not correlated to telomere length (p=0.66). Conclusions: We concluded that leukocyte telomere length may not be a marker of cellular senescence in individuals with HIV infection and neurocognitive disorders. [ABSTRACT FROM AUTHOR]


Growing evidence suggests that HIV infection may accelerate biological aging. Insomnia symptoms, particularly in later life, exacerbate cellular aging. We examined the association between insomnia symptoms and leukocyte telomere length (LTL), and further explored how this association was affected by HIV serostatus and age. Data were assessed from 244 HIV-infected individuals >/=40 years and 244 HIV-uninfected individuals who were frequency-matched by age, gender and education level. Insomnia symptoms were assessed by responses to four sleep-related questions covering the past month. We performed multivariable linear regression with logarithmically transformed LTL and reported exponentiated coefficients. HIV-infected individuals had shorter LTL compared to uninfected individuals.
and this association remained after adjustment for gender, education level, and smoking history (-7.4%, P=0.051) but markedly attenuated after additional adjustment for insomnia and depressive symptoms (-3.7%, P=0.367). Significant interactions between age group (55-82 vs 40-54 years) and insomnia symptoms on LTL were observed in the HIV-infected individuals (-28.4%, P=0.033) but not the uninfected (-17.9%, P=0.250). After stratifying by age group, LTL was independently associated with insomnia symptoms in those 55 years and older among the HIV-infected individuals (-24.5%, P=0.026) but not those 40-54 years old (-9.8%, P=0.428). Our findings suggest that elevated insomnia and depressive symptoms may partly explain the correlation between HIV serostatus and shorter LTL. Significant association between insomnia and shorter LTL observed in elderly HIV-infected but not in uninfected individuals suggest that such adverse effect may begin at an earlier age or is more pronounced in HIV-infected individuals but requires further investigation.


Higher levels of physical activity (PA) have been linked to better neurocognitive functioning in many populations. The current study examines the longitudinal association between PA and neurocognitive functioning among HIV-infected and HIV-uninfected persons. Community-dwelling adults (N = 291) self-reported level of PA and completed a comprehensive neuropsychological battery at two to four study visits (Mean follow-up time = 2.6 years). Participants were divided into three PA groups: "No PA" (no PA at any visit), "consistent PA" (PA at ≥50% of visits), and "inconsistent PA" (PA < 50% of visits). A mixed effect model, adjusting for significant covariates showed that all PA groups had statistically significant, yet modest, neurocognitive decline over time; and, the consistent PA group began with, and maintained, significantly better neurocognitive function compared to the other two PA groups. This effect was evident among both HIV-uninfected and HIV-infected persons, despite the fact that HIV-infected persons showed lower baseline neurocognitive function. PA is a modifiable lifestyle behavior that may help to protect against neurocognitive impairment regardless of HIV status, however, given the proportion of HIV-infected individuals who evidence neurocognitive difficulties, a focus on increasing PA seems warranted.


This study examined the effects of age and HIV infection on the resting state (RS) functional connectivity (FC) of the brain and cognitive functioning. The objective was to evaluate the moderating role of age and HIV on the relationship between RS-FC and cognition. To examine RS-FC we implemented the Independent Component Analysis (ICA) and Regional Homogeneity (ReHo). Neurocognition was evaluated with comprehensive battery of standardized neuropsychological tests. Age and HIV were entered as the independent variables. The independent effects of age, HIV, and interaction effects of age-HIV on RS-fMRI measures (ICA, ReHo) were tested in 108 participants (age M=42). RS-FC indices that exhibited age-HIV interactions were entered into further analysis. Bivariate correlation analysis was performed between the retained RS-FC indices and T-scores of neurocognitive domains (Attention, Executive, Memory, Psychomotor, Semantic Skills). Multivariate regression modeling determined the impact of age and HIV on these relationships. We found that in the ICA measures, HIV-seropositivity was decreasing RS-FC in the left middle occipital gyrus (p<.001). Age-HIV interaction was observed in the left superior frontal gyrus (LSupFrontG), where FC was
decreasing with age in HIV+ (p<.001) and increasing in HIV- (p=.031). ReHo indices did not reveal significant effects. HIV strengthened the relationship between RS-FC in LSupFrontG, Memory and Psychomotor Factor scores. Aging weakened those relationships only in control group. In sum, age-HIV interaction effects are prominent rather in remote than local RS-FC. Seroconversion strengthens relationships between intrinsic brain activity and neurocognition, but no acceleration with years of age was noted in HIV+ individuals.


The objective of the study was to examine additive and synergistic effects of age and HIV infection on resting state (RS) intra- and inter-network functional connectivity (FC) of the brain. We also aimed to assess relationships with neurocognition and determine clinical-, treatment-, and health-related factors moderating intrinsic brain activity in aging HIV-positive (HIV+) individuals. The current report presents data on 54 HIV+ individuals (age M=41, SD=12years) stabilized on cART and 54 socio-demographically matched healthy (HIV-) comparators (age M=43, SD=12years), with cohort education mean of 16years (SD=12). Age at seroconversion ranged 20-55years old. ANOVA assessed additive and synergistic effects of age and HIV in 133 ROIs. Bivariate statistics examined relationships of FC indices vulnerable to age-HIV interactions and neurocognitive domains T-scores (attention, executive, memory, psychomotor, semantic skills). Multivariate logistic models determined covariates of FC. This study found no statistically significant age-HIV effects on RS-FC after correcting for multiple comparisons except for synergistic effects on connectivity within cingulo-opercular network (CON) at the trending level. However, for uncorrected RS connectivity analyses, we observed HIV-related strengthening between regions of fronto-parietal network (FPN) and default mode network (DMN), and particular DMN regions and sensorimotor network (SMN). Simultaneously, FC weakening was observed within FPN and between other regions of DMN-SMN, in HIV+ vs. HIV- individuals. Ten ROI pairs revealed age-HIV interactions, with FC decreasing with age in HIV+, while increasing in controls. FC correlated with particular cognitive domains positively in HIV+ vs. negatively in HIV- group. Proportion of life prior to HIV-seroconversion, post-infection years, and treatment determined within-FPN and SMN-DMN FC. In sum, highly functioning HIV+/cART+ patients do not reveal significantly altered RS-FC from healthy comparators. Nonetheless, the current findings uncorrected for multiple comparisons suggest that HIV infection may lead to simultaneous increases and decreases in FC in distinct brain regions even in patients successfully stabilized on cART. Moreover, RS-fMRI ROI-based analysis can be sensitive to age-HIV interactions, which are especially pronounced for inter-network FC in relation to neurocognition. Aging and treatment-related factors partially explain RS-FC in aging HIV+ patients.


Background: Neurocognitive impairment (NCI) is strongly associated with frailty in people living with human immunodeficiency virus (PLWH); the overlap of frailty and NCI and the impact on health outcomes in PLWH are unknown. Methods: PLWH in a longitudinal, observational study of aging completed entry evaluations for frailty and NCI. Outcomes of falls (recurrent) increased limitations in independent activities of daily living (IADL), or mortality were combined. Poisson regression models estimated prevalence ratios (PR) for >/=1 outcome over 2 years. Results: Among 987 participants, the median age at entry was 51 years; 19% were female; the median CD4 count was 616 cells/microL; and HIV-1 RNA was <200 copies/mL in 94%. Most (79%) participants had neither frailty nor NCI; 2% had both; 4% frailty only; and 15% NCI only. Over 2 years of observation, 100 (10%) participants experienced recurrent falls; 175 (18%) had worsening IADL limitations; 17 (2%) died; and 254 (26%) experienced >/=1 poor health outcome. In adjusted models, frailty with NCI was associated with more than double the risk of a poor health outcome (PR 2.65; 95% CI 1.98, 3.54); a
significant association was also seen with frailty alone (PR 2.26; 95%CI 1.71, 2.99) and NCI alone (PR 1.73; 95% CI 1.36, 2.20). Conclusions: The presence of frailty with NCI was associated with a greater risk of falls, disability, or death in PLWH than NCI alone. Interventions that target prevention or reversal of both frailty and NCI (such as increased physical activity) may significantly limit poor health outcomes among PLWH.


OBJECTIVES: Adults aging with HIV are at risk for poorer neurocognitive and daily functioning. Identifying factors to protect such outcomes is a significant research priority. The aim of this study was to explore the role of resilience in cognitive and everyday functioning in a largely African American and low socioeconomic status sample of adults and older adults with HIV in the Deep South. METHODS/DESIGN: In this cross-sectional study 100 HIV+ middle-aged and older adults (range 40-73; 61% aged 50+) completed a comprehensive neurocognitive battery along with self-reported measures of resilience and everyday functioning. RESULTS: Higher resilience was associated with better global neurocognitive functioning (rho = 0.31, P < 0.01), as well as better functioning in all domains (verbal fluency, executive functioning, speed of information processing, learning, working memory) except recall and motor skills. Resilience was also significantly associated with instrumental activities of daily living (IADL) dependence, with lower resilience observed in those with IADL dependence compared with those who were IADL independent (P < 0.01). In a multiple regression adjusting for data-driven covariates (verbal IQ, income, depression), and global neurocognitive impairment, resilience was the only significant (P = 0.02) correlate of IADL dependence. A follow-up mediation showed that the direct relationship between neurocognitive functioning and IADL declines was fully attenuated after accounting for shared variance with resilience. CONCLUSIONS: Resilience is associated with better cognitive and functional outcomes in people aging with HIV. While further work is needed to understand these associations over time, results suggest interventions to build resilience may promote successful aging in this vulnerable population.


Neuroinflammation is a common pathological correlate of HIV-associated neurocognitive disorders (HAND) in individuals on antiretroviral therapy (ART). Triggering receptor expressed on myeloid cells 2 (TREM2) regulates neuroinflammation, clears extracellular Amyloid (A)-beta, surveys for damaged neurons, and orchestrates microglial differentiation. TREM2 has not been studied in HIV+ brain tissues. In this retrospective study, we investigated TREM2 expression levels and localization to microglia, Abeta protein levels, and tumor necrosis factor (TNF)-alpha transcript levels in the frontal cortices of 52 HIV+ decedents. All donors had been on ART; 14 were cognitively normal (CN), 17 had an asymptomatic neurocognitive impairment (ANI), and 21 had a minor neurocognitive disorder (MND). Total TREM2 protein levels were increased in the soluble and decreased in the membrane-enriched fractions of MND brain tissues compared to CN; however, brains from MND Hispanics showed the most robust alterations in TREM2 as well as significantly increased TNF-alpha mRNA and Abeta levels when compared to CN Hispanics. Significant alterations in the expression of total TREM2 protein and transcripts for TNF-alpha were not observed in non-Hispanics, despite higher levels of Abeta in the non-Hispanic CN group compared to the non-Hispanic MND groups. These findings show that decreased and increased TREM2 in membrane-bound fractions and in soluble-enriched fractions, respectively, is associated with increased Abeta and neuroinflammation in this cohort of HIV+ brains, particularly those identifying as Hispanics. These findings suggest a role for TREM2 in the brain of HIV+ individuals may deserve more investigation as a biomarker for HAND and as a possible therapeutic target. OPEN SCIENCE BADGES: This article has received a badge for *Open Materials* because it provided all relevant information to reproduce the study in the manuscript. The complete
BACKGROUND: Little is known about subjective cognitive decline (SCD) in lesbian, gay, bisexual, and transgender (LGBT) older adults. OBJECTIVES: To examine SCD and its association with dementia risk factors, other physical and psychosocial health factors in LGBT older adults. METHODS: A cross-sectional study of SCD was conducted with LGBT older adults, aged 50 and older (n = 210). SCD was categorized based on endorsement of memory problems and one other cognitive domain. Hierarchical logistic regression examined the associations between demographic factors, dementia risk factors, other health and psychosocial factors, and SCD. RESULTS: Nearly 25% of LGBT older adults were classified as having SCD. LGBT older adults who were people of color (OR = 2.5; 95% CI = 1.1-7.8), depressed (OR = 2.9; 95% CI = 1.3-6.9), or reported having functional impairment (OR = 2.6; 95% CI = 1.1-6.5) were significantly more likely to be classified as having SCD (Nagelkerke pseudo R^2 = 0.27). CONCLUSION: Depression and functional impairment should be considered when screening LGBT older adults for cognitive impairment and dementia. Future research on the cognitive impairment and dementia risk in LGBT older adults is needed.

Objective: The purpose of this randomized-controlled pilot study was to explore the effectiveness of a home-based computerized cognitive training intervention in improving cognitive function in a population of older adults with mild cognitive impairment who are living with HIV. Methods: In all, 24 participants were enrolled in this study. All study participants were impaired [defined as Montreal Cognitive Assessment (MoCA) score < 26]; 12 were randomly assigned to a computer-training intervention group and 12 to a control group. The intervention group used a home-based computerized cognitive training program for 8 weeks, while the control group received health-related newsletter via email and follow-up phone calls. Cognitive function was measured at study entry, immediately post intervention, and 8 and 16 weeks post intervention. Results: This study achieved a 92% retention rate, losing two persons from the intervention group. Participants in the intervention group scored significantly higher on cognitive testing immediately post intervention compared to the control group: F(1, 19) = 4.92, p = 0.04. The partial Eta squared of 0.32 indicates a small to moderate effect size. Discussion: Cognitive improvement was seen immediately after the intervention, and cognitive improvement was still evident 16 weeks post intervention. Cognitive training could be considered as an option for older adults with HIV experiencing mild cognitive impairment.

It is yet unclear if people infected with human immunodeficiency virus (HIV+) on stable, combined antiretroviral therapies (cARTs) decline with age at the same or greater rate than healthy people. In this study, we examined independent and interactive effects of HIV, age, and HIV-related clinical parameters on neuropsychological functioning and brain regional volume in a sizable group of Polish HIV+ men receiving cART. We also estimated the impact of nadir CD4 cell count, CD4 cell count during participation in the study, duration of HIV infection, or duration of cART along with age. Ninety-one HIV+ and 95 control (HIV-) volunteers ages 23-75 completed a battery of neuropsychological tests, and
54 HIV+ and 62 HIV- of these volunteers participated in a brain imaging assessment. Regional brain volume in the cortical and subcortical regions was measured using voxel-based morphometry. We have found that HIV and older age were independently related to lower attention, working memory, nonverbal fluency, and visuomotor dexterity. Older age but not HIV was associated with less volume in several cortical and subcortical brain regions. In the oldest HIV+ participants, age had a moderating effect on the relationship between the duration of cART and visuomotor performance, such as that older age decreased speed of visuomotor performance along with every year on cART. Such results may reflect the efficacy of cART in preventing HIV-associated brain damage. They also highlight the importance of monitoring neuropsychological functioning and brain structure in HIV+ patients. This is particularly important in older patients with long adherence to cART.


The World Health Organization estimates that smoking poses one of the greatest global health risks in the general population. Rates of current smoking among people living with HIV (PLHIV) are 2-3 times that of the general population, which contributes to the higher incidence of non-AIDS-related morbidity and mortality in PLHIV. Given the benefit of smoking cessation, strategies to assist individuals who smoke to quit should be a primary focus in modern HIV care. Tobacco harm reduction focuses on reducing health risk without necessarily requiring abstinence. However, there remains uncertainty about the safety, policy and familiarity of specific approaches, particularly the use of vapourised nicotine products. Evidence suggests that vapourised nicotine products may help smokers stop smoking and are not associated with any serious side-effects. However, there is the need for further safety and efficacy data surrounding interventions to assist quitting in the general population, as well as in PLHIV specifically. In addition, official support for vaping as a harm reduction strategy varies by jurisdiction and this determines whether medical practitioners can prescribe vapourised products and whether patients can access vapourised nicotine products. When caring for PLHIV who smoke, healthcare workers should follow general guidelines to assist with smoking cessation. These include: asking the patient about their smoking status; assessing the patient's readiness to quit and their nicotine dependence; advising the patient to stop smoking; assisting the patient in their attempt to stop smoking through referral, counselling, pharmacotherapy, self-help resources and/or health education; and arranging follow-up with the patient to evaluate their progress.


The measurement and determinants of HIV-associated neurocognitive disorders (HAND) are under intense debate. We used latent profile analysis (LPA) and machine learning to define neurocognitive performance profiles and identify their associated risk factors in HIV patients receiving antiretroviral therapy (ART). Neurocognitive performance was assessed by a multidomain neuropsychological test battery. LPA was used to define individual neurocognitive profiles. Random forest analyses (RFA) identified the most important factors distinguishing each profile. Three profiles emerged from the LPA: profile 1 (P1, n = 159) achieved the highest performance, while profile 2 (P2, n = 163) had lowered executive functions and verbal memory, and profile 3 (P3, n = 59) was globally impaired. RFA achieved good prediction (area under the curve >/= 0.80) only for global impairment (P3). Non-North American descent was the
dominant predictor of P3, followed by factors coinciding with non-North American descent (female sex and toxoplasma seropositivity). Additional predictors included unemployment, current depressive symptoms, lower nadir CD4, and longstanding HIV. Restricting analyses to North Americans pointed to the additional importance of ART achieving high CSF levels and older age in prediction of P3. HAND diagnoses were most common in the globally impaired profile (P3 = 89.8%), followed by the group with reduced higher-order neurocognitive performance (P2 = 16.6%). Thus, implementation of LPA and RFA empirically distinguished three distinct neurocognitive performance profiles in this HIV-infected cohort while also highlighting potential risk factors and their relative importance to neurocognitive impairment. These data-driven analytical methods pointed to discernible demographic, HIV- and treatment-related risk factor constellations in patients born outside and within North America that might influence diagnostic and therapeutic decisions.


**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:** To quantitatively measure brain glucose metabolism in treated HIV-positive individuals with [(18)F]-labeled fluorodeoxyglucose (FDG) PET/CT. METHODS: We performed a cross-sectional comparison of FDG uptake in 47 treated HIV+ individuals, 10 age-matched controls (HIV-) sharing many of the comorbid conditions seen in the HIV+ group, and 19 age-matched healthy controls (HCs). We compared whole-brain (WB) and regional FDG standardized uptake values (SUVs) of select subcortical/central structures among the groups and correlated the values to clinical and neuropsychological assessments. A variable selection model was used to predict SUVs in HIV+ (n = 47) and in combined HIV+ and HIV- participants (n = 57). RESULTS: We found lower WB SUVmax in HIV+ participants compared to HCs but not to HIV- participants. Among the relative SUVmean measurements (regional SUVmean/WB SUVmean), only relative
thalamic uptake values were lower in HIV+ compared to HIV- participants. When HIV+ and HIV- participants were grouped, cardiovascular disease risk scores best predicted WB SUVmean and SUVmax, while HIV status best predicted thalamic relative SUVmean. CONCLUSIONS: We identified an important role for cardiovascular disease in neuronal loss/dysfunction, as measured by FDG-PET, in treated HIV+ patients. This underscores the need for shifting the focus of clinical intervention in this vulnerable population from HIV effects alone to a wider set of comorbid conditions, mainly cardiovascular disease. Only the thalamus showed significantly lower relative uptake in the HIV+ compared to the HC and HIV- groups. This needs to be further evaluated for underlying pathophysiologic and potential association with memory, executive functioning, and attention deficits seen in the HIV+ population.


OBJECTIVES: The aim of the study was to investigate the hypothesis of accelerated cognitive ageing in HIV-positive individuals using longitudinal assessment of cognitive performance and quantitative magnetic resonance imaging (MRI). METHODS: We assessed a broad cognitive battery and quantitative MRI metrics [voxel-based morphometry (VBM) and diffusion tensor imaging (DTI)] in asymptomatic HIV-positive men who have sex with men (15 aged 20-40 years and 15 aged >/= 50 years), and HIV-seronegative matched controls (nine aged 20-40 years and 16 aged >/= 50 years). RESULTS: Being HIV positive was associated with greater decreases in executive function and global cognition. Additionally, using DTI, we found that the HIV-positive group had a greater increase in mean diffusivity, but we did not find group differences in volume change using VBM. With respect to the HIV status by age group interaction, this was statistically significant for change in global cognition, with older HIV-positive individuals showing greater global cognitive decline, but there were no significant interaction effects on other measures. Lastly, change in cognitive performance was correlated with change in the DTI measures, and this effect was stronger for the HIV-positive participants. CONCLUSIONS: In the present study, we found some evidence for accelerated ageing in HIV-positive individuals, with a statistically significant HIV status by age group interaction in global cognition, although this interaction could not be explained by the imaging findings. Moreover, we also found that change in cognitive performance was correlated with change in the DTI measures, and this effect was stronger for the HIV-positive participants. This will need replication in larger studies using a similarly lengthy follow-up period.


We discuss the challenges associated with diagnosing neurodegenerative disorders in older adults living with HIV, illustrated through a case report where neurologic co-diagnosis of Alzheimer’s disease (AD) and HIV-associated Neurocognitive Disorder (HAND) are considered. The patient was followed and evaluated for over 4 years and underwent post-mortem neuropathologic evaluation. Further work is needed to identify diagnostic tests that can adequately distinguish HAND from early stage neurodegenerative disorders among older adults living with HIV and cognitive changes.


OBJECTIVE: Older age and lower education levels are known to be associated with worse neurocognitive (NC) performance in healthy adults, and individuals with HIV infection may experience accelerated brain/cognition aging. However, higher education may possibly protect against HIV-associated neurocognitive disorders (HAND). The aim of the current cross-sectional study was to assess the effect of age and education in an HIV-1 clade C infected adult population in urban Zambia. METHOD: Demographically corrected Zambian norms on a neuropsychological (NP) test battery were used to correct for normal age and education effects. The study assessed 286 HIV positive (+) males (37.1%) and females (62.9%) with a mean age of 41.35 (SD = 8.56) and mean years of education = 10.16 (SD = 2.18). A comprehensive NP test battery was used to assess cognitive domains frequently affected by HIV: attention/working memory, learning/and delayed recall, executive function, verbal fluency, processing speed, verbal and visual episodic memory, and fine motor skills. RESULTS: In younger HIV+ Zambians, higher education evidenced protective effects against NC impairments overall, and for the specific domains of executive functions, learning and speed of information processing. Impairment scores did not support accelerated overall brain aging although the restricted age range and relative youth of our total sample may have precluded detection of such tendencies. CONCLUSIONS: The present study raises the need to investigate factors that could be implicated in the poor neurocognitive performance among the younger, less educated HIV+ individuals in Zambia. (PsycINFO Database Record)


OBJECTIVE: HIV infection and aging are both associated with neurodegeneration. However, whether the aging process alone or other factors associated with advanced age account for the progression of neurodegeneration in the aging HIV-positive (HIV+) population remains unclear. METHODS: HIV+ (n = 70) and HIV-negative (HIV-; n = 34) participants underwent diffusion tensor imaging (DTI) and metrics of microstructural properties were extracted from regions of interest (ROIs). A support vector regression model was trained on two independent datasets of healthy adults across the adult life-span (n = 765, Cam-CAN = 588; UiO = 177) to predict participant age from DTI metrics, and applied to the HIV dataset. Predicted brain age gap (BAG) was computed as the difference between predicted age and chronological age, and statistically compared between HIV groups. Regressions assessed the relationship between BAG and HIV severity/medical comorbidities. Finally, correlation analyses tested for associations between BAG and cognitive performance. RESULTS: BAG was significantly higher in the HIV+ group than the HIV- group F (1, 103) = 12.408, p = .001. HIV RNA viral load was significantly associated with BAG, particularly in older HIV+ individuals (R(2) = 0.29, F(7, 70) =
Further, BAG was negatively correlated with domain-level cognitive function (learning: $r = -0.26$, $p = .008$; memory: $r = -0.21$, $p = .034$). CONCLUSIONS: HIV infection is associated with augmented white matter aging, and greater brain aging is associated with worse cognitive performance in multiple domains.


INTRODUCTION: HIV-associated neurocognitive disorders (HAND) are estimated to affect approximately 50% of infected individuals at any one time. Dispersion, a type of intraindividual variability in neurocognitive test performance, has been identified as a potential behavioral marker of HAND; however, the specificity of dispersion to HAND and how it is influenced by participant effort when taking neurocognitive tests remain unclear. METHOD: Data were analyzed from 996 (474 HIV-, 522 HIV+) men enrolled in the Multicenter AIDS Cohort Study (MACS). Dispersion was calculated based on the standard deviation of an individual's test scores within a single assessment. Effort was determined using the Visual Analogue Effort Scale. Predictors of dispersion were determined using stepwise linear regression. Dispersion was compared between the HIV serostatus groups using analysis of covariance (ANCOVA), considering demographic and psychosocial variables that differed between the groups. RESULTS: Contrary to our hypothesis, dispersion was not influenced by effort. Instead, poorer neurocognitive ability and race were the sole predictors of dispersion. Dispersion did not differ between the serostatus groups. CONCLUSIONS: Our results indicate that dispersion is a valid indicator of neurocognitive dysfunction that is not due to suboptimal effort; however, it is not specific to HIV and is therefore of limited utility as a behavioral marker of HIV-related neurocognitive impairment.


HIV-Associated Neurocognitive Disorder (HAND) is an emergent public health issue in developed countries. Consequently, people living with HIV who experience HAND will increasingly require support from community-based HIV service providers. The objective of our qualitative study was to identify barriers service providers face in addressing HAND among people living with HIV. Thirty-three providers from 22 AIDS service organizations across Ontario, Canada, were interviewed. Using thematic analysis, three types of barriers were identified: (a) personal/professional, (b) service access, and (c) systemic. This paper draws attention to HAND-related obstacles that service providers encounter in their work and presents options to overcome them. [ABSTRACT FROM AUTHOR]


OBJECTIVE: This study examined the effects of HIV infection, methamphetamine dependence and their interaction on cortical thickness, area and volume, as well as the potential interactive effects on cortical morphometry of HIV and methamphetamine with age. METHOD: T1-weighted structural images were obtained on a 3.0T General Electric MR750 scanner. Freesurfer v5.3.0 was used to derive cortical thickness, area and volume measures in thirty-four regions based on Desikan-Killiany atlas labels. RESULTS: Following correction for multiple statistical tests, HIV diagnosis was not significantly related to cortical thickness or area in any ROI, although smaller global cortical area and volume were seen in those with lower nadir CD4 count. HIV diagnosis, nevertheless, was associated with smaller mean cortical
volumes in rostral middle frontal gyrus and in the inferior and superior parietal lobes. Methamphetamine dependence was significantly associated with thinner cortex especially in posterior cingulate gyrus, but was not associated with cortical area or volume following correction for multiple statistical tests. We found little evidence that methamphetamine dependence moderated differences in cortical area, volume or thickness for any ROI in the HIV seropositive group. Interactions with age revealed that HIV diagnosis attenuated the degree of age-related cortical thinning seen in non-infected individuals; intercepts indicated that young HIV seropositive individuals had thinner cortex than non-infected peers. CONCLUSIONS: Methamphetamine dependence does not appear to potentiate a reduction of cortical area, volume or thickness in HIV seropositive individuals. The finding of thinner cortex in young HIV seropositive individuals and the association between CD4 nadir and global cortical area and volume argue for prioritizing early antiretroviral treatment.


OBJECTIVES: People living with HIV (PLWH) are more likely to report sleep difficulties and cognitive deficits. While cognitive impairment associated with sleep problems have been found in healthy and medical populations, less is known about the effects of poor sleep health (SH) on cognition among PLWH. This study examined differences in cognitive performance among participants classified based upon their HIV status and reported SH. METHODS: One hundred sixteen (N=116) adults recruited from the Greater Los Angeles community were administered a comprehensive cognitive test battery and completed a questionnaire about SH. Participants were classified into the following HIV/SH groups: [HIV+/good sleep health (SH+; n=34); HIV-/SH+ (n=32); HIV-/poor sleep health (SH-; n=18) and HIV+/SH- (n=32)]. RESULTS: For both HIV+ and HIV- individuals, poor SH was associated with lower cognitive performance, with the domains of learning and memory driving the overall relationship. The HIV+/SH- group had poorer scores in domains of learning and memory compared to the SH+ groups. Additionally, the HIV-/SH- group demonstrated poorer learning compared to the HIV-/SH+ group. CONCLUSIONS: Our findings suggest that sleep problems within medical populations are relevant to cognitive functioning, highlighting the clinical and scientific importance of monitoring sleep health and cognition to help identify individuals at greatest risk of poor health outcomes. Longitudinal investigations using both objective and subjective measures of sleep are needed to determine the robustness of the current findings and the enduring effects of poor SH in the context of chronic disease. (JINS, 2018, 24, 1038-1046).


ABSTRACT Objective: We evaluated the association between cognitive deficits and leukocyte telomere length (LTL) in HIV-1-infected individuals. Design: 73 HIV-1-infected patients undergoing neuropsychological evaluation and 91 healthy controls were included in this study. Fifteen HIV-1 positive patients did not have cognitive disorders whereas 26 had asymptomatic neurocognitive disorder (ANI), 13 presented mild to moderate neurocognitive disorder (MND), and 10 had HIV-associated dementia (HAD). Methods: DNA from the peripheral blood of HIV-1-infected patients was used for measurement of telomere length by real-time PCR. HIV-1 viral load was determined in blood. Results: LTL decreased with age in healthy controls (p=0.0001). Regardless of the HIV status, age-matched LTL from HIV patients, including those with ANI and MND, were shortened in comparison to the healthy control group (p=0.0073); however, no association was found among the HIV-1-infected individuals with cognitive deficits (p=0.01). In addition, no gender-related association with LTL was observed (p=0.80), smoking, physical exercise, and plasma viral load were not correlated to telomere length (p=0.66). Conclusions: We concluded that leukocyte telomere length may not be a marker of cellular senescence in individuals with HIV infection and neurocognitive disorders.

The Veterans Aging Cohort Study (VACS) Index is a composite marker of multisystem injury among HIV-infected persons. We aimed to examine its cross-sectional association with functional outcomes, after considering neurocognitive impairment (NCI) and other well-established correlates of everyday functioning among HIV-infected persons. Participants included 670 HIV-infected adults (ages 18-76; 88% male; 63% non-Hispanic White; median current CD4 = 404 cells/mm(3); 67% on antiretroviral therapy; AIDS = 63%) enrolled in observational studies at the University of California San Diego HIV Neurobehavioral Research Program. Functional outcomes were assessed via self-report measures of declines in activities of daily living, perceived cognitive symptoms in daily life, and employment status. NCI was assessed via a comprehensive neurocognitive test battery and defined based on established methods. Covariates examined included demographics, HIV disease characteristics not included in the VACS Index, and psychiatric comorbidities. The VACS Index was computed via standard methods and categorized based on its distribution. Results from multivariable regression models showed that both higher VACS Index scores (indicative of worse health) and the presence of NCI were independently associated with declines in activities of daily living, increased cognitive symptoms in daily life, and unemployment. These independent effects remained after adjusting for significant covariates. In conclusion, the VACS Index may be a useful tool for identifying HIV-infected patients at high risk for everyday functioning problems. Considering factors such as NCI, historical HIV disease characteristics, and current mood might be particularly important to enhance the predictive power of the VACS Index for functional status among HIV-infected persons.


Peripheral neuropathy is a common condition of human immunodeficiency virus (HIV)-infected patients, which often remains undetected. We assessed the performance of stimulated skin wrinkling-eutectic mixture of local anesthetic (SSW-EMLA) test compared with brief peripheral neuropathy screening (BPNS) to detect HIV neuropathy. This is a cross-sectional study conducted in HIV-positive patients. A modified skin wrinkling grading was used to assess SSW-EMLA effect. BPNS-detectable neuropathy was assessed by a combination of neuropathy severity scoring scale (subjective) and objective method of sensory and tendon reflex examination. The SSW-EMLA test accuracy with reference to BPNS was assessed using sensitivity and specificity and predictive values. In a total of 99 HIV patients, 61.6% were males and the majority age group were between 30 and 40 years (52%). The neuropathy detection was SSW-EMLA test 36.4% versus BPNS 15.2% (P = .04). The sensitivity of SSW-EMLA test was 60.0% [95% confidence interval (95% CI) 34.5-81.7], specificity 67% (95% CI 63.3-71.7), and overall accuracy of 66.7% (95% CI 58.9-73.2). The SSW-EMLA test detected many more peripheral neuropathy cases than BPNS in HIV patients and has potential as an alternative test for screening for HIV neuropathy in resource-constraint hospitals in Indonesia.

BACKGROUND AND PURPOSE: Validated neuroimaging markers of HIV-associated neurocognitive disorder in patients on antiretroviral therapy are urgently needed for clinical trials. The purpose of this study was to explore the relationship between cognitive impairment and brain metabolism in older subjects with HIV infection. It was hypothesized that MR spectroscopy measurements related to neuronal health and function (particularly N-acetylaspartate and glutamate) would be lower in HIV-positive subjects with worse cognitive performance. MATERIALS AND METHODS: Forty-five HIV-positive patients (mean age, 58.9 +/- 5.3 years; 33 men) underwent detailed neuropsychological testing and brain MR spectroscopy at 7T. Twenty-four subjects were classified as having asymptomatic cognitive impairment, and 21 were classified as having symptomatic cognitive impairment. Single-voxel proton MR spectra were acquired from 5 brain regions and quantified using LCModel software. Brain metabolites and neuropsychological test results were compared using nonparametric statistics and Pearson correlation coefficients. RESULTS: Differences in brain metabolites were found between symptomatic and asymptomatic subjects, with the main findings being lower measures of N-acetylaspartate in the frontal white matter, posterior cingulate cortex, and precuneus. In the precuneus, glutamate was also lower in the symptomatic group. In the frontal white matter, precuneus, and posterior cingulate cortex, NAA and glutamate measurements showed significant positive correlation with better performance on neuropsychological tests. CONCLUSIONS: Compared with asymptomatic subjects, symptomatic HIV-positive subjects had lower levels of NAA and glutamate, most notably in the frontal white matter, which also correlated with performance on neuropsychological tests. High-field MR spectroscopy offers insight into the pathophysiology associated with cognitive impairment in HIV and may be useful as a quantitative outcome measure in future treatment trials.


Grit and ambition are psychological factors that may protect neurocognitive function among persons living with HIV (PLWH). We examined associations between grit, ambition, premorbid verbal intellectual function, and current neurocognitive and everyday functioning among PLWH and persons without HIV (HIV-). 120 PLWH and 94 HIV- adults completed the Grit Scale (includes total score and consistency of interests and perseverance of effort subscales), ambition scale, and a comprehensive neurobehavioral battery. PLWH had lower grit scores than HIV- adults. The two groups did not differ on ambition. No relationship was observed between grit and cognition among HIV- adults. Among PLWH, however, higher perseverance of effort and more ambition was related to better global neurocognitive functioning, and higher grit, but not ambition, was related to independence in daily functioning. Longitudinal studies are needed to elucidate these relationships over time and examine whether grit or ambition have protective effects on cognitive outcomes among PLWH.


With aging of HIV populations, there is concern that Alzheimer's disease (AD) may become prevalent and difficult to distinguish from HIV-associated neurocognitive disorders. To date, there are no reports documenting histologically verified Alzheimer's neuropathology in individuals with HIV and dementia. Herein, we report two antiretroviral-treated, virally suppressed, HIV-infected individuals autopsied by the Manhattan HIV Brain Bank. Subject A
presented to study at 52 years, already dependent in instrumental activities of daily living (ADLs), with severe cognitive impairment inclusive of learning and memory dysfunction. Her history was significant for educational disability and head trauma. She had rapid cognitive decline and, by death at age 59 years, was bed-bound, incontinent, and non-communicative. At autopsy, she exhibited severe AD neuropathologic change (NIA-AA score A3B3C3) and age-related tau astrogliopathy (ARTAG). She was homozygous for APOE epsilon3/epsilon3. No HIV DNA was detected in frontal lobe by nested polymerase chain reaction. Subject B was a community dwelling 81-year-old woman who experienced sudden death by pulmonary embolus. Prior to death, she was fully functional, living independently, and managing all ADLs. At autopsy, she displayed moderate amyloid and severe tau AD neuropathologic changes (A2B3C2), ARTAG, and cerebral congophilic angiopathy. She was an APOE epsilon3/epsilon4 heterozygote, and HIV DNA, but not RNA, was detected in frontal lobe, despite 20 years of therapy-induced viral suppression. We conclude that in the setting of HIV, AD neuropathology may occur with or without symptomatic cognitive dysfunction; as with seronegative individuals, there are likely to be complex factors in the generation of clinically relevant impairments.


Background: Silent cerebral small-vessel disease (CSVD) is defined as white matter hyperintensities, silent brain infarction, or microbleeds. CSVD is responsible for future vascular events, cognitive impairment, frailty, and shorter survival. CSVD prevalence among middle-aged people living with well-controlled human immunodeficiency virus (HIV) infection (PLHIV) is unknown. Methods: The French National Agency for Research on AIDS and Viral Hepatitis (ANRS) EPS1 Microvascular Brain Retina and Kidney Study (MicroBREAK; NCT02082574) is a cross-sectional study with prospective enrollment of treated PLHIV, >/=50 years old with viral load controlled for >/=12 months, and frequency age- and sex-matched HIV-uninfected controls (HUCs). It was designed to estimate CSVD prevalence on 3T magnetic resonance imaging (3D fluid-attenuated inversion recovery, transversal T2-weighted gradient-echo imaging and diffusion-weighted imaging), as diagnosed by 2 blinded neuroradiologists. A logistic regression model was used to assess the impact of HIV on CSVD after adjustment for traditional risk factors. Results: Between June 2013 and May 2016, 456 PLHIV and 154 HUCs were recruited. Median age was 56 and 58 years, respectively (P = .001), among whom 84.9% and 77.3%, respectively (P = .030), were men. CSVD was detected in 51.5% of PLHIV and 36.4% of HUCs with an adjusted odds ratio (aOR) of 2.3. The HIV impact differed according to age, with aOR values of 5.3, 3.7, and 1.0 for age groups <54, 54-60, and >60 years, respectively (P = .022). Older age, hypertension, and lower CD4 cell count nadir were independently associated with a higher risk of CSVD among PLHIV. Conclusions: HIV is an independent risk factor for CSVD. Despite sustained immunovirological control, the CSVD prevalence was twice as high among middle-aged PLHIV than HUCs. Clinical Trials Registration: NCT02082574.


BACKGROUND AND PURPOSE: The aging HIV-infected (HIV(+)) population has increased vascular comorbidities, including stroke, and increased cognitive deficits compared with the general population. Arterial spin-labeling is a technique to measure cerebral blood flow and is more sensitive than regional volume loss in assessing neurodegenerative diseases and cognitive aging. Previous studies have found global cerebral perfusion abnormalities in the HIV(+) participants. In this study, we evaluated the specific regional pattern of CBF abnormalities in older HIV(+) participants using quantitative whole-brain arterial spin-labeling. MATERIALS AND METHODS: CBF data from the UCSF HIV Over 60 Cohort and the Alzheimer Disease Neuroimaging Initiative were retrospectively evaluated to identify 19
HIV(+) older adults, all with plasma viral suppression (including 5 with HIV-associated neurocognitive disorder); 13 healthy, age-matched controls; and 19 participants with early mild cognitive impairment. CBF values were averaged by ROI and compared among the 3 groups using generalized linear models. RESULTS: When we accounted for age, education, sex, and vascular risk factors, the HIV(+) participants demonstrated alterations in regional cerebral perfusion, including hypoperfusion of bilateral temporal, parietal, and occipital brain regions compared with both clinically healthy participants and those with mild cognitive impairment. Arterial spin-labeling showed reasonable test characteristics in distinguishing those with HIV-associated neurocognitive disorder from healthy controls and participants with mild cognitive impairment. CONCLUSIONS: This study found specific CBF patterns associated with HIV status despite viral suppression-data that should animate further investigations into the pathobiologic basis of vascular and cognitive abnormalities in HIV-associated neurocognitive disorders.


Objective: Peripheral neuropathy (PN) is a common complication of HIV. There is increasing awareness that some forms of PN, particularly small-fiber neuropathies, can be associated with chronic widespread pain syndromes. Given the high prevalence of both PN and chronic pain in HIV, we sought to determine whether patients with a diagnosis of HIV-PN were more likely to experience other chronic pain syndromes. Methods: Data were obtained from the Clinical Data Warehouse maintained by our institution. All HIV-infected patients receiving standard of care antiretroviral therapy in our institution's primary care HIV clinic (N = 638) were included. Diagnoses of HIV-PN and other chronic pain disorders were established based on clinician-assigned ICD-9/10 codes. Results: Sixty-eight patients (11%) had a diagnosis of HIV-PN. Patients with HIV-PN were more than twice as likely to have other chronic pain disorders (66% vs 32%, chi2 = 30.3, P < 0.001). Patients with HIV-PN were also older and more likely to have substance use and psychiatric disorders; however, the association of HIV-PN with other chronic pain disorders persisted after adjusting for relevant confounders (chi2(5) = 81.38, P < 0.001). Conclusions: Patients with HIV-PN commonly experience other chronic pain disorders. Clinicians managing HIV-PN should seek a broad understanding of patients' pain experience as this may alter management strategies. Researchers studying HIV-PN should consider how the presence of other pain disorders might affect outcomes.


Neurocognitive impairments associated with human immunodeficiency virus (HIV) infection remain a considerable health issue for almost half the people living with HIV, despite progress in HIV treatment through combination antiretroviral therapy (cART). The pathogenesis and risk factors of HIV-associated neurocognitive disorder (HAND) are still incompletely understood. This is partly due to the complexity of HAND diagnostics, as phenotypes present with high variability and change over time. Our current understanding is that HIV enters the central nervous system (CNS) during infection, persisting and replicating in resident immune and supporting cells, with the subsequent host immune response and inflammation likely adding to the development of HAND. Differences in host (human) genetics determine, in part, the effectiveness of the immune response and other factors that increase the vulnerability to HAND. This review describes findings from studies investigating the role of human host genetics in the pathogenesis of HAND, including potential risk factors for developing HAND. The similarities and differences between HAND and Alzheimer's disease are also discussed. While some specific variations in host genes regulating immune responses and neurotransmission have been associated with protection or risk of HAND development, the effects are generally small
and findings poorly replicated. Nevertheless, a few specific gene variants appear to affect the risk for developing HAND and aid our understanding of HAND pathogenesis.


OBJECTIVE: To evaluate the association between a frailty index (i.e., scale of accumulated deficits) and neurocognitive functioning among persons living with HIV/AIDS (PLWHA). METHODS: Observational, cross-sectional data were gathered from the University of California, San Diego, HIV Neurobehavioral Research Program from 2002 to 2016. Eight hundred eleven PLWHA aged 18 to 79 years completed comprehensive physical, neuropsychological, and neuromedical evaluations. The frailty index was composed of 26 general and HIV-specific health maintenance measures, and reflects the proportion of accumulated deficits from 0 (no deficits) to 1 (all 26 deficits). Multiple linear regression was used to examine the association between continuous frailty index scores and neurocognitive functioning. RESULTS: Participants had a mean age of 44.6 years (11.2), and were mostly male (86.9%) and white (60.2%) with a mean frailty index of 0.26 (0.11). Over the study period, prevalence of HIV-related components (e.g., low CD4) decreased, while non-HIV comorbidities (e.g., diabetes) increased. There were no changes in the frailty index by study year. Higher frailty index was associated with worse global neurocognitive functioning, even after adjusting for covariates (age, employment, and premorbid intellectual functioning; b = -0.007; 95% confidence interval [CI] = -0.0112 to -0.003; p < 0.001). The cognitive domains of verbal fluency (b = -0.004; 95% CI = -0.006 to -0.002), executive functioning (b = -0.004; 95% CI = -0.006 to -0.002), processing speed (b = -0.005; 95% CI = -0.007 to -0.003), and motor skills (b = -0.006; 95% CI = -0.007 to -0.005) also significantly predicted worse frailty index score (p values <0.001). CONCLUSION: A frailty index can standardize how clinicians identify PLWHA who may be at higher risk of neurocognitive impairment.


With the advent of combination antiretroviral therapies, the mortality rate from HIV has declined, while the prevalence of long-term HIV-related neurologic complications continues to rise. Thirty-six million individuals are living with HIV around the world, many of whom reside in resource-limited settings. The majority of studies have focused on individuals residing in the developed world, while the impact of HIV disproportionately affects people living in developing countries. This review focuses on recent domestic and international studies regarding neurologic complications related to HIV, including opportunistic infections, peripheral neuropathy, cerebrovascular disease, and HIV-associated neurocognitive disorders, in light of the growing population affected by these conditions.


Cognitive impairments seen in people living with HIV (PLWH) are associated with difficulties in everyday functioning, specifically driving. This study utilized speed of processing cognitive remediation therapy (SOP-CRT) with transcranial direct current stimulation (tDCS) to gauge the feasibility and impact on simulated driving. Thirty PLWH (M age = 54.53, SD = 3.33) were randomly assigned to either: sham tDCS SOP-CRT or active tDCS SOP-CRT. Seven indicators of simulated driving performance and safety were obtained. Repeated measures ANOVAs controlling for driver’s license status (valid and current license or expired/no license) revealed a large training effect on average driving speed. Participants who received active tDCS SOP-CRT showed a slower average driving speed (p = 0.020, d = 0.972) than those who received sham tDCS SOP-CRT. Non-significant small-to-medium effects were seen for driving violations, collisions,
variability in lane positioning, and lane deviations. Combination tDCS SOP-CRT was found to increase indices of cautionary simulated driving behavior. Findings reveal a potential avenue of intervention and rehabilitation for improving driving safety among vulnerable at-risk populations, such as those aging with chronic disease. [ABSTRACT FROM AUTHOR]


The NEUrocognitive (NEU) Screen is a practical tool proposed to screen for HIV-associated cognitive impairment in the clinical setting. This is a pencil-and-paper method that can be applied rapidly (<10 minutes for administration) and has no copyright limitations. In this study, we aimed at investigating its diagnostic accuracy in an older population of persons living with HIV (PLWH), with cutoffs set at 30, 40, 50, and 60 years. Data were collected from a sample of 368 PLWH who underwent a comprehensive neuropsychological tests battery (gold standard). Results of statistical tests showed that accuracy of the NEU Screen increased with age of the participants. The highest degree of precision, with a sensitivity of 91% and specificity of 92%, was obtained for people ages 60 years or older (correct classification: 91%). These optimal results point to the great potential of the NEU Screen as a tool for detecting cognitive disorders in older PLWH.


We previously reported that galec tin-9 (Gal-9), a soluble lectin with immunomodulatory properties, is elevated in plasma during HIV infection and induces HIV transcription. The link between Gal-9 and compromised neuronal function is becoming increasingly evident; however, the association with neuroHIV remains unknown. We measured Gal-9 levels by ELISA in cerebrospinal fluid (CSF) and plasma of 70 HIV-infected (HIV+) adults stratified by age (older > 40 years and younger < 40 years) either ART suppressed or with detectable CSF HIV RNA, including a subgroup with cognitive assessments, and 18 HIV uninfected (HIV-) controls. Gal-9 tissue expression was compared in necropsy brain specimens from HIV- and HIV+ donors using gene datasets and immunohistochemistry. Among older HIV+ adults, CSF Gal-9 was elevated in the ART suppressed and CSF viremic groups compared to controls, whereas in the younger group, Gal-9 levels were elevated only in the CSF viremic group (p < 0.05). CSF Gal-9 positively correlated with age in all groups (p < 0.05). CSF Gal-9 tracked with CSF HIV RNA irrespective of age (beta = 0.33; p < 0.05). Higher CSF Gal-9 in the older viremic HIV+ group correlated with worse neuropsychological test performance scores independently of age and CSF HIV RNA (p < 0.05). Furthermore, CSF Gal-9 directly correlated with myeloid activation (CSF-soluble CD163 and neopterin) in both HIV+ older groups (p < 0.05). Among HIV+ necropsy specimens, Gal-9 expression was increased in select brain regions compared to controls (p < 0.05). Gal-9 may serve as a novel neuroimmuno-modulatory protein that is involved in driving cognitive deficits in those aging with HIV and may be valuable in tracking cognitive abnormalities.


BACKGROUND: Neurocognitive impairment is a frequent and often disabling comorbidity of HIV infection. In addition to antiretroviral therapies, individuals with HIV infection may commonly use nonantiretroviral medications that are known to cause neurocognitive adverse effects (NC-AE). The contribution of NC-AE to neurocognitive impairment is rarely considered in the context of HIV and could explain part of the variability in neurocognitive performance among...
individuals with HIV. SETTING: Women's Interagency HIV Study, a prospective, multisite, observational study of US women with and without HIV. METHODS: After a literature review, 79 medications (excluding statins) with NC-AE were identified and reported by Women's Interagency HIV Study participants. We examined factors associated with self-reported use of these medications over a 10-year period. Generalized estimating equations for binary outcomes were used to assess sociodemographic, behavioral, and clinical characteristics associated with NC-AE medication use. RESULTS: Three thousand three hundred women (71% with HIV) and data from approximately 42,000 visits were studied. HIV infection was associated with NC-AE medication use (odds ratio = 1.52; 95% confidence interval: 1.35 to 1.71). After adjustment for HIV infection status, other predictors of NC-AE medication use included having health insurance, elevated depressive symptoms, prior clinical AIDS, noninjection recreational drug use, and an annual household income of <$12,000 (Ps < 0.004). NC-AE medication use was less likely among women who drank 1-7 or 8-12 alcoholic drinks/week (vs. abstaining) (P < 0.04). CONCLUSIONS: HIV infection was associated with NC-AE medication use, which may influence determinations of HIV-associated neurocognitive impairment. Providers should consider the impact of NC-AE medications when evaluating patients with HIV and concurrent neurocognitive symptoms.


OBJECTIVES: To investigate longitudinal associations between polypharmacy and cognitive and physical capability and to determine whether these associations differ with cumulative exposure to polypharmacy. DESIGN: Prospective birth cohort study. SETTING: England, Scotland, and Wales. PARTICIPANTS: An eligible sample of men and women from the Medical Research Council National Survey of Health and Development with medication data at age 69 (N=2,122, 79%). MEASUREMENTS: Cognitive capability was assessed using a word learning test, visual search speed task, and the Addenbrooke's Cognitive Examination, Third Edition (ACE-III). Physical capability was measured using chair rise speed, standing balance time, walking speed, and grip strength. RESULTS: Polypharmacy (5-8 prescribed medications) was present in 18.2% of participants at age 69 and excessive polypharmacy (>=9 prescribed medications) in 4.7%. Both were associated with poorer cognitive and physical capability in models adjusted for sex, education, and disease burden. Stronger associations were found for excessive polypharmacy (e.g., difference in mean ACE-III scores comparing polypharmacy=-2.0, 95% CI=-2.8 to -1.1 and excessive polypharmacy=-2.9, 95% CI=-4.4 to -1.4 with no polypharmacy). Participants with polypharmacy at age 60 to 64 and at age 69 showed stronger Negative associations with cognitive and physical capability were stronger still in participants with polypharmacy at both age 60 to 64 and at age 69 (e.g. difference in mean chair rise speed, comparing polypharmacy with no polypharmacy at both ages=-3.9, 95% CI=-5.2 to -2.6 and at age 60-64 only=-2.5, 95% CI=-4.1 to -0.9). CONCLUSION: Polypharmacy at age 60 to 64 and age 69 was associated with poorer physical and cognitive capability, even after adjusting for disease burden. Stronger negative associations were seen in participants with longstanding polypharmacy, suggesting a cumulative, dose-dependent relationship (where dose is the number of prescribed medications). Future research aiming to improve cognitive and physical capability should consider interventions to reduce the duration and level of polypharmacy at younger ages, in addition to optimizing disease control with appropriate medications.


BACKGROUND AND PURPOSE: Human immunodeficiency virus (HIV)-infected patients commonly have abnormalities in cerebral white matter that are visible on magnetic resonance imaging (MRI) as hyperintensities (WMHs). Visual rating scales (VRSs) have been used to quantify WMH in other diseases such as cerebral small vessel disease (CSVD), but not in HIV. Such scales are advantageous because they are applicable to routinely acquired MRIs and
so are suitable for large-scale studies and clinical care. We sought to establish the utility of three VRSs (the Fazekas, Scheltens, and van Sweijen scales) in HIV. METHODS: The Manhattan HIV Brain Bank (MHBB) is a longitudinal cohort study that performs serial neurologic examinations and neuropsychological testing. All brain MRIs (n = 73) performed for clinical purposes on MHBB participants were scored using the three VRSs. We assessed reliability, validity, and correlation of the VRS with clinical factors relevant to HIV and CSVD. RESULTS: The VRSs all showed acceptable internal consistency and interrater reliability and were highly correlated with one another (r = 0.836-0.916, P < .001). The Fazekas and Scheltens scales demonstrated more WMH in periventricular regions, and the Scheltens scale also suggested a frontal to occipital gradient, with greater WMH frontally. All three VRSs correlated significantly with cognitive impairment (global T score). Age and hepatitis C virus antibody serostatus were the strongest clinical/demographic correlates of WMH, followed by African-American race. CONCLUSIONS: VRSs reliably quantify WMH in HIV-infected individuals and correlate with cognitive impairment. Future studies may find routinely acquired brain MRI quantified by VRS to be an accessible and meaningful neurologic outcome measure in HIV.


Importance: Despite the introduction of combination antiretroviral therapy (cART), HIV-associated neurocognitive disorders continue to be a problem for treated HIV-positive individuals. The cause of this impairment remains unclear. Objective: To determine if detectable brain changes occur during a 2-year period in HIV-positive individuals who were aviremic and treated with cART. Design, Setting, and Participants: In this longitudinal case-control study, participants underwent neuroimaging and neuropsychological assessment approximately 2 years apart. Data were collected from October 26, 2011, to March 1, 2016. Data from 92 HIV-positive individuals were acquired at Washington University in St Louis from ongoing studies conducted in the infectious disease clinic and AIDS Clinical Trial Unit. A total of 55 HIV-negative control participants were recruited from the St Louis community and a research participant registry. A total of 48 HIV-positive individuals who were aviremic and treated with cART and 31 demographically similar HIV-negative controls met the study requirements and were included in the analyses. Main Outcomes and Measures: Brain volumes were extracted with tensor-based and voxel-based morphometry and cortical modeling. Raw scores from neuropsychological tests quantified cognitive performance. Multivariable mixed-effects models assessed the effect of HIV serostatus on brain volumes and cognitive performance, and determined if HIV serostatus affected how these measures changed over time. With HIV-positive participants, linear regression models tested whether brain volumes and cognitive performance were associated with measures of infection severity and duration of infection. Results: The 2 groups were demographically similar (HIV-positive group: 23 women and 25 men; mean [SD] age, 47.7 [13.2] years; mean [SD] educational level, 13.3 [3.4] years; and HIV-negative group, 16 women and 15 men; mean [SD] age, 51.2 [12.9] years; mean [SD] educational level, 14.5 [2.1] years). The HIV-positive participants had poorer neuropsychological test scores compared with controls on the Trail Making Test Part A (5.9 seconds; 95% CI, 1.5-10.3; P = .01), Trail Making Test Part B (27.3 seconds; 95% CI, 15.0-39.6; P < .001), Digit Symbol Substitution Task (-12.5 marks; 95% CI, -18.9 to -6.0; P < .001), Letter-Number Sequencing (-2.5 marks; 95% CI, -3.7 to -1.3; P < .001), Letter Fluency (-6.6 words; 95% CI, -11.5 to -1.6; P = .01), and Hopkins Verbal Learning Test-Revised immediate recall (-2.4 words; 95% CI, -4.4 to -0.4; P = .05), after adjusting for age, sex, and educational level. Only changes in Trail Making Test Part A significantly differed between the groups. Cortical thickness and subcortical volumes were smaller in HIV-positive individuals compared with controls. However, changes in brain volume over time were similar between the groups. Conclusions and Relevance: These findings are consistent with the idea that cognitive and structural brain changes may occur early after seroconversion, and argue that maintaining aviremia with cART can prevent or minimize progressive brain injury.

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This study examines the importance of four psychosocial factors-personality, cognitive appraisal of quality of life, social support, and current reserve-building-in predicting treatment burden in chronically ill patients. Chronically ill patients (n = 446) completed web-based measures. Structural equation modeling was used to investigate psychosocial factors predicting treatment burden. Reserve-building activities indirectly reduced treatment burden by: (1) reducing health worries appraisals, (2) reducing financial difficulties, (3) increasing calm and peaceful appraisals, and (4) increasing perceived social support. These findings point to key behaviors that chronically ill people can use to attenuate their treatment burden.


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.


The article presents the clinical problem of a 13-year-old HIV infected boy with continued neurological damage despite the administration of antiretroviral therapy (ART). Topics mention including the activaiton of microglial cells infected with HIV, opportunistic infections both non viral and viral and initiation of highly active antiretroviral therapy (HAART).


The increasing prevalence of older adults living with HIV has raised growing concerns about a possible rise in the incidence of neurocognitive disorders due to HIV and other age-related factors. In typical aging, subjective cognitive impairment (SCI) among individuals with normal neurocognitive functioning may be an early manifestation of an incipient neurocognitive disorder. The current study examined the frequency and correlates of SCI in 188 HIV-infected adults without performance-based neurocognitive deficits or a current psychiatric disorder and 133 HIV seronegative comparison participants. All participants completed the Prospective and Retrospective Memory Questionnaire and Profile of Mood States Confusion/Bewilderment scale. Consistent with the diagnostic criteria proposed by Jessen et al. (Alzheimers Dement 10(6):844-852, 2014), participants were classified with SCI if their scores on either of the self-
A logistic regression controlling for current mood complaints and lifetime history of substance use disorders revealed that HIV infection increased the odds of SCI (odds ratio= 4.5 [1.6, 15.4], p = 0.004). Among HIV+ individuals, SCI was associated with lower performance-based learning and delayed memory scores (Cohen's d range 0.41-0.42.) and poorer global everyday functioning (odds ratio= 8.5 [2.6, 15.9]), but not HIV disease severity (ps > 0.10). In a sample of individuals without neurocognitive impairment or elevated mood symptoms, HIV disease was associated with a nearly fivefold increased odds of SCI compared to seronegative individuals, which may indicate an increased risk for developing major neurocognitive disorders as these HIV+ individuals age.


Understanding why persons with HIV (PWH) have accelerated atherosclerosis and its sequelae, including coronary artery disease (CAD) and myocardial infarction (MI), is necessary to provide appropriate care to a large and aging HIV population. In this review, we delineate the diverse pathophysiologicals underlying HIV-associated CAD and discuss how these are implicated in the clinical manifestations of CAD among PWH. Several factors contribute to HIV-associated CAD, with chronic inflammation and immune activation likely representing the primary drivers. Increased monocyte activation, inflammation, and hyperlipidemia present in chronic HIV infection also mirror the pathophysiology of plaque rupture. Furthermore, mechanisms central to plaque erosion, such as activation of toll-like receptor 2 and formation of neutrophil extracellular traps, are also abundant in HIV. In addition to inflammation and immune activation in general, PWH have a higher prevalence than uninfected persons of traditional cardiovascular risk factors, including dyslipidemia, hypertension, insulin resistance, and tobacco use. Antiretroviral therapies, while clearly necessary for HIV treatment and survival, have had varied effects on CAD, but newer generation regimens have reduced cardiovascular toxicities. From a clinical standpoint, this mix of risk factors is implicated in earlier CAD among PWH than uninfected persons; whether the distribution and underlying plaque content of CAD for PWH differs considerably from uninfected persons has not been definitively studied. Furthermore, the role of cardiovascular risk estimators in HIV remains unclear, as does the role of traditional and emerging therapies; no trials of CAD therapies powered to detect clinical events have been completed among PWH.

HIV-infected adults have greater risks for atherosclerosis, thrombosis, and coronary artery disease than uninfected persons. Persistent inflammation and immune activation appear to be the primary drivers of these elevated risks and may lead to coronary artery disease manifesting earlier and in somewhat different manner than for uninfected persons. More studies are needed to better define the pathophysiology, clinical course, and effective therapies for HIV-related coronary artery disease.


Marijuana use is disproportionately prevalent among HIV-infected individuals. The strongest neurocognitive effect of marijuana use is impairment in the domain of memory. Memory impairment is also high among HIV-infected persons. The present study examined 69 HIV-infected individuals who were stratified by age of regular marijuana initiation to investigate how marijuana use impacts neurocognitive functioning. A comprehensive battery assessed substance use and neurocognitive functioning. Findings indicated early onset marijuana users (regular use prior to age 18), compared to non-marijuana users and late onset marijuana users (regular use at age 18 or later), were over 8 times more likely to have learning impairment and nearly 4 times more likely to have memory impairment. A similar pattern of early onset marijuana users performing worse in learning emerged when examining domain deficit scores. The potential
for early onset of regular marijuana use to exacerbate already high levels of memory impairment among HIV-infected persons has important clinical implications, including increased potential for medication non-adherence and difficulty with independent living.


Human immunodeficiency virus (HIV)-associated neurocognitive disorder (HAND) affects roughly half the HIV-positive population. The symptoms of cognitive slowing, poor concentration, and memory problems can impact on everyday life. Its diagnosis is validated where possible by identifying deficits in two cognitive domains on neuropsychologic testing in patients either with or without symptoms. Corroborating evidence may be found on imaging, blood tests, and cerebrospinal fluid analysis, though sensitive and specific biomarkers are currently lacking. The introduction of combined antiretroviral therapy in the 1990s has generated a therapeutic paradox whereby the number of severe cases of HAND has fallen, yet milder forms continue to rise in prevalence. New emphasis has been placed on identifying the cause of apparent ongoing HIV infection and inflammation of the central nervous system (CNS) in the face of durable systemic viral suppression, and how this equates to the neuronal dysfunction underlying HAND. The interaction with aging and comorbidities is becoming increasingly common as the HIV-positive population enters older adulthood, with neurodegenerative, metabolic, and vascular causes of cognitive impairment combining and probably accelerating in the context of chronic HIV infection. Therapies targeted to the CNS, but without neurotoxic side-effects, are being investigated to attempt to reduce the likelihood of developing, and improving, HAND.


OBJECTIVE: Antiretroviral therapy (ART) is currently recommended for all persons living with HIV (PLWH), regardless of their CD4 T-cell count, and should be continued throughout life. Nonetheless, vigilance of the safety of ART, including its neurotoxicity, must continue. We hypothesized that use of certain ART drugs might be associated with aging-related cerebral degenerative changes among PLWH. DESIGN: Clinicopathological study of PLWH who were using ART drugs at the last clinical assessment. METHODS: Using multivariable logistic regression, we tested associations between use of each specific ART drug (with reference to use of other ART drugs) and cerebral degenerative changes including neuronal phospho-tau lesions, beta-amyloid plaque deposition, microgliosis, and astrogliosis in the frontal cortex and putamen (immunohistochemistry), as well as cerebral small vessel disease (CSVD) in the forebrain white matter (standard histopathology), with relevant covariates being taken into account. The Bonferroni adjustment was applied. RESULTS: Darunavir use was associated with higher likelihood of neuronal phospho-tau lesions in the putamen [odds ratio (OR) 15.33, n = 93, P = 0.005]. Ritonavir use was associated with marked microgliosis in the putamen (OR 4.96, n = 101, P = 0.023). On the other hand, use of tenofovir disoproxil fumarate was associated with lower likelihood of beta-amyloid plaque deposition in the frontal cortex (OR 0.13, n = 102, P = 0.012). There was a trend toward an association between emtricitabine use and CSVD (OR 13.64, n = 75, P = 0.099). CONCLUSION: Our findings suggest that PLWH treated with darunavir and ritonavir may be at increased risk of aging-related cerebral degenerative changes.


OBJECTIVE: Individuals with HIV treated with antiretroviral therapy can expect to reach average life span, making them susceptible to combined disease and aging effects on cognitive and motor functions. Slowed processing
speed in HIV is a concern for cognitive and everyday functioning and is sensitive to declines in aging. We hypothesized that information processing (IP) deficits, over and above that expected with normal aging, would occur in older HIV patients similar to those observed in Parkinson's disease (PD) patients, with both conditions affecting frontostriatal pathways. METHOD: Groups comprised 26 individuals with HIV infection, 29 with mild-to-moderate PD, and 21 healthy controls (C). Speed of IP was assessed with the oral version of the Symbol Digit Modalities Test and the color naming condition of the Golden Stroop Task. RESULTS: The HIV group was impaired on speed of IP tasks compared with both the C and PD groups. Even after controlling for normal aging effects, older age in the HIV group correlated with IP slowing. Slower IP speed was associated with poorer general cognitive ability and more extrapyramidal motor signs in older HIV-infected individuals. CONCLUSIONS: The notable effects of impaired IP speed, over and above neurotypical age-related declines, indicate that older HIV-infected individuals may have an enhanced vulnerability for developing nonmotor and motor symptoms despite antiretroviral therapy. Assessing for oral IP speed may provide the unique opportunity to identify early signs of progressive clinical declines in HIV. (PsycINFO Database Record (c) 2018 APA, all rights reserved).


Over half of individuals infected with human immunodeficiency virus (HIV) suffer from HIV-associated neurocognitive disorders (HANDs), yet the molecular mechanisms leading to neuronal dysfunction are poorly understood. Feline immunodeficiency virus (FIV) naturally infects cats and shares its structure, cell tropism, and pathology with HIV, including wide-ranging neurological deficits. We employ FIV as a model to elucidate the molecular pathways underlying HIV-induced neuronal dysfunction, in particular, synaptic alteration. Among HIV-induced neuron-damaging products, HIV envelope glycoprotein gp120 triggers elevation of intracellular Ca²⁺ activity in neurons, stimulating various pathways to damage synaptic functions. We quantify neuronal Ca²⁺ activity using intracellular Ca²⁺ imaging in cultured hippocampal neurons and confirm that FIV envelope glycoprotein gp95 also elevates neuronal Ca²⁺ activity. In addition, we reveal that gp95 interacts with the chemokine receptor, CXCR4, and facilitates the release of intracellular Ca²⁺ by the activation of the endoplasmic reticulum (ER)-associated Ca²⁺ channels, inositol triphosphate receptors (IP3Rs), and synaptic NMDA receptors (NMDARs), similar to HIV gp120. This suggests that HIV gp120 and FIV gp95 share a core pathological process in neurons. We culture feline hippocampal neurons and confirm that gp95-induced neuronal Ca²⁺ overactivation is mediated by CXCR4 and cGKII. Finally, cGKII activation is also required for HIV gp120-induced Ca²⁺ hyperactivation. These results thus provide a novel neurobiological mechanism of cGKII-mediated synaptic hyperexcitation in HAND.


HIV-associated neurocognitive disorder (HAND) is common, but the lived experience of HAND is not well-understood. In this descriptive qualitative study, we explored how adults with HAND view, manage, and obtain support for cognitive difficulties. We interviewed 25 participants (20% female; median age = 51 years) who were diagnosed with HAND using neuropsychological assessment and a clinical interview. Semistructured interviews, codeveloped with community members living with HIV, focused on how cognitive difficulties manifested and progressed, impacted well-being, and were discussed with others. We analyzed interview transcripts using a team-based, thematic approach.
Participants described concentration, memory, and multitasking difficulties that fluctuated over time, as well as potential risk factors, management strategies, and psychosocial consequences. They reported they seldom discussed cognitive impairment with health care professionals, and that receiving a HAND diagnosis was validating, informative, yet somewhat disconcerting. Conversations between health care professionals and people living with HIV about HAND may provide opportunities for education, assessment, and support. [ABSTRACT FROM AUTHOR]


Conventional magnetic-resonance (MR) imaging is not sensitive enough in depicting subtle neurodegenerative changes that occur during chronic HIV infection with good peripheral viral suppression. The aim of this study was to compare brain volumes in HIV-positive subjects with age- and education-matched healthy controls with regard to influence of aging and immunologic parameters. An overall of 65 subjects (40 HIV-positive and 25 age-, gender-, and education-matched healthy subjects) underwent conventional MR imaging with three-dimensional sequence adequate for volumetric measurements. Volumes of specific brain regions were measured and compared between HIV-positive and healthy subjects using Student t test. Correlations between obtained brain volumes and immunologic parameters were determined using Pearson’s correlation test. Influence of age as a covariate was determined using ANCOVA test. Statistical value was set at p < 0.05. Volumes of nucleus accumbens (p = 0.003), putamen (p = 0.003), and thalamus (p = 0.046) were significantly decreased in HIV-positive subjects compared with healthy, while volumes of lateral ventricles were significantly increased (p = 0.043). However, influence of age on atrophy was greater than presence of HIV infection in all observed volumes. Positive correlation of nadir CD4+ count and nucleus accumbens volume was obtained, as well as of therapy with lateral ventricle volumes. Volumes of putamen correlated negatively with duration of therapy. HIV-associated atrophic changes are visible in nucleus accumbens, putamen, and thalamus in neurocognitively asymptomatic stage, while no changes can be observed in the hippocampus, affected by other types of dementias. Under therapy, the influence of physiological aging on HIV-associated atrophy is greater than the presence of HIV infection per se. [ABSTRACT FROM AUTHOR]


BACKGROUND: Accurate prediction of longitudinal changes in cognitive function would potentially allow for targeted intervention in those at greatest risk of cognitive decline. We sought to build a multivariate model using volumetric neuroimaging data alone to accurately predict cognitive function. METHODS: Volumetric T1-weighted neuroimaging data from virally suppressed HIV-positive individuals from the CHARTER cohort (n = 139) were segmented into gray and white matter and spatially normalized before entering into machine learning models. Prediction of cognitive function at baseline and longitudinally was determined using leave-one-out cross-validation. In addition, a multivariate model of brain aging was used to measure the deviation of apparent brain age from chronological age and assess its relationship with cognitive function. RESULTS: Cognitive impairment, defined using the global deficit score, was present in 37.4%. However, it was generally mild and occurred more commonly in those with confounding comorbidities (P < 0.001). Although multivariate prediction of cognitive impairment as a dichotomous variable at baseline was poor (area under the receiver operator curve 0.59), prediction of the global T-score was better than a
comparable linear model (adjusted R = 0.08, P < 0.01 vs. adjusted R = 0.01, P = 0.14). Accurate prediction of longitudinal changes in cognitive function was not possible (P = 0.82). Brain-predicted age exceeded chronological age by mean (95% confidence interval) 1.17 (-0.14 to 2.53) years but was greatest in those with confounding comorbidities [5.87 (1.74 to 9.99) years] and prior AIDS [3.03 (0.00 to 6.06) years]. CONCLUSION: Accurate prediction of cognitive impairment using multivariate models using only T1-weighted data was not achievable, which may reflect the small sample size, heterogeneity of the data, or that impairment was usually mild.


Objective: The reported prevalence of cognitive impairment remains similar to that reported in the pre-antiretroviral therapy era. This may be partially artefactual due to the methods used to diagnose impairment. In this study, we evaluated the diagnostic performance of the HIV-associated neurocognitive disorder (Frascati criteria) and global deficit score (GDS) methods in comparison to a new, multivariate method of diagnosis. Methods: Using a simulated ‘normative’ dataset informed by real-world cognitive data from the observational Pharmacokinetic and Clinical Observations in PeoPle Over fiffY (POPPY) cohort study, we evaluated the apparent prevalence of cognitive impairment using the Frascati and GDS definitions, as well as a novel multivariate method based on the Mahalanobis distance. We then quantified the diagnostic properties (including positive and negative predictive values and accuracy) of each method, using bootstrapping with 10,000 replicates, with a separate ‘test’ dataset to which a pre-defined proportion of ‘impaired’ individuals had been added. Results: The simulated normative dataset demonstrated that up to ~26% of a normative control population would be diagnosed with cognitive impairment with the Frascati criteria and ~20% with the GDS. In contrast, the multivariate Mahalanobis distance method identified impairment in ~5%. Using the test dataset, diagnostic accuracy [95% confidence intervals] and positive predictive value (PPV) was best for the multivariate method vs. Frascati and GDS (accuracy: 92.8% [90.3–95.2%] vs. 76.1% [72.1–80.0%] and 80.6% [76.6–84.5%] respectively; PPV: 61.2% [48.3–72.2%] vs. 29.4% [22.2–36.8%] and 33.9% [25.6–42.3%] respectively). Increasing the a priori false positive rate for the multivariate Mahalanobis distance method from 5% to 15% resulted in an increase in sensitivity from 77.4% (64.5–89.4%) to 92.2% (83.3–100%) at a cost of specificity from 94.5% (92.8–95.2%) to 85.0% (81.2–88.5%). Conclusion: Our simulations suggest that the commonly used diagnostic criteria of HIV-associated cognitive impairment label a significant proportion of a normative reference population as cognitively impaired, which will likely lead to a substantial over-estimate of the true proportion in a study population, due to their lower than expected specificity. These findings have important implications for clinical research regarding cognitive health in people living with HIV. More accurate methods of diagnosis should be implemented, with multivariate techniques offering a promising solution. [ABSTRACT FROM AUTHOR]


Nearly 50% of adults with HIV have some form of HIV-associated neurocognitive disorder (HAND), ranging from subtle to symptoms that interfere with everyday functioning and quality of life. HAND is diagnosed when a person performs more than 1 standard deviation below his or her normative mean on standardized measures in two or more cognitive domains (e.g., attention, speed of processing, verbal memory, executive functioning). As adults age with HIV, they are more likely to develop comorbidities such as cardiovascular disease, hypertension, and insulin resistance that may further contribute to poorer cognitive functioning and HAND. Certain computerized cognitive training programs may be able to improve specific cognitive domains in those with HIV. Such programs may be effective in changing the diagnosis of HAND in cognitively vulnerable adults. In this article, we describe the design and methods of TOPS-the
Training On Purpose Study. In this on-going experimental study, 146 older adults (50+) with HAND are randomized to either: (i) an Individualized-Targeted Cognitive Training group, or (ii) a no-contact control group. This study targets those cognitive domains in which participants experience a deficit and trains participants with the corresponding computerized cognitive training program for that domain. An Individualized Targeted Cognitive Training approach using cognitive-domain-specific cognitive training programs may offer symptom relief to those individuals diagnosed with HAND, which may actually reverse this diagnosis. Given that these cognitive training programs are commercially available, this approach represents a potential paradigm shift in how HAND is considered and treated.


OBJECTIVE: While some reports suggest that HIV+ individuals continue to display executive function (EF) impairment in the era of cART, findings have been contradictory and appear to differ based on the aspect of EF being measured. To improve the understanding of how discrete executive abilities may be differentially affected or spared in the context of HIV infection, we conducted a systematic review and meta-analysis to (a) determine whether and to what extent HIV+ adults experience deficits in EFs, and (b) understand how demographic and clinical characteristics may modify the associations between HIV infection and executive abilities. METHOD: Studies comparing HIV+ and HIV-uninfected groups on measures of working memory, set-shifting, inhibition, decision-making, and apathy between 2000 and 2017 were identified from three databases. Effect sizes (Cohen's d) were calculated using inverse variance weighted random effects models. Meta-regression was used to examine the moderating effect of demographic and clinical variables. RESULTS: Thirty-seven studies (n = 3935 HIV+; n = 2483 HIV-uninfected) were included in the meta-analysis. Pooled effect sizes for deficits associated with HIV infection were small for domains of set-shifting (d = -0.34, 95% CI [-0.47, -0.20]) and inhibition (d = -0.31, 95% CI [-0.40, -0.21]), somewhat larger for measures of decision-making (d = -0.41, 95% CI [-0.53, -0.28]) and working memory (d = -0.42, 95% CI [-0.59, -0.29]), and largest for apathy (d = -0.87, 95% CI [-1.09, -0.66]). Meta-regression demonstrated that age, sex, education, current CD4 count, and substance dependence differentially moderated the effects of HIV infection on specific EFs. However, lower nadir CD4 count was the only variable associated with greater deficits in nearly all EF domains. CONCLUSIONS: Our results suggest that discrete domains of EF may be differentially affected by HIV infection and moderating demographic and clinical variables. These findings have implications for the development of targeted cognitive remediation strategies.


OBJECTIVE: The causes of neurocognitive and everyday functioning impairment among aging people living with HIV (PLWH) are multifactorial. Exposure to stress and trauma can result in neurocognitive deficits via activation of neurological and other biological mechanisms. METHOD: PLWH (n = 122) and persons without HIV (n = 95), 35-65 years of age, completed four questionnaires that were used to generate a trauma, economic hardship (food insecurity and low socioeconomic status), and stress composite variable (TES). Participants also completed a comprehensive neuropsychological battery and standardized self-reports of activities of daily living (ADLs). We examined the independent and interactive effects of TES and HIV status on neurocognitive performance and ADL declines. RESULTS: PLWH had more traumatic events, more food insecurity, lower socioeconomic status, and higher perceived stress compared with HIV- individuals (all ps < .0001). Among PLWH, a higher composite TES score was associated with worse executive functioning (p = .02), worse learning (p = .02), worse working memory (p = .02), and more ADL declines (p < .0001), even after controlling for relevant demographic, psychiatric, substance use, and HIV disease covariates. On their own, individual TES components did not predict these outcomes. Conversely, no significant relationships were observed.
between TES and cognitive domains nor ADL declines among HIV- individuals. CONCLUSIONS: A composite score of trauma, economic hardship, and stress was significantly associated with worse neurocognitive performance and functional declines among PLWH. These adverse experiences may contribute to neurocognitive and daily functioning difficulties commonly observed among PLWH. Longitudinal studies are needed to elucidate the relationships between economic/psychosocial adversities and cognitive/functional outcomes over time, and examine potential mediators, such as inflammatory biomarkers. (PsycINFO Database Record (c) 2018 APA, all rights reserved).


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 (12weeks), 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.


BACKGROUND: Since the onset of combination antiretroviral therapy use, the incidence of HIV-associated dementia and of HIV encephalitis has fallen dramatically. The present study investigates the extent of white matter hyperintensities (WMHs) among individuals with HIV disease, and factors that predict their presence and their impact on psychomotor speed. METHODS: A total of 322 men participating in the Multicenter AIDS Cohort Study (185 HIV-infected, age: 57.5 +/- 6.0) underwent MRI scans of the brain. T1-weighted magnetization-prepared rapid gradient-echo (MP-RAGE) and T2-weighted Fluid Attenuated Inversion Recovery (FLAIR) images were obtained and processed using an automated method for identifying and measuring WMHs. WMH burden was expressed as the log10 transformed percentage of total white matter. RESULTS: There were no significant associations between WMHs and HIV disease. However, the extent of WMHs was predicted by age more than 60 (beta = 0.17), non-white race (beta = 0.14), glomerular filtration rate (beta = -0.11), and the presence of diabetes (beta = 0.12). There were no interactions between HIV status and age (beta = -0.03) or between age and diabetes (beta = 0.07). However, the interaction between HIV infection and diabetes was significant (beta = 0.26). The extent of WMHs was significantly associated with performance on measures of psychomotor speed (beta = 0.15). CONCLUSION: In today's therapeutic environment, in HIV-infected and HIV seronegative individuals, those factors which affect the cerebrovasculature are the best predictors of WMHs.
Diabetes has a specific impact among HIV-infected, but not uninfected, men, suggesting the need for more aggressive treatment even in the prediabetes state, especially as WMHs affect cognitive functions.


As successfully treated individuals with Human Immunodeficiency Virus (HIV)-infected age, cognitive and health challenges of normal aging ensue, burdened by HIV, treatment side effects, and high prevalence comorbidities, notably, Alcohol Use Disorders (AUD) and Hepatitis C virus (HCV) infection. In 2013, people over 55 years old accounted for 26% of the estimated number of people living with HIV (~1.2 million). The aging brain is increasingly vulnerable to endogenous and exogenous insult which, coupled with HIV infection and comorbid risk factors, can lead to additive or synergistic effects on cognitive and motor function. This paper reviews the literature on neuropsychological and in vivo Magnetic Resonance Imaging (MRI) evaluation of the aging HIV brain, while also considering the effects of comorbidity for AUD and HCV.


OBJECTIVES: Human immunodeficiency virus positive (HIV+) individuals report hearing difficulties, but standard audiological tests show no, or small, changes in peripheral hearing ability. The hearing complaints may reflect central nervous system (CNS) auditory processing deficits, rather than middle or inner ear problems, and may result from CNS damage due to HIV infection or treatment. If central auditory task performance and cognitive deficits in HIV+ individuals are shown to be related, then central auditory tests might serve as a "window" into CNS function in these patients.

DESIGN: We measured cognitive performance (Mandarin Montreal Cognitive Assessment [MoCA]) and speech in noise perception (Mandarin hearing-in-noise test [HINT]) in 166 normal-hearing HIV+ individuals (158 men, 8 women, average age 36 years) at the Shanghai Public Health Clinical Center in Shanghai, China. Data collection included audiometry, tympanometry, and the Amsterdam Inventory of Auditory Handicap (AIAH), which assesses the subjective ability to understand speech and localize sound. RESULTS: Subjects had no middle ear disease and met criteria for normal-hearing sensitivity (all thresholds 20 dB HL or less). A significant negative relationship between speech reception thresholds (SRT) and MoCA scores (r = 0.15, F = 28.2, p < 0.001) existed. Stepwise linear regression showed that when the factors of age, MoCA scores, hearing thresholds, and education level were considered, only age and MoCA scores contributed independently to the SRT results (overall model r = 0.30, F = 38.8, p < 0.001). Subjective hearing complaints from the AIAH supported the HINT results. AIAH and MoCA scores were also related (r = 0.05, F = 8.5, p = 0.004), with those with worse MoCA scores having more problems on the AIAH. When the cohort was divided into those with normal and abnormal performance on the MoCA, those with abnormal performance on the MoCA had significantly higher average SRTs (p < 0.001). CONCLUSIONS: Understanding speech in noise measured both objectively with the HINT and subjectively with the AIAH was inversely related to cognitive abilities despite a normal ability to hear soft sounds determined by audiometry. Although age was also an important independent factor affecting speech perception, the age relationship within the speech findings in this study may represent more than just age-related declines in speech in noise understanding. Although reliable data on disease duration are not available, the older members of this cohort likely had HIV longer and probably had more severe symptoms at presentation than the younger members because early
Detection and treatment of HIV in Shanghai has improved over time. Therefore, the age relationship may also include elements of disease duration and severity. Speech perception, especially in challenging listening conditions, involves cortical and subcortical centers and is a demanding neurological task. The problems interpreting speech in noise HIV+ individuals have may reflect HIV-related or HIV treatment-related, central nervous damage, suggesting that CNS complications in HIV+ individuals could potentially be diagnosed and monitored using central auditory tests.

**Obesity/Metabolic**


Aging has been associated with a series of pathophysiological processes causing general decline in the overall health of the afflicted population. The cumulative line of evidence suggests an important role of oxidative stress in the development and progression of the aging process and metabolic abnormalities, exacerbating adipocyte dysfunction, cardiovascular diseases, and associated complications at the same time. In recent years, robust have established the implication of Na/K-ATPase signaling in causing oxidative stress and alterations in cellular mechanisms, in addition to its distinct pumping function. Understanding the underlying molecular mechanisms and exploring the possible sources of pro-oxidants may allow for developing therapeutic targets in these processes and formulate novel intervention strategies for patients susceptible to aging and associated complications, such as obesity and cardiovascular disease. The attenuation of oxidative stress with targeted treatment options can improve patient outcomes and significantly reduce economic burden.


**Background:** People living with human immunodeficiency virus (PLWH) are characterized by excess risk of cardiovascular diseases (CVD) and CVD risk factors compared to uninfected individuals. We investigated the association between HIV infection and abdominal obesity, elevated low-density lipoprotein cholesterol (LDL-C), hypertriglyceridemia, and hypertension in a large cohort of predominantly well-treated PLWH and matched controls. Methods: 1099 PLWH from the Copenhagen Co-morbidity in HIV Infection Study and 12 161 age- and sex-matched uninfected controls from the Copenhagen General Population Study were included and underwent blood pressure, waist, hip, weight, and height measurements and nonfasting blood samples. We assessed whether HIV was independently associated with abdominal obesity, elevated LDL-C, hypertriglyceridemia, and hypertension using logistic regression models adjusted for known risk factors. Results: HIV infection was associated with higher risk of abdominal obesity (adjusted odds ratio [aOR], 1.92 [1.60-2.30]) for a given body mass index, elevated LDL-C (aOR, 1.32 [1.09-1.59]), hypertriglyceridemia (aOR, 1.76 [1.49-2.08]), and lower risk of hypertension (aOR, 0.63 [0.54-0.74]). The excess odds of abdominal obesity in PLWH was stronger with older age (p interaction, 0.001). Abdominal obesity was associated with elevated LDL-C (aOR, 1.44 [1.23-1.69]), hypertension (aOR, 1.32 [1.16-1.49]), and hypertriglyceridemia (aOR, 2.12 [1.86-2.41]). Conclusions: Abdominal obesity was associated with proatherogenic metabolic factors including elevated LDL-C, hypertension, and hypertriglyceridemia and remains a distinct HIV-related phenotype, particularly among older PLWH. Effective interventions to reduce the apparent detrimental impact on cardiovascular risk from this phenotype are needed.


The aim of this paper was to explore commonalities between HIV/AIDS-related conditions, obesity and other disabling impairments as healthrelated barriers that limit opportunity and advancement in society and the workplace. Taking a number of examples from original fieldwork and European Union (EU) and United Kingdom (UK) law, we posited that 'disability discrimination' under EU law remains an indefinite, imprecise and incomplete area that requires greater alignment with the social model of disability. The principle attributes of societal discrimination towards people living with HIV and obese people are that these conditions are perceived to be primarily or in some instances, solely caused by controllable factors related often to behaviours and lifestyle choices. Strong beliefs that these conditions are controllable are perceived as a justification and in some instances encouragement for the creation of stigma and discriminative behaviours that are unjust and uninformed. The structure of the paper is as follows. First, this paper postulated how and why stigma exists towards both individuals with disabilities and also obese individuals and people living with HIV; second, reviewed the legal framework on disability discrimination in both UK and EU courts that are directly relevant to the concepts of obesity and HIV-AIDS; third, presented critical thoughts as to the extent to which emerging decisions of the Court of Justice of the EU concerning obesity and HIV-AIDS accord with the social model of disability and fourth, offered an analysis of the implications of the UK and European framework and suggested possible interventions in this area. [ABSTRACT FROM AUTHOR]


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

Background: Life expectancy of HIV-infected patients has increased with antiretroviral treatment (ART). Chronic diseases associated with aging, including metabolic and cardiovascular diseases are becoming more prevalent in this population. We aimed to evaluate the association of obesity and aging with cardiometabolic comorbidities and metabolic health status among patients with HIV infection. Methods: We evaluated 580 HIV-1 infected patients (71.7% male, mean age of 47.7 +/- 11.5 years). We analyzed the association of age and obesity (defined by and by central obesity) with gender, duration of HIV infection, and ART, anthropometric parameters, cardiometabolic comorbidities, Framingham risk score (FRS), blood pressure, lipid profile, uric acid, liver biochemical tests, and glycemic profile. Furthermore, we analyzed the above-mentioned associations according to the category and central obesity into the metabolically healthy (MH) and unhealthy (MUH) categories. To evaluate the association of anthropometric parameters with cardiometabolic comorbidities, we performed unadjusted and adjusted logistic regression models. Results: The prevalence of excessive weight and cardiometabolic comorbidities increased with age. Patients with normal weight were younger and there was a higher proportion of female patients in the obesity group. The prevalence of hypertension and metabolic syndrome were higher among patients who were overweight or with obesity. The FRS was higher among patients with obesity. The proportion of MUH patients was higher among patients with excessive weight and central obesity. MUH patients had more cardiometabolic comorbidities and a higher FRS. In the normal weight group, MUH patients were older, and in the obesity group they were more likely to be male. The anthropometric parameter most associated with metabolic syndrome was waist circumference and that most associated with hypertension was waist-to-height ratio. The anthropometric parameter most associated with diabetes and FRS was waist-to-hip ratio. Conclusion: Patients with HIV present a high prevalence of obesity and related comorbidities. Ageing significantly contributes to metabolic dysfunction in this population. The proportion of MUH patients is higher among groups with excessive weight and central obesity, with those patients presenting a higher cardiovascular risk. Our results highlight the importance of evaluating and addressing obesity in patients with HIV, as well as metabolic comorbidities and cardiovascular risk.


Identifying risk factors associated with overweight and obesity in HIV-infected patients. A cross-sectional study analyzing data from patients attending an HIV outpatient unit. Overweight was defined as body mass index (BMI) >/=25 kg/m; <30 kg/m, obesity was >/=30 kg/m. Patients’ characteristics contemporary to BMI assessment were collected. Multivariate logistic regression identified risk factors associated with overweight/obesity. Eight hundred sixty-two patients, median age 51 years, 21.5 years of HIV infection follow-up, 585 (68%) male, 829 (96%) receiving combined antiretroviral therapy (cART) for median 16.7 years, 768 (91%) HIV load <40 copies/mL, 618 (73%) CD4 >/=500 cells/mm; 266 (31%) HCV serology, 110 (13%) had detectable HCV-RNA. Overweight affected 191 (22%) patients and obesity 46 (5%). Overweight and obesity were associated with age, HIV follow-up duration, and HIV transmission risk group. Overweight was also associated with gender and HCV status. In patients with substance use data, overweight was associated with alcohol and nonsmoking status. Obesity was associated with nonsmoking and ex-smoker status. Overweight/obesity were not found associated with cART or immune cell counts. In HIV-infected people, aging, alcohol consumption, nonsmoking, and ex-smoker status, the absence of HCV coinfection and to have cleared HCV infection are
associated with overweight and/or obesity. Clinicians should be aware of these trends and consider introducing weight management programs as part of routine HIV care.


BACKGROUND: Social isolation is associated with an increased risk for mental and physical health problems, especially among older persons living with HIV (PLWH). Thus, there is a need to better understand real-time temporal associations between social activity and mood- and health-related factors in this population to inform possible future interventions. OBJECTIVE: This study aims to examine real-time relationships between social activity and mood, fatigue, and pain in a sample of older PLWH. METHODS: A total of 20 older PLWH, recruited from the University of California, San Diego HIV Neurobehavioral Research Program in 2016, completed smartphone-based ecological momentary assessment (EMA) surveys 5 times per day for 1 week. Participants reported their current social activity (alone vs not alone and number of social interactions) and levels of mood (sadness, happiness, and stress), fatigue, and pain. Mixed-effects regression models were used to analyze concurrent and lagged associations among social activity, mood, fatigue, and pain. RESULTS: Participants (mean age 58.8, SD 4.3 years) reported being alone 63% of the time, on average, (SD 31.5%) during waking hours. Being alone was related to lower concurrent happiness (beta=-.300; 95% CI -.525 to -.079; P=.008). In lagged analyses, social activity predicted higher levels of fatigue later in the day (beta=-1.089; 95% CI -1.780 to -0.396; P=.002), and higher pain levels predicted being alone in the morning with a reduced likelihood of being alone as the day progressed (odds ratio 0.945, 95% CI 0.901-0.992; P=.02). CONCLUSIONS: The use of EMA elucidated a high rate of time spent alone among older PLWH. Promoting social activity despite the presence of pain or fatigue may improve happiness and psychological well-being in this population.

Polypharmacy


BACKGROUND: Geriatric Patients Living with HIV/AIDS (GEPPo) is a new prospective observational multicentre cohort consisting of all the HIV-positive geriatric patients being treated at 10 clinics in Italy, and HIV-negative controls attending a single geriatric clinic. The aim of this analysis of the GEPPo cohort was to compare prevalence and risk factors of individual non-communicable diseases (NCD), multi-morbidity (MM) and polypharmacy (PP) amongst HIV positive and HIV negative controls at enrolment into the GEPPo cohort. METHODS: This cross-sectional study was conducted between June 2015 and May 2016. The duration of HIV infection was subdivided into three intervals: < 10, 10-20 and > 20 years. The NCD diagnoses were based on guidelines defined criteria, including cardiovascular disease, hypertension, type 2 diabetes, chronic kidney disease, dyslipidaemia, chronic obstructive pulmonary disease. MM was classified as the presence of two or more co-morbidities. The medications prescribed for the treatment of comorbidities were collected in both HIV positive and HIV negative group from patient files and were categorized using the Anatomical Therapeutic Chemical (ATC) classification. PP was defined as the presence of five or more drug components other than anti-retroviral agents. RESULTS: The study involved a total of 1573 patient: 1258 HIV positive and 315 HIV negative). The prevalence of individual comorbidities was similar in the two groups with the exception of dyslipidaemia, which was more frequent in the HIV-positive patients (p < 0.01). When the HIV-positive group was stratified based on the duration
of HIV infection, most of the co-morbidities were significantly more frequent than in control patients, except for hypertension and cardiovascular disease, while COPD was more prevalent in the control group. MM and PP were both more prevalent in the HIV-positive group, respectively 64% and 37%. CONCLUSIONS: MM and PP burden in geriatric HIV positive patients are related to longer duration of HIV-infection rather than older age per se.


Background: HIV-positive individuals (HIV+) on antiretrovirals commonly take enough other medications to cross a threshold for polypharmacy but little is known about associated outcomes. We asked whether non-antiretroviral polypharmacy is associated with hospitalization and mortality and whether associations differ by HIV status. Methods: Data on HIV+ and uninfected individuals in the US Veterans Affairs Healthcare System were analyzed. Eligible HIV+ were on antiretrovirals with suppressed HIV-1 RNA and uninfected individuals received at least one medication. We calculated average non-antiretroviral medication count for fiscal year 2009. As there is no established threshold for non-antiretroviral polypharmacy, we considered more than two and at least five medications. We followed for hospitalization and mortality (fiscal year 2010-2015), adjusting for age, sex, race/ethnicity and VACS Index. Results: Among 9473 HIV+ and 39 812 uninfected individuals respectively, non-antiretroviral polypharmacy was common (>2: 67, 71%; >= 5: 34, 39%). VACS Index discriminated risk of hospitalization (c-statistic: 0.62, 0.60) and mortality (c-statistic: 0.72, 0.70) similarly in both groups. After adjustment, more than two (hazard ratio 1.51, 95% CI 1.46-1.55) and at least five non-antiretrovirals (hazard ratio 1.52, 95% CI 1.49-1.56) were associated with hospitalization with no interaction by HIV status. Risk of mortality associated with more than two non-antiretrovirals interacted with HIV status (P = 0.002), but not for at least five (adjusted hazard ratio 1.43, 95% CI 1.36-1.50). For both groups and both outcomes, average medication count demonstrated an independent, dose response, association. Conclusion: Neither severity of illness nor demographics explain a dose response, association of non-antiretroviral polypharmacy with adverse health outcomes among HIV+ and uninfected individuals. Copyright (C) 2018 The Author(s). Published by Wolters Kluwer Health, Inc.


Although people with HIV infection (PLWH) are at higher risk of polypharmacy and substance use, there is limited knowledge about potential harms associated with polypharmacy such as falls and fractures in this population. The study objective was to determine whether polypharmacy, as measured by the number and type of medication, is associated with falls and fractures among PLWH and DSM-IV substance dependence in the past year or ever injection drug use (IDU). We identified the number of medications by electronic medical record review in the following categories: (i) systemically active, (ii) non-antiretroviral (non-ARV), (iii) sedating, (iv) non-sedating as well as any opioid medication and any non-opioid sedating medication. Outcomes were self-reported (1) fall/accident requiring medical attention and (2) fracture in the previous year. Separate logistic regression models were fitted for medications in each category and each outcome. Among 250 participants, the odds of a fall requiring medical attention were higher with each additional medication overall (odds ratio [OR] 1.12, 95% Confidence Interval [CI] = 1.05, 1.18), each additional non-ARV medication (OR 1.13, 95%CI = 1.06, 1.20), each additional sedating medication (OR 1.36, 95%CI = 1.14, 1.62), and a non-opioid sedating medication (OR 2.89, 95%CI = 1.06, 7.85) but not with an additional non-sedating medication or
opioid medication. In receiver operating characteristic (ROC) curve analyses, optimal cutoffs for predicting falls were: \( \geq 8 \) overall and \( \geq 2 \) sedating medications. Odds ratios for fracture in the previous year were \( \text{OR} 1.05, 95\% \text{CI} = 0.97, 1.13 \) for each additional medication overall and \( \text{OR} 1.11, 95\% \text{CI} = 0.89, 1.38 \) for each additional sedating medication. In PLWH and substance dependence or ever IDU, a higher number of medications was associated with greater odds of having a fall requiring medical attention. The association appeared to be driven largely by sedating medications. Future studies should determine if reducing such polypharmacy, particularly sedating medications, lowers the risk of falls.


OBJECTIVES: To investigate longitudinal associations between polypharmacy and cognitive and physical capability and to determine whether these associations differ with cumulative exposure to polypharmacy. DESIGN: Prospective birth cohort study. SETTING: England, Scotland, and Wales. PARTICIPANTS: An eligible sample of men and women from the Medical Research Council National Survey of Health and Development with medication data at age 69 (N=2,122, 79%). MEASUREMENTS: Cognitive capability was assessed using a word learning test, visual search speed task, and the Addenbrooke’s Cognitive Examination, Third Edition (ACE-III). Physical capability was measured using chair rise speed, standing balance time, walking speed, and grip strength. RESULTS: Polypharmacy (5-8 prescribed medications) was present in 18.2% of participants at age 69 and excessive polypharmacy (\( \geq 9 \) prescribed medications) in 4.7%. Both were associated with poorer cognitive and physical capability in models adjusted for sex, education, and disease burden. Stronger associations were found for excessive polypharmacy (e.g., difference in mean ACE-III scores comparing polypharmacy=2.0, 95% CI=2.8 to -1.1 and excessive polypharmacy=2.9, 95% CI=4.4 to -1.4 with no polypharmacy). Participants with polypharmacy at age 60 to 64 and at age 69 showed stronger Negative associations with cognitive and physical capability were stronger still in participants with polypharmacy at both age 60 to 64 and at age 69 (e.g. difference in mean chair rise speed, comparing polypharmacy with no polypharmacy at both ages=-3.9, 95% CI=-5.2 to -2.6 and at age 60-64 only=-2.5, 95% CI=-4.1 to -0.9). CONCLUSION: Polypharmacy at age 60 to 64 and age 69 was associated with poorer physical and cognitive capability, even after adjusting for disease burden. Stronger negative associations were seen in participants with longstanding polypharmacy, suggesting a cumulative, dose-dependent relationship (where dose is the number of prescribed medications). Future research aiming to improve cognitive and physical capability should consider interventions to reduce the duration and level of polypharmacy at younger ages, in addition to optimizing disease control with appropriate medications.


BACKGROUND: To describe the development of polypharmacy and its components in a British birth cohort in its seventh decade and to investigate socioeconomic and gender differences independent of disease burden. METHODS: Data from the MRC National Survey for Health and Development were analysed to determine the prevalence and composition of polypharmacy at age 69 and changes since ages 60 to 64. Multinomial regression was used to test associations between gender, education and occupational social class and total, cardiological and non-cardiological polypharmacy controlling for disease burden. RESULTS: At age 69, 22.8% of individuals were taking more than 5 medications. There was an increase in the use of 5 to 8 medications (+ 2.3%) and over 9 medications (+ 0.8%) between ages 60-64 and 69. The greatest increases were found for cardiovascular (+ 13.4%) and gastrointestinal medications (+ 7.3%). Men experienced greater cardiological polypharmacy, women greater non-cardiological polypharmacy. Higher levels of education were associated with lower polypharmacy independent of disease burden, with strongest effects seen for over five cardiological medications (RRR 0.3, 95% CI 0.2-0.5 p < 0.001 for advanced secondary qualifications
compared with no qualification); there was no additional effect of social class. **CONCLUSIONS:** Polypharmacy increased over the seventh decade. Those with lower levels of education had more polypharmacy (total, cardiological and non-cardiological), even allowing for disease burden. Further analysis of future outcomes resulting from polypharmacy should take into account educational and gender differences, in an effort to identify at-risk populations who could benefit from medication reviews.


**BACKGROUND:** Polypharmacy has not been investigated in patients living with HIV in developing countries. The aims of this study were to determine the prevalence of polypharmacy, the factors associated with polypharmacy and whether polypharmacy was associated with adverse effects among older adults on anti-retroviral therapy (ART).

**METHODS:** Cross-sectional study in older adults aged 50 and over on ART attending an outpatient HIV/AIDS care centre in Uganda. Demographic and clinical data collected on number and type of medications plus supplements, possible medication related side-effects, comorbidity, frailty, cognitive impairment, current CD4 count and viral load. **RESULTS:** Of 411 participants, 63 (15.3, 95% C.I. 11.9, 18.8) had polypharmacy (>/= 4 non-HIV medications). In multivariate analyses, polypharmacy was associated with one or more hospitalisations in the last year (Prevalence Ratio PR = 1.8, 95% C.I. 1.1, 3.1, p = 0.02), prescription by an internist (PR = 3.6, 95% C.I. 1.3, 10.5, p = 0.02) and frailty index scores of 5 to 6 (PR = 10.6, 95% C.I. 1.4, 78, p = 0.02), and 7 or more (PR = 17.4, 95% C.I. 2.4, 126.5, p = 0.005). Polypharmacy was not associated with frequency and severity of possible medication related side effects and falls. **CONCLUSION:** Polypharmacy is common among older HIV infected patients in sub-Saharan Africa. It's more prevalent among frail people, who have been in hospital in the last year and who have been seen by an internist. We found no evidence that polypharmacy results in any harm but this is worth exploring further.


Rates of aging-related comorbidities, which require targeted medications to treat, have been shown to be increased among persons living with HIV compared with uninfected counterparts. Polypharmacy is generally defined as the concurrent use of 5 or more medications. We investigated polypharmacy prevalence for non-HIV medications over a 12-year period among HIV-positive and -negative participants in the Multicenter AIDS Cohort Study. Information regarding non-HIV medication use, HIV status, age, race/ethnicity, enrollment period, and medication insurance was obtained on 3,160 participants from semiannual visits between 2004 and 2016. Polypharmacy was defined as taking 5 or more non-HIV medications since the last health care visit. Generalized estimating equation models with repeated measures were produced overall and by HIV status to examine polypharmacy. The unadjusted prevalence of polypharmacy across all study visits was 18.6% and was higher among HIV-positive participants (24.4%) compared with HIV-negative participants (11.6%) (P < .0001). Among the 50 years and older age group, HIV-positive and HIV-negative participants had increases in polypharmacy over the observation period, from 38.4% to 46.8% (P = .0081) and from 16.7% to 46.0% (P < .0001), respectively. Among participants younger than 50, polypharmacy among HIV-positive participants remained stable (18.9% in 2004 to 17.3% in 2016; P = .5374) but increased among HIV-negative men (5.6% to 20.4%; P < .0001). After adjusting for age, race/ethnicity, and medication insurance, HIV-positive participants had a higher prevalence of polypharmacy than HIV-negative participants (25.3% vs 18.7%; P < .0001). Older age, white race, and having medication insurance coverage were also associated with greater polypharmacy. A convergence of polypharmacy prevalence was observed between HIV-positive and -negative participants at the end of observation. HIV-positive status was associated with an increased likelihood of polypharmacy, after adjusting for age, race/ethnicity,
enrollment period, medication insurance, and study visit. Over time, polypharmacy prevalence increased among all participants, with converging rates between HIV-positive and -negative participants by the end of the observation period.

**Prevention**


Older adults with HIV are at increased risk of late diagnosis. We aimed to explore the association between age and HIV testing rates in sexual health clinics in England using Public Health England data for 2009-2014. We investigated associations between attendee age and likelihood of HIV test offer, acceptance, and coverage. For each year, increasing age was associated with reduced likelihood of test offer (Rs -0.797 to -0.958, p < 0.01). Offer rates were highest for men who have sex with men (MSM), and lowest for heterosexual females (HSFs). HSFs had the greatest decline in offer rates with age (from 86.2% for age 25-29 to 52.1% for age 70+ in 2014). Odds ratios for test offer in 2014 for attendees aged 15-49 compared with attendees aged 50+ were 1.94 (95%CI: 1.88, 2.00) for heterosexual males (HSMs), 1.86 (95%CI: 1.81, 1.91) for HSFs, and 1.54 (95%CI: 1.45, 1.64) for MSM. Overall, there was no significant association between age and test acceptance in any year (Rs -0.070 to -0.547; p > 0.05). The strongest determinant of acceptance was sexual orientation; for attendees aged 50+, compared with HSMs, acceptance was higher for MSM (OR: 1.10; 95%CI: 1.06, 1.13) and lower for HSFs (OR: 0.30; 95%CI: 0.30, 0.31).


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.


The present study evaluated the potential use of Twitter data for providing risk indices of STIs. We developed online risk indices (ORIs) based on tweets to predict new HIV, gonorrhea, and chlamydia diagnoses, across U.S. counties and across 5 years. We analyzed over one hundred million tweets from 2009 to 2013 using open-vocabulary techniques and estimated the ORIs for a particular year by entering tweets from the same year into multiple semantic models (one for each year). The ORIs were moderately to strongly associated with the actual rates (.35 < rs < .68 for 93% of models), both nationwide and when applied to single states (California, Florida, and New York). Later models were slightly better.
than older ones at predicting gonorrhea and chlamydia, but not at predicting HIV. The proposed technique using free social media data provides signals of community health at a high temporal and spatial resolution.


BACKGROUND: Increasing risk of HIV heterosexual transmission can raise the potential for a more diffuse and generalized epidemic. In response to the paucity of data on HIV incidence among heterosexuals in China, we conducted a large-scale, population-based cohort study located in rural southwest China. METHODS: Baseline enrollment for the study was conducted from 2013 to 2014 and follow-up at 12-months was from 2014 to 2015 among adults > 20 years old in three rural counties of Southwest China. Study participants were informed of the study by brochures and leaflets distributed in outreach activities. Interviews and blood collection were conducted in private rooms. Blood samples were tested for HIV infection. RESULTS: The HIV prevalence of the sample was 0.29% (95% CI: 0.27-0.30) (2063/722,795) among the total adult population of 1,090,296 potential participants aged >/=20 years at baseline. Of the 720,732 individuals who tested HIV-negative at baseline, 493,990 completed the follow-up (69%). Overall HIV incidence was 2.73 (95% CI: 2.38-3.08) per 10000 person-years (235/860,627 PY). HIV incidence was associated with males, older age, less than secondary schooling and not currently being married. HIV incidence was 71.28 (95% CI: 35.21-107.35) per 10000 person-years among males aged 50-69 years who had less than secondary schooling and were divorced or widowed. Heterosexual sex was the dominant transmission mode for HIV seroconversions (99.0%). CONCLUSIONS: Older heterosexual males were at disproportionate risk of HIV infection. Health authorities in China need to develop and implement innovative interventions suitable for the broader population of older heterosexuals.


BACKGROUND: Early syphilis, gonorrhea, and chlamydia but not HIV infections have increased in San Francisco, primarily among men. METHODS: We linked records of persons reported with early syphilis, gonorrhea, and chlamydia to records of persons reported with HIV to measure the proportion and characteristics of San Francisco residents with HIV-sexually transmitted disease (STD) coinfection between 2007 and 2014. We measured trends in HIV coinfection separately for men and women for each STD. RESULTS: From 2007 to 2014, of the 5745 early syphilis, 18,037 gonorrhea, and 37,224 chlamydia diagnoses that were reported, 66%, 28%, and 15%, respectively, were among persons coinfected with HIV. Men accounted for most persons with early syphilis, gonorrhea, and chlamydia HIV coinfection. For early syphilis and HIV coinfection, among men who have sex with men (MSM), Latinos were more likely and Asian/Pacific Islanders were less likely to have HIV coinfection compared with whites. Older age at diagnosis and history of an STD were both also significantly associated with early syphilis and HIV coinfection. Transgender persons, older ages, Latino MSM compared with white MSM, and those with a history of STD were more likely to have HIV coinfection, whereas Asian/Pacific Islander MSM were less likely to have HIV coinfection for both gonorrhea and chlamydia, CONCLUSIONS: Our findings highlight the high burden of HIV-STD coinfection in San Francisco. To maintain the current declines in HIV incidence and turn the curve in rising STD incidence, there is an urgent need for collaborative HIV and STD prevention and control efforts.

Individuals with a negative HIV test before a positive one (seroconverters) may represent missed opportunities for prevention. To inform HIV prevention strategies, we aimed to characterize patients who seroconverted despite accessing care. We identified patients at a large, urban healthcare system who seroconverted between 2009 and 2014. Demographics, visits, and HIV-related variables were extracted from the medical records. We performed descriptive statistics, assessed for trends, and tested for associations according to sex. 220 seroconverters were identified: 45% were female, 87% were non-Hispanic Black or Hispanic, and median number of negative tests prior to diagnosis was 2 (IQR 1-3). Overall, 49% reported heterosexual contact as their risk factor and the proportion with heterosexual risk increased over time (24% in 2009 vs. 56% in 2014, p = 0.03). Compared to men, women were older at the time of diagnosis (35 vs. 26 years old, p < 0.01), had more visits between their latest negative and positive HIV test (4 vs. 2, p < 0.01), and were more likely to be diagnosed in the context of screening (64% vs. 56%, p = 0.05). We identified a population that became HIV-infected despite multiple healthcare encounters and undergoing HIV testing multiple times. Patients were mostly heterosexual and almost half were female. To avoid missed opportunities for those already accessing care, HIV prevention efforts should include strategies tailored to individuals with less frequently recognized risk profiles.


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


Testing for Turkeys (TFT) HIV/hepatitis C virus (HCV) and sexually transmitted infection (STI) testing initiative is a joint effort between Older Women Embracing Life (OWEL), Inc., a nonprofit faith-based community HIV support and advocacy organization; the Johns Hopkins University Regional Partner MidAtlantic AIDS Education and Training Center (MAAETC); and the University of Maryland, Baltimore JACQUES Initiative (JI), and is now in its 11th year of providing HIV outreach, testing, and linkage to care. Since 2008, the annual TFT daylong community HIV testing and linkage to care initiative has been held 2 weeks before Thanksgiving at a faith-based center in Baltimore, Maryland, in a zip code where one in 26 adults and adolescents ages 13 years and older are living with HIV (Maryland Department of Health, Center for HIV Surveillance, Epidemiology, and Evaluation, 2017). TFT includes a health fair with vendors that supply an abundance of education information (handouts, videos, one-on-one counseling) and safer sex necessities, including male and female condoms, dental dams, and lube. Nutritious boxed lunches and beverages are provided to all attendees and volunteers. Everyone tested for HIV who stays to obtain their results is given a free frozen turkey as they exit. The Baltimore City Health Department is on hand with a confidential no-test list (persons in the state already known to have HIV) to diminish retesting of individuals previously diagnosed with HIV. However, linkage to care is available to everyone: newly diagnosed individuals and those previously diagnosed and currently out of care.

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.


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.


More persons living with HIV reside in the Southern United States than in any other region, yet little is known about HIV molecular epidemiology in the South. We used cluster and phylodynamic analyses to evaluate HIV transmission patterns in middle Tennessee. We performed cross-sectional analyses of HIV-1 pol sequences and clinical data collected from 2001 to 2015 among persons attending the Vanderbilt Comprehensive Care Clinic. Transmission clusters were identified using maximum likelihood phylogenetics and patristic distance differences. Demographic, risk behavior, and clinical factors were assessed evaluating "active" clusters (clusters including sequences sampled 2011-2015) and associations estimated with logistic regression. Transmission risk ratios for men who have sex with men (MSM) were estimated with phylodynamic models. Among 2915 persons (96% subtype-B sequences), 963 (33%) were members of 292 clusters (distance <=1.5%, size range 2-39). Most clusters (62%, n = 690 persons) were active, either being newly identified (n = 80) or showing expansion on existing clusters (n = 101). Correlates of active clustering among persons with sequences collected during 2011-2015 included MSM risk and <=30 years of age. Active clusters were significantly more concentrated in MSM and younger persons than historical clusters. Young MSM (YMSM) (<=26.4 years) had high estimated transmission risk [risk ratio = 4.04 (2.85-5.65) relative to older MSM] and were much more
likely to transmit to YMSM. In this Tennessee cohort, transmission clusters over time were more concentrated by MSM and younger age, with high transmission risk among and between YMSM, highlighting the importance of interventions among this group. Detecting active clusters could help direct interventions to disrupt ongoing transmission chains.


INTRODUCTION: Migrants are overrepresented in the European HIV epidemic. We aimed to understand the barriers and facilitators to HIV testing and current treatment and healthcare needs of migrants living with HIV in Europe. METHODS: A cross-sectional study was conducted in 57 HIV clinics in nine countries (Belgium, Germany, Greece, Italy, The Netherlands, Portugal, Spain, Switzerland and United Kingdom), July 2013 to July 2015. HIV-positive patients were eligible for inclusion if they were as follows: 18 years or older; foreign-born residents and diagnosed within five years of recruitment. Questionnaires were completed electronically in one of 15 languages and linked to clinical records. Primary outcomes were access to primary care and previous negative HIV test. Data were analysed using random effects logistic regression. Outcomes of interest are presented for women, heterosexual men and gay/bisexual men. RESULTS: A total of 2093 respondents (658 women, 446 heterosexual men and 989 gay/bisexual men) were included. The prevalence of a previous negative HIV test was 46.7%, 43.4% and 82.0% for women, heterosexual and gay/bisexual men respectively. In multivariable analysis previous testing was positively associated with: receipt of post-migration antenatal care among women, permanent residency among heterosexual men and identifying as gay rather than bisexual among gay/bisexual men. Access to primary care was found to be high (>83%) in all groups and was strongly associated with country of residence. Late diagnosis was common for women and heterosexual men (60.8% and 67.1%, respectively) despite utilization of health services prior to diagnosis. Across all groups almost three-quarters of people on antiretrovirals had an HIV viral load <50 copies/mL. CONCLUSIONS: Migrants access healthcare in Europe and while many migrants had previously tested for HIV, that they went on to test positive at a later date suggests that opportunities for HIV prevention are being missed. Expansion of testing beyond sexual health and antenatal settings is still required and testing opportunities should be linked with combination prevention measures such as access to PrEP and treatment as prevention.


Over the past 15 years, a significant increase in new HIV/AIDS diagnoses has been observed in the elderly population. This new epidemiological shift has been attributed to a longer sex life, lifestyle and changes in sexual behavior, poor sexual health education, and misconceptions about the absence of sexually transmitted disease in later life. Although many biomedical and behavioral interventions have proven useful to prevent sexually transmitted infections and HIV, pre-exposure prophylaxis (PrEP) has been shown to be the most successful biomedical intervention to prevent HIV in high-risk individuals. This approach is based on delivering a fixed dose of tenofovir disoproxil fumarate (300 mg), alone or combined with emtricitabine (300/200 mg) daily or on demand, before and after sexual intercourse. Despite the consistent number of clinical trials proving the effectiveness and safety of this strategy, no studies have focused specifically on elderly people. These individuals, who may benefit substantially from (PrEP), are at a higher risk of experiencing side effects secondary to tenofovir exposure. This review critically discusses the efficacy and safety of PrEP in people aged over 50 years and translates the knowledge of tenofovir management in patients with HIV into monitoring and stopping rules to be used in this special population. We provide practical recommendations to properly identify PrEP candidates among older adults. Furthermore, we define correct case management before and during PrEP delivery, and we suggest stopping rules and alternative sexually transmitted infection prevention strategies.
The main objective of this study was to determine the demographic, geographic and socioeconomic characteristics of men who have sex with men (MSM) in Philadelphia that were associated with having a recent HIV test. We used data from the National HIV Behavioral Surveillance System (NHBS) surveys from 2011 and 2014 among MSM in Philadelphia, with the outcome of interest of having received an HIV test in the past twelve months. Of 1043 HIV-negative MSM, 70.2% had an HIV test. Multivariable analysis showed that seeing a medical provider (aOR: 1.73; p = .0039) or having heard of PrEP (aOR: 2.24; p < .0001) was associated with recent HIV testing. Those participants forty-five years of age or older (aOR 0.40, p = .0001) and those with Medicaid had lower rates of HIV testing (aOR 0.48, p = .002). Although over 80% of participants had seen a medical provider in the past year, only 50% had been offered an HIV test by a provider. Optimizing HIV testing through the expansion and increased awareness of PrEP, especially among older MSM, is critical. Further research is needed to delineate barriers that prevent MSM from utilizing medical providers for HIV testing and for those with Medicaid from receiving HIV testing.


OBJECTIVES: Social determinants of health (SDHs) are the complex, structural, and societal factors that are responsible for most health inequities. Since 2003, the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) has researched how SDHs place communities at risk for communicable diseases and poor adolescent health. We described the frequency and types of SDHs discussed in articles authored by NCHHSTP.

METHODS: We used the MEDLINE/PubMed search engine to systematically review the frequency and type of SDHs that appeared in peer-reviewed publications available in PubMed from January 1, 2009, through December 31, 2014, with a NCHHSTP affiliation. We chose search terms to identify articles with a focus on the following SDH categories: income and employment, housing and homelessness, education and schooling, stigma or discrimination, social or community context, health and health care, and neighborhood or built environment. We classified articles based on the depth of topic coverage as "substantial" (ie, one of </=3 foci of the article) or "minimal" (ie, one of >/=4 foci of the article).

RESULTS: Of 862 articles authored by NCHHSTP, 366 (42%) addressed the SDH factors of interest. Some articles addressed >1 SDH factor (366 articles appeared 568 times across the 7 categories examined), and we examined them for each category that they addressed. Most articles that addressed SDHs (449/568 articles; 79%) had a minimal SDH focus. SDH categories that were most represented in the literature were health and health care (190/568 articles; 33%) and education and schooling (118/568 articles; 21%). CONCLUSIONS: This assessment serves as a baseline measurement of inclusion of SDH topics from NCHHSTP authors in the literature and creates a methodology that can be used in future assessments of this topic.


A commentary is provided on the study reported by Garrett Prestage and his colleagues, which examined the relations between mental health states, non-injection drug use and sexual risk behaviors in a cross-sectional sample of 3,017 Australian gay and bisexual men. We provide a summary of the findings in relation to the extant literature on the interconnectedness of these behaviors and health states and interpret the findings in this regard, noting both strengths and limitations. We couch our commentary in a theory of syndemics for considering how these associations may manifest and for informing both research and practice. While the data from this investigation posit risk they also point to strength and suggest the application of a resilience framework for addressing the health needs of gay and bisexual men.


There is limited information about sexual behavior among older Africans, which is problematic given high HIV rates among older adults. We use a population-based survey among people aged 15-80+ to examine the prevalence of sexual risk and protective behaviors in the context of a severe HIV epidemic. We focus on variation across the life course, gender and HIV serostatus to compare the similarities and differences of young, middle aged, and older adults. Younger adults continue to be at risk of HIV, with potential partners being more likely to have been diagnosed with an STI and more likely to have HIV, partner change is high, and condom use is low. Middle aged and older adults engage in sexual behavior that makes them vulnerable at older ages, including extramarital sex, low condom use, and cross-generational sex with people in age groups with the highest rates of HIV. We find insignificant differences between HIV positive and negative adults' reports of recent sexual activity. This study provides new information on sexual behavior and HIV risk across the life course in rural South Africa to inform HIV prevention and treatment programing.


This study sought to determine why young men who have sex with men (MSM) have higher HIV incidence rates than older MSM in the United States. We developed hypotheses that may explain this disparity. Data came from peer-reviewed studies published during 1996-2016. We compared young and older MSM with respect to behavioral, clinical, psychosocial, and structural factors that promote HIV vulnerability. Compared with older MSM, young MSM were more likely to have HIV-discordant condomless receptive intercourse. Young MSM also were more likely to have "any" sexually transmitted infection and gonorrhea. Among HIV-positive MSM, young MSM were less likely to be virally suppressed, use antiretroviral therapy, and be aware of their infection. Moreover, young MSM were more likely than older MSM to experience depression, polysubstance use, low income, decreased health care access, and early ages of sexual expression. These factors likely converge to exacerbate age-associated HIV incidence disparities among MSM.


Objective: To know the situation of extramarital sexual behaviors and HIV infection in middle-aged and elderly people in Chongqing, and provide reference for AIDS prevention and treatment. Methods: From October to December 2017, a multi-stage sampling method was used to recruit middle-aged and elderly people aged >/=50 years who lived in
Dazu and Hechuan districts of Chongqing for at least one year, with a sample size of 410. Face-to-face questionnaires survey and HIV antibody test were conducted. Results: A total of 408 people were surveyed, including 313 males and 95 females aged 50-88 (64.93+/−9.03) years. The HIV infection rate was 1.47% (6/408), with the rate of 1.28% (4/313) in males and 2.11% (2/95) in females. The awareness rate of AIDS related knowledge was 37.50% (153/408). And 18.87% (77/408) of subjects surveyed reported extramarital sexual behaviors, 7.60% (31/408) reported extramarital sexual behaviors in the past half year, the constant condom use rate was 19.35% (6/31). The results of multivariate logistics model analysis on extramarital sexual behaviors showed that the prevalence in males were 39.51 times higher than that in females (OR=39.51, 95%CI: 5.03-310.30), 4.60 times higher in those who were unmarried, divorced or widowed than that in the married or cohabitants (OR=4.60, 95%CI: 1.50-14.05), 2.03 times higher in those with outside activities than those with individual activities (OR=2.03, 95%CI: 1.08-3.81) and 3.94 times higher in those with self-evaluation of emptiness of living state than those with engaged life (OR=3.94, 95%CI: 1.86-8.36). Conclusions: The prevalence of extramarital sexual behavior in middle-aged and elderly people in some counties and districts in Chongqing is high. The factors such as gender, marital status, leisure activities, and self-evaluation of living state were related to the prevalence of extramarital sexual behaviors in this population. The condom use rate in extramarital sexual behavior was low. It is necessary to take effective interventions in this population.


Background: Appropriate testing of people at risk for HIV is an important piece of the HIV care continuum. We analyzed HIV testing patterns of patients tested for gonorrhea and chlamydia (GC/CT) at a large urban health care system in New York City. Methods: We retrospectively studied HIV and GC/CT testing from 2010 to 2015. Data were collected from a clinical laboratory database and linked to electronic health records. Patients were older than age 13 years, not known to be HIV positive, and had had a GC/CT test. The main outcome was the proportion of patients who had both HIV and GC/CT testing performed at the same encounter. Results: We analyzed 85 768 patients with 139 404 GC/CT testing encounters. Most of the testing encounters (88% for men and 94% for women) were in the outpatient setting. Same-day HIV testing improved from 59% in 2010 to 70% in 2015 for male patients, and from 41% to 51% for female patients. In multivariate regression, male sex was associated with receipt of an HIV test (odds ratio [OR], 2.49; P < .001). Emergency department (OR, 0.22; P < .0001) and inpatient (OR, 0.10; P < .0001) locations were negatively associated with receipt of HIV testing. Among patients with HIV and GC/CT testing at the same encounter, 37 were HIV positive. Conclusions: Concurrent HIV testing of patients being evaluated for GC/CT increased from 2010 to 2015. However, many patients failed to receive HIV testing, especially in emergency and inpatient settings. There continue to be missed opportunities for diagnosis of HIV among individuals with ongoing high-risk behavior.


BACKGROUND: The effect of improving diagnosis, care, and treatment of persons living with HIV (PLWH) on pre-exposure prophylaxis (PrEP) effectiveness in the United States has not been well established. METHODS: We used a dynamic, compartmental model that simulates the sexually active US population. We investigated the change in cumulative HIV incidence from 2016 to 2020 for 3 HIV care-continuum levels and the marginal benefit of PrEP compared with each. We also explored the marginal benefit of PrEP for individual risk groups, and as PrEP adherence, coverage and dropout rates varied. RESULTS: Delivering PrEP in 2016 to persons at high risk of acquiring HIV resulted in an 18.1% reduction in new HIV infections from 2016 to 2020 under current care-continuum levels. Achieving HIV national goals of 90% of PLWH with diagnosed infection, 85% of newly diagnosed PLWH linked to care at diagnosis, and 80% of diagnosed
PLWH virally suppressed reduced cumulative incidence by 34.4%. Delivery of PrEP in addition to this scenario resulted in a marginal benefit of 11.1% additional infections prevented. When national goals were reached, PrEP prevented an additional 15.2% cases among men who have sex with men, 3.9% among heterosexuals, and 3.8% among persons who inject drugs. CONCLUSIONS: The marginal benefit of PrEP was larger when current HIV-care-continuum percentages were maintained but continued to be substantial even when national care goals were met. The high-risk men who have sex with men population was the chief beneficiary of PrEP.


Introduction: The construction industry depends mainly on labour to translate other resources into a physical object (i.e. building, road, airport etc.). The industry's workforce is always mobile and its activities are characterized by difficult working conditions. The mobile workforce of industry and their vulnerability to HIV/AIDS pandemic have been fairly researched. The objective of the study is to determine construction workers' HIV/AIDS knowledge, risk sexual behaviours and their attitude towards HIV/AIDS. Method: The study adopted a cross sectional research design and purposive sampling method was used to select respondents. The researched area included sites in Dar es Salaam, Morogoro and Dodoma cities. A sample size involved 20 construction sites and 5 respondents from each site. A hundred questionnaires were distributed out of which 58 were fairly filled. The study adapted standard questionnaires developed by UNAIDS, Family Health International (FHI) and Demographic and Health Surveys (DHS). The collected data was analyzed using the Statistical Package for Social Sciences (SPSS) software version 20.0. Results: The results show that most construction workers have low HIV knowledge, low risk sexual behaviours and positive attitude towards HIV/AIDS. Furthermore, indicators of low knowledge were evident in awareness of PMTCT services, HIV can be spread through breastfeeding, HIV can be spread through sharing injection and HIV can be spread through unsafe sex. Conclusion: In conclusion risk sexual behaviours are low, attitude towards HIV/AIDS is generally positive but HIV knowledge is low. However, there are alarming concerns in some indicators of both risk sexual behaviours and attitude noted in the study.


BACKGROUND: Finding HIV infected persons and engaging them in care is crucial in achieving UNAIDS 90-90-90 targets; diagnosing 90% of those infected with HIV, initiating 90% of the diagnosed on ART and achieving viral suppression in 90% of those on ART. To achieve the first target, no person should be left behind in their access to HIV testing services. In Kenya, HIV prevention and testing services give less emphasis on older adults. This article describes HIV testing experiences of older adults living with HIV and how their age shaped their interaction and treatment received during HIV testing and diagnosis. METHODS: We conducted a qualitative study in two HIV clinics (rural and urban) in western Kenya, and recruited 57 HIV infected persons aged >/=50 years. We conducted in depth interviews (IDIs) with 25 participants and 4 focus group discussions (FGDs) with a total of 32 participants and audio recorded all the sessions. Participants recruited were aged between 54 and 79 years with 43% being females. We transcribed audio records and analyzed the data using thematic content analysis method. RESULTS: Older persons’ experiences with HIV testing depended on where they tested (hospital or community setting); whether they actively sought the testing or not; and the age and gender of the healthcare provider who conducted the test. Participants expressed concerns with ageist discrimination when actively seeking HIV care testing services in hospital settings, characterized by providers’ reluctance or refusal to test. The testing and counseling sessions were described as short and hurried within the hospital settings, whereas the interactions with service providers in home-based testing were experienced as appropriate and supportive.
Participants in this study expressed preference for healthcare providers who were older and of similar gender. CONCLUSION: HIV testing services are still not tailored to target older adults' needs in our setting resulting in late diagnosis among older persons. We argue that a scale-up of community level testing services that provide adequate testing and counselling time and actively reach out to older adults is key to attaining the UNAIDS targets of having 90% of PLWH know their status.


OBJECTIVES: To examine racial/ethnic disparities in Hawaii in stage 3 classification at HIV diagnosis and trends in such disparities from 2010 through 2016. METHODS: We analyzed data including patients' demographic information, behavioral risk factors, residential county at HIV diagnosis, and type of facility where HIV was diagnosed. Multivariable logistic regression modeling was used to examine racial/ethnic disparities in late-stage diagnoses after adjustment for known or possible confounders. RESULTS: About 30% of HIV diagnoses were classified as late-stage (stage 3) diagnoses, and there were significant racial/ethnic disparities in stage 3 classification at diagnosis. Relative to Whites, the odds of being diagnosed at stage 3 were 3.7 times higher among Native Hawaiians and other Pacific Islanders (NHPIs; odds ratio [OR] = 3.69; 95% confidence interval [CI] = 1.89, 7.22) and more than twice as high among Asians (OR = 2.46; 95% CI = 1.16, 5.20). Older age and being diagnosed in an inpatient setting were associated with stage 3 classification. CONCLUSIONS: Targeted preventive services need to be strengthened for Asians and NHPIs in Hawaii.


This study applying the health services utilization model examined the importance of predisposing, enabling, and need variables to the social mechanisms explaining lifetime HIV testing across racial/ethnic groups. Data for the study were derived from the National Health Interview Survey (collected 2013-2014), our final sample numbering 18,574 adults. Four subsamples reflected race/ethnicity: 13,347 Whites, 2267 Blacks, 2074 Hispanics, and 886 Asians. Logistic regression established respondent odds of ever having received HIV testing. Further statistical testing evaluated race/ethnicity's potential moderating role in HIV testing. The findings generally support a role for Aday's predisposing, enabling, and need factors in explaining HIV testing. Across the four subsamples, female gender, older age, and sexual minority status consistently increased lifetime HIV testing. However, we found racial/ethnic differences in HIV testing's associations with these factors and others. Our study made a beginning in the effort to specify mechanisms leading to HIV testing-and reliable diagnosis-among four racial/ethnic groups. Understanding these mechanisms might multiply opportunities to raise testing rates for all, in turn reducing racial/ethnic disparities in HIV treatment.


BACKGROUND: Reducing the number of people with undiagnosed HIV infection is a major goal of HIV control and prevention efforts in Europe and elsewhere. We analysed data from a large multi-city European bio-behavioural survey conducted among Men who have Sex with Men (MSM) for previously undiagnosed HIV infections, and aimed to characterise undiagnosed MSM who test less frequently than recommended. METHODS: Data on sexual behaviours and social characteristics of MSM with undiagnosed HIV infection from Sialon II, a bio-behavioural cross-sectional survey conducted in 13 European cities in 2013/2014, were compared with HIV-negative MSM. Based on reported HIV-testing
patterns, we distinguished two subgroups: MSM with a negative HIV test result within 12 months prior to the study, i.e. undiagnosed incident infection, and HIV positive MSM with unknown onset of infection. Bivariate and multivariate associations of explanatory variables were analysed. Distinct multivariate multi-level random-intercept models were estimated for the entire group and both subgroups. RESULTS: Among 497 participants with HIV-reactive specimens, 234 (47.1%) were classified as previously diagnosed, 106 (21.3%) as incident, and 58 (11.7%) as unknown onset based on self-reported status and testing history. MSM with incident HIV infection were twice as likely (odds ratio (OR) = 2.22, 95% confidence interval (95%CI): 1.17-4.21) to have used recreational substances during their last anal sex encounter and four times more likely (OR = 3.94, 95%CI: 2.14-7.27) not to discuss their HIV status with the last anal sex partner(s). MSM with unknown onset of HIV infection were 3.6 times more likely (OR = 3.61, 95%CI: 1.74-7.50) to report testing for a sexually transmitted infection (STI) during the last 12 months. CONCLUSIONS: Approximately one third of the study participants who are living with HIV were unaware of their infection. Almost two-third (65%) of those with undiagnosed HIV appeared to have acquired the infection recently, emphasizing a need for more frequent testing. Men with the identified behavioral characteristics could be considered as primary target group for HIV Pre-Exposure Prophylaxis (PrEP) to avoid HIV infection. The increased odds of those with unknown onset of HIV infection to have had an STI test in the past year strongly suggests a lost opportunity to offer HIV testing.


Policy changes and scientific advances have guided new methods of diagnosing and managing HIV that reduce mortality, morbidity, and transmission. In a high HIV prevalence urban setting, a hospital initiative was implemented to routinely perform HIV testing and provide linkage to care for those with positive results and for individuals with a prior diagnosis of HIV. Maryland's unique all-payer model presents an opportunity to implement population health initiatives in health systems. The rationale, methodology, results and lessons learned from this approach will be discussed. Providers and nurses offered routine HIV screening and activated a Linkage to Care Navigator (LCN) for all HIV positive patients. The LCN provided referrals to HIV care and supportive services. In 22 months, 28 persons were newly diagnosed with HIV. Eighty-two percent (n = 23) were linked to outpatient care; 28.6% (8) were readmitted within 30 days for an inpatient stay. Of 517 patients previously diagnosed with HIV, 27.7% (n = 143) were not engaged in outpatient HIV care. Nearly 50% of those (n = 71) were relinked to care. Of 143 patients with a previous diagnosis who were considered out of care at the time of inpatient admission, 16 (11.2%) were readmitted as an inpatient within 30 days. Routinizing HIV testing and linkage to care in an inpatient setting identifies new and previously diagnosed HIV infected individuals who are not in care. This process has potential to identify HIV earlier, lower community viral load, and decrease transmission of HIV.


Early Acute Human Immunodeficiency Virus Infection (eAHI) diagnosis, via 4th generation testing methodology, presents an opportunity for earlier detection and immediate linkage to care for infected persons. We report on two patients with high-risk behaviors for HIV infection, presenting with atypical symptoms of eAHI in an urban Emergency Department (ED). This case report should raise the index of suspicion for HIV among ED physicians as well as underscore the importance of reducing HIV transmission through earlier detection. Universal screening of patients aged 13-64, incorporating new HIV diagnostic algorithms, is recommended by the Centers for Disease Control and Prevention (CDC). By employing the 4th generation HIV testing methodology, we can potentially diagnose HIV infection earlier compared to older testing methodologies. Currently, 3rd generation HIV testing is used to detect the presence of HIV antibodies,
generally through an enzyme-linked immunosorbent assay (ELISA). However, detection of HIV antibodies can take anywhere from 3 to 12 weeks, depending on the individual and testing modality used. This newer diagnostic paradigm enables earlier identification of newly infected individuals. Early HIV detection allows for linkage to care and the administration of effective treatment modalities shortly thereafter. As HIV transmission is highest during its initial acquisition, early detection and linkage to care has been shown to be an efficient method to decrease transmission through subsequent changes in behaviors of those infected.


Older adults account for 17% of new HIV diagnoses in the US and are more likely to be diagnosed with HIV later in the course of the disease compared to younger people. We calculated the prevalence and associated factors of having ever been tested for HIV among sexually active older adults. We analyzed data from the 2008-2016 General Social Survey Limited to respondents >/=65 years of age who reported more than one sex partner(s) in past 12 months (n = 757). HIV testing prevalence, prevalence ratios, and 95% confidence intervals were calculated by demographic variables and HIV-related risk behaviors. An estimated 16.3% of sexually active older adults have tested for HIV, and 15.9% were at increased risk for HIV infection (reported injection drug and/or crack-cocaine use, exchanging money for sex, more than three sex partners in the past year, or men who reported having sex with another man). In the adjusted model, adults aged 65-70, not married, self-identified as gay/bisexual, and at increased risk for HIV infection were more likely to have tested for HIV. An estimated 83.7% of sexually active older adults never tested for HIV. Strategies are needed to increase HIV awareness and testing among potentially high-risk older adults.


The majority of published research on transgender health focuses on associations between external minority stressors (e.g., discrimination) and health. Little is known about how internal minority stressors (e.g., identity concealment and expecting rejection) might predict HIV disparities. The current study addresses this gap by examining the association between external and internal minority stressors and sexual risk behaviors and HIV testing history in a sample of 300 transgender adults across the U.S. Transgender-related discrimination and expecting rejection were associated with sexual risk behaviors. When controlling for covariates, none of the minority stressors were associated with HIV testing. Results illustrate how minority stress, both external and internal, may operate uniquely for transgender individuals.

Gay, bisexual, and other men who have sex with men (GBMSM) in the United States remain heavily impacted by HIV. The purpose of this study was to describe intergenerational differences in functional knowledge of HIV prevention strategies, perceived risk, recent condomless anal sex (CAS), and HIV testing behavior. Eight hundred sexually active GBMSM were recruited via Facebook from August to September 2015, and administered a Web-based survey which included 12 multiple-choice questions to elicit data regarding functional knowledge of different HIV prevention approaches (e.g., condom use, pre-exposure prophylaxis post-exposure prophylaxis, treatment as prevention, circumcision). Cumulative logit and multivariable logistic models were formulated to examine birth cohort variations across four analytic outcomes. Younger generations were significantly more knowledgeable, as were GBMSM with higher education. Non-Hispanic non-White GBMSM and those reporting a bisexual/other sexual orientation had lower functional knowledge. Younger generations were equally concerned about contracting HIV as their older counterparts. Perceived risk was significantly higher among non-Hispanic non-White and Hispanic GBMSM, but lower among those with higher education and those in a relationship. Finally, birth cohort variations with respect to engaging in CAS with >/=2 men in the past 3 months and testing for HIV in the past year were not markedly pronounced. Younger GBMSM might be more knowledgeable about HIV prevention strategies compared to their predecessors, but are equally concerned about contracting HIV. Researchers and practitioners should consider intergenerational and other demographic differences while designing multifaceted HIV prevention programs for GBMSM.


BACKGROUND: People with serious mental illness (SMI) are at elevated risk of HIV infection, but do not receive HIV tests regularly. Inpatient psychiatric admissions provide opportunities for HIV testing. OBJECTIVE: This study retrospectively examined the impact of three sequential interventions designed to increase HIV testing on an acute inpatient psychiatry service: (1) advocacy by an administrative champion, (2) an on-site HIV counselor, and (3) a clinician championing HIV testing. METHOD: Demographic and HIV testing data were extracted from hospital data systems for 11,360 admissions of HIV-negative patients to an inpatient psychiatry service between 2006 and 2012. Relationships among interventions, length of stay, patient demographics, and receipt of an HIV test were examined using general estimating equation methods. RESULTS: In the year prior to the intervention, 7.2% of psychiatric inpatients received HIV tests. After 1 year of administrative advocacy, 11.2% received tests. Following the HIV counseling intervention, 25.1% of patients were tested. After the counseling intervention ended, continued administrative and clinical advocacy was associated with further increases in testing. In the final year studied, 30.3% of patients received HIV tests. Patients with shorter inpatient stays and those of Black or Asian race/ethnicity were less likely to be tested. Further, 1.6% of HIV tests were positive. CONCLUSION: Three interventions of varying intensity were associated with a 5-fold increase in HIV testing on an acute inpatient psychiatry service. Nonetheless, 70% of inpatients were not tested. Continued efforts are needed to increase HIV testing in inpatient psychiatric settings.


Background: HIV infection is a persistent health concern in the United States, and men who have sex with men (MSM) continue to be the most affected population. Objective: To estimate HIV incidence and prevalence and the percentage of undiagnosed HIV infections overall and among MSM. Design: Cross-sectional analysis. Setting: National HIV Surveillance System. Participants: Persons aged 13 years or older with diagnosed HIV infection. Measurements: Data on HIV diagnoses and the first CD4 test result after diagnosis were used to model HIV incidence and prevalence and the percentage of undiagnosed HIV infections from 2008 to 2015 on the basis of a well-characterized CD4 depletion model. Results: Modeled HIV incidence decreased 14.8% overall, from 45 200 infections in 2008 to 38 500 in 2015, and among
all transmission risk groups except MSM. The incidence of HIV increased 3.1% (95% CI, 1.6% to 4.5%) per year among Hispanic/Latino MSM (6300 infections in 2008, 7900 in 2015), decreased 2.7% (CI, -3.8% to -1.5%) per year among white MSM (8800 infections in 2008, 7100 in 2015), and remained stable among black MSM at about 10,000 infections. The incidence decreased by 3.0% (CI, -4.2% to -1.8%) per year among MSM aged 13 to 24 years and by 4.7% (CI, -6.2% to -3.1%) per year among those aged 35 to 44 years. Among MSM aged 25 to 34 years, HIV incidence increased 5.7% (CI, 4.4% to 7.0%) per year and among MSM aged 55 years and older, HIV increased 4.1% (CI, 0.8% to 7.4%). The percentage of undiagnosed HIV infections was higher among black, Hispanic/Latino, and younger MSM than white and older MSM, respectively. Limitation: Assumptions of the CD4 depletion model and variability of CD4 values. Conclusion: Expansion of HIV screening to reduce undiagnosed infections and increased access to care and treatment to achieve viral suppression are critical to reduce HIV transmission. Access to prevention methods, such as condoms and preexposure prophylaxis, also is needed, particularly among MSM of color and young MSM. Primary Funding Source: None.


Partner-oriented services and Health Information and Communication technology (HICT) in the forms of mHealth (eg, smartphone applications), eHealth (eg, interactive websites), telemedicine, and social media play an important and growing role in HIV prevention. Accordingly, the present study sought to describe: (1) the primary and secondary HIV prevention services available in Hawai‘i, (2) the prevention services that are available for gay male couples and partners, and (3) the prevention services that use HICT. Information about prevention services and use of HICT were obtained from websites and phone calls made to 19 organizations in the state, including the Hawai‘i Department of Health. Overall, partner-oriented services were limited and only 1 couples-based service was currently being offered. Technology, namely social media, was used by 14 organizations, primarily to increase HIV awareness and advertise events. These findings may inform how best to adapt and better leverage the use of innovative technological tools to help expand access to HIV testing and counseling, sexual health education, and case management services for gay male couples and other MSM populations in the state.


HIV testing in the Pediatric Emergency Department (PED) is a novel concept as adolescents, and young adults, use the PED as point of care or first point of contact with the health care system. Our objective was to study the HIV non-testing data and factors that influenced testing decision among patients receiving care in our PED. We designed a survey that inquired about testing acceptance, reasons for rejection, satisfaction with testing conditions, and understanding of the consequence of HIV test results. We approached 500 patients across all shifts in the PED; for analysis, categorical variables were created using demographic data (race, age, ethnicity, marital status, level of education). Forward conditional binary logistic regression was used to explore the effect of various independent predictors on HIV testing rejection with the strength of association measured with adjusted odds ratio (OR), and their 95% CIs. We conducted model fitting by plotting residuals, Hosmer and Lemeshow test statistic, and area under the curve completed using predicted probabilities. We used SPSS Version 25(), Microsoft Excel 2016() for data preparation and analysis. Of the 500 patients approached, 423 (84.6%) completed the survey, median (interquartile) age of survey participants was 19 (17-20) years, 158 (37.4%) rejected HIV testing, 284 (67.1%) were older than 18 years of age, 200 (47.3%) were males, 154 (36.4%) were white, and 127 (30%) were of Hispanic origin. The most common reason for rejecting HIV was low risk perception declared by 79 (50%) respondents. In multivariate analysis, age <18 years (OR, 3.5; 95% CI, 2.3-5.5, P<0.00) and being Hispanic (OR, 2.5; 95% CI, 1.6-3.8, P<0.00) were significant predictors for respondent
nontesting. Hosmer and Lemeshow test was not significant, $P=0.42$, and area under the curve was 0.67 (95% CI, 0.61-0.76). Respondents, <18 years were more likely to reject HIV testing because of low perception of risk. Program addressing risk perception which emphasizes safe health practices should be developed to reduce HIV transmission.


OBJECTIVES: To measure undiagnosed HIV and HCV in a New York City emergency department (ED). METHODS: We conducted a blinded cross-sectional serosurvey with remnant serum from specimens originally drawn for clinical indications in the ED. Serum was deduplicated and matched to (1) the hospital's electronic medical record and (2) the New York City HIV and HCV surveillance registries for evidence of previous diagnosis before being deidentified and tested for HIV and HCV. RESULTS: The overall prevalence of HIV was 5.0% (250/4990; 95% confidence interval [CI] = 4.4%, 5.7%); the prevalence of undiagnosed HIV was 0.2% (12/4990; 95% CI = 0.1%, 0.4%); and the proportion of undiagnosed HIV was 4.8% (12/250; 95% CI = 2.5%, 8.2%). The overall prevalence of HCV (HCV RNA \( \geq \) 15 international units per milliliter) was 3.9% (196/4989; 95% CI = 2.8%, 5.1%); the prevalence of undiagnosed HCV was 0.8% (38/4989; 95% CI = 0.3%, 1.3%); and the proportion of undiagnosed HCV was 19.2% (38/196; 95% CI = 11.4%, 27.0%). CONCLUSIONS: Undiagnosed HCV was more prevalent than undiagnosed HIV in this population, suggesting that aggressive testing initiatives similar to those directed toward HIV should be mounted to improve HCV diagnosis.


BACKGROUND: Text messaging after STI/HIV screening may be a cost-effective means of improving patient care, but it may not be appropriate for all patients. This study aimed to explore the profiles of patients who did not participate in an SMS program after STI/HIV testing. METHODS: During October 2016, 396 patients in Paris were screened for STI/HIV and were invited to complete an anonymous self-administered questionnaire. Patients were offered the possibility of being notified by SMS after testing and 68% accepted (SMS group) whereas 32% did not (no-SMS group). Each of the 100 patients from the no-SMS group who had completed the questionnaire was matched with the next patient from the SMS group. Factors associated with non-participation in the SMS program were studied using conditional logistic regression models. RESULTS: Participation in the SMS program was not related to STI screening characteristics (screening results and seriousness of the diseases screened), but appeared to be related to patient characteristics. In multivariate analysis, compared with patients in the SMS group, those in the no-SMS group were more often older, socially less favoured (born in Africa or Asia, no university diploma, living outside Paris). They also more often declined to answer sexual questions, which could reflect a need for privacy and discretion. CONCLUSIONS: Although SMS after STI/HIV screening is well accepted, it does not suit all patients. Several contact options should be proposed in order to comply with patients' preferences and to reduce the risk of non-delivery of STI screening results. This is an open access article distributed under the Creative Commons Attribution License 4.0 (CCBY), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.


OBJECTIVES: Timely HIV diagnosis and presentation to medical care are important for treatment and prevention. Our objective was to measure late diagnosis, delayed presentation and late presentation among individuals in the Ontario HIV Treatment Network Cohort Study (OCS) who were newly diagnosed in Ontario. METHODS: The OCS is a
multi-site clinical cohort study of people living with HIV in Ontario, Canada. We measured prevalence of late diagnosis (CD4 count < 350 cells/\mu L or an AIDS-defining condition (ADC) within 3 months of HIV diagnosis), delayed presentation (> = 3 months from HIV diagnosis to presentation to care), and late presentation (CD4 count < 350 cells/\mu L or ADC within 3 months of presentation). We identified characteristics associated with these outcomes and explored their overlap. RESULTS: A total of 1819 OCS participants were newly diagnosed in Ontario from 1999 to 2013. Late diagnosis (53.0%) and presentation (54.0%) were common, and a quarter (23.1%) of participants were delayed presenters. In multivariable models, the participants of delayed presentation decreased over calendar time, but that of late diagnosis/presentation did not. Late diagnosis contributed to the majority (> 87%) of late presentation, and the prevalence of delayed presentation was similar among those diagnosed late versus early (13.4 versus 13.4%, respectively; P = 0.99). Characteristics associated with higher odds of late diagnosis/presentation in multivariable analyses included older age at diagnosis/presentation; African, Caribbean and Black race/ethnicity; Indigenous race/ethnicity; female sex; and being a male who did not report sex with men. There were lower odds of late diagnosis/presentation among participants who had ever injected drugs. In contrast, delayed presentation risk factors included younger age at diagnosis and having ever injected drugs. CONCLUSIONS: Late presentation is common in Ontario, as it is in other high-income countries. Our findings suggest that efforts to reduce late presentation should focus on facilitating earlier diagnosis for the populations identified in this analysis.


BACKGROUND: We aimed to assess HIV preexposure prophylaxis (PrEP) awareness and prescribing practices among Washington State medical providers from diverse professional disciplines and practice types. METHODS: In May 2016, we administered an anonymous online survey to licensed medical practitioners who provide primary, longitudinal, walk-in, emergency, obstetric, gynecologic, sexually transmitted infection, or family planning care. RESULTS: Of 735 eligible providers, 64.8% had heard of PrEP. Younger providers and providers with a doctor of medicine degree were more likely to be aware of PrEP compared with older providers (P = 0.0001) and providers of other training backgrounds (advanced registered nurse practitioner, doctor of osteopathic medicine, or physician assistant; P = 0.04). Among providers aware of PrEP, most frequent reported concerns about prescribing were adherence (46.0%) and costs (42.9%). Providers felt very (20.1%) or somewhat (33.8%) comfortable discussing PrEP overall, but very (26.8%) or somewhat (44.7%) uncomfortable discussing cost and insurance issues. The 124 PrEP prescribers reported a median of 2 (range, 1-175; total, 1142) patients prescribed PrEP. Prior authorizations and insurance denials had prevented prescriptions for 28.7% and 12.1% of prescribers, respectively. CONCLUSIONS: Interventions to improve PrEP access should include education to inform medical providers about PrEP, with particular attention to provider types less likely to be aware. Continued efforts to eliminate cost and insurance barriers and educate providers regarding financial resources would help improve PrEP access.


Antiretroviral Therapy (ART) suppresses HIV replication, reducing the risk of transmission. However, many people living with HIV in the US are not virally suppressed even after diagnosis and initiating ART, and may become disengaged from care at each stage of the HIV care continuum (HCC). In the current study we assessed the sexual risk behaviors of MSM by HCC stage. US MSM who completed an online survey (N = 12,995) in 2015 were categorized into 6 HCC groups. Mean age was 39.2 and a majority identified as White (49.6%). At every stage of the HCC, we found higher proportions of individuals engaged in care compared to CDC estimates. A majority of the sample was HIV-positive and
engaged in care, with 67.2% of HIV-positive participants reporting viral suppression with ART. Across HCC groups, participants reported high rates of past 6-month condomless anal sex (CAS) (79.2%-84.8%) and CAS with serodiscordant or unknown status partners (38.0%-84.1%). Notably, MSM with unknown HIV serostatus reported the highest proportion of CAS and serodiscordant CAS. HIV-positive MSM not on ART were more likely to report an STI diagnosis (p < .002) compared to those unaware of their HIV status or HIV negative. Moreover, young Black MSM were less likely to be on ART (p < .002) or virally suppressed (p < .002) compared to older White MSM. Our findings highlight potentially problematic sexual risk behaviors among MSM by level of HCC engagement, which can impede the preventive impact of ART. Online platforms provide an avenue to assess the progress of MSM along the HCC, as well as other subpopulations in need of appropriate behavioral interventions to decrease HIV incidence.


BACKGROUND: Despite a decline in the number of new HIV infections in the UK overall, the number and proportion of new HIV diagnoses in people aged >/=50 years continues to increase. People aged >/=50 years are disproportionately affected by late diagnosis, which is associated with poorer health outcomes, increased treatment complexity and increased healthcare costs. Late HIV diagnosis also has significant public health implications in terms of onward HIV transmission. It is not fully understood what factors affect the decision of an older person to test for HIV. The aim of this study was to identify factors associated with testing for HIV in people aged >/=50 years who tested late for HIV. METHODS: We interviewed 20 people aged >/=50 years diagnosed late with HIV to identify factors associated with HIV testing. Interviews were audio recorded, transcribed verbatim and THEMATICALLY analysed. RESULTS: Seven themes associated with HIV testing in people aged >/=50 years were identified: experience of early HIV/AIDS campaigns, HIV knowledge, presence of symptoms and symptom attribution, risk and risk perception, generational approaches to health and sexual health, stigma, and type of testing and testing venue. CONCLUSION: Some factors associated with testing identified in this study were unique to older individuals. People aged >/=50 years often do not perceive themselves to be at risk of HIV. Further, stigma and a lack of knowledge of how to access HIV testing suggest a need for health promotion and suggest current sexual health services may need to adapt to better meet their needs.

Psychosocial


OBJECTIVE: To analyze factors related to the quality of life of elderly people living with HIV/AIDS. METHOD: A cross-sectional study was carried out with people aged 50 years or more in a specialized outpatient clinic. The data collection was by means of an interview. For the analysis of data and characterization of the sample, descriptive statistics and comparison tests were used. The project met the ethical requirements. RESULTS: Participants were 81 users aged 50 to 75 years, mean age was 57.8 (+/- 6.1) years, 71.6% of whom were men. There was a statistically significant relationship with the quality of life, the following variables: gender, children, occupation, religion, diagnosis time, HIV exposure, adverse effects, treatment interruption, viral load counts, hospitalization, dependence for daily
activities and use of drugs. CONCLUSION: The results suggest that the quality of life deficit is related not only to physical changes, but to the anguish and stigma related to HIV/AIDS.


Little is known about abuse experienced among African American men who have sex with men (MSM) who are 50 years and older. A series of focus groups were conducted to examine perspectives of seropositive African American MSM age 50 years and older who reported experiencing some form of psychological or physical abuse. Thirty African American MSM were divided into four focus groups and four themes emerged: "Fear Being Gay," "No One Else to Love Me," "Nowhere to Turn," and "Sexual Risk & Control." The data suggest there is a need to develop culturally tailored interventions for this population.


Research suggests that people living with HIV experience levels of pain disproportionate to the general population. Pain is a stressor that can negatively impact health-related quality of life. As the number of people aging with HIV increases, we must understand the dynamics of pain experiences among people living with HIV and how to effectively harness evidence-based treatments and supportive resources to enhance adaptive coping. We used an experience sampling method (also called Ecological Momentary Assessment) to assess moment-to-moment experiences of pain and social support 3 times a day for 7 days in a sample of 109 men living with HIV. Participants also responded to questionnaires assessing attachment-related insecurity and social support. In hierarchical linear modeling analyses controlling for age, race, sexual orientation, and socioeconomic status, we found that experiences of social support were associated with lower subsequent pain within-persons. On the other hand, experiences of pain were not associated with later experiences of social support. Men with higher levels of attachment-related avoidance reported more pain on average. Attachment-related avoidance also moderated the association between moment-to-moment experiences of felt social support on pain. Results suggest that within-persons, experiences of daily social support reduce experiences of pain. Between-persons, attachment style may influence how individuals make use of social support in coping with experiences of pain. These findings imply a need to assess social well-being at the clinic level and also support tailored biopsychosocial approaches to pain management in HIV care settings.


Background: Despite the generally accepted belief that social support improves caregiver adjustment in general and subjective burden in particular, the literature shows mixed findings, and a recent review concluded that the predictive strength of caregiver social support in determining caregiver burden is less evident, due to the conceptual diversity of this determinant. Objective: The purpose of this review is to analyse the relationship of perceived and received social support with subjective burden among informal caregivers of an adult or older adult. Methods: A systematic search was carried out up to September 2017 in the following databases: MEDLINE (PubMed), CINAHL, EMBASE, PsycINFO, Scopus and ISI Proceedings, and a meta-analysis was performed with the results of the selected and included studies. Results: Fifty-six studies were included in the meta-analysis, which provided 46 independent comparisons for perceived support and 16 for received support. Most of these studies were cross-sectional. There was a
moderate, negative association of perceived social support on subjective burden (r = -0.36; CI 95% = -0.40, -0.32) and a very small, negative association of received support on subjective burden (r = -0.05; CI 95% = -0.095, -0.001).

Conclusions: 1) perceived and received support are not redundant constructs, 2) the relationships between social support and subjective burden depend on whether the social support is measured as perceived or received, 3) the relationship of perceived social support with subjective burden has a bigger effect size than that of received social support, the relation between received support and subjective burden being clinically irrelevant, 4) perceived social support may be a good predictor of subjective burden. Implications of key findings: Our findings broadly support interventions promoting social support in caregivers to prevent or alleviate subjective burden, and specifically, to intervene on the promotion of perceived social support more than on the promotion of received social support when preventing or alleviating burden. [ABSTRACT FROM AUTHOR]


OBJECTIVES: Successful aging has been identified as an important emphasis for people living with human immunodeficiency virus (HIV). Little is known about how this population conceptualizes aging successfully and how this relates to generativity. This qualitative study examined the importance of generativity among 30 HIV-positive older adults to determine the role of generativity in successful aging. METHOD: Participants aged 50+ years were recruited in Ontario, Canada, through acquired immunodeficiency syndrome (AIDS) service organizations, clinics, and community agencies. Qualitative interviews were analyzed to explore strategies participants employed to engage in successful aging within their own personal context. RESULTS: Participants saw themselves as pioneers and mentors, helping others to navigate the landscape of aging with HIV. Four themes were identified through consensus including (a) reciprocity, (b) mentoring, (c) pioneerism, and (d) connecting through volunteerism. DISCUSSION: Interventions that promote intergenerational connections, community involvement, and generative acts within the HIV community can facilitate successful aging among older adults living with HIV/AIDS.


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.


Aging persons living with HIV may develop multiple health problems, including comorbidities, and altered physical and mental health, earlier than non-infected people. They may also experience social deprivation. We assessed
the prevalence of social deprivation and its relationship with health indicators in older persons living with HIV. An 18-month, multicenter, cross-sectional study was carried out between 2013 and 2014 focusing on patients \( \geq 50 \)-years of age followed-up in 12 dedicated HIV medical hospital units located in the South of France and involved the VISAGE study group. Social deprivation was measured with the EPICES (Evaluation of Deprivation and Inequalities in Health Examination Centers) score (ES) and defined as ES \( \geq 30.17 \). The following data were recorded: health indicators (gender, age, body mass index), comorbidities, frailty markers, socioeconomic, behavioral and age-related variables.

Among 509 patients recruited, 494 completed the ES social deprivation evaluation. Mean age was 58.5 +/- 7.0 years and 72.9% were male. The prevalence of social deprivation was 49.0%. Multivariable logistic regression analysis showed that higher social deprivation was significantly linked to alcohol consumption (OR = 4.07 [95%CI: 1.23-13.48]), risk of depression (OR = 3.59 [95%CI: 2.26-5.70]), chronic obstructive pulmonary disease (OR = 3.10 [95%CI: 1.36-7.09]), hepatitis C (OR = 1.96 [95%CI: 1.10-3.52]), and chronic pain (OR = 1.11 [95%CI: 1.01-1.21]). Social deprivation was not related to HIV status. Our study showed that not only did older patients with HIV suffer from social deprivation, but they also received little support from social workers. Physicians should be aware of this situation and should systematically evaluate social deprivation in order to provide comprehensive targeted care involving global, social, and psychological support to reduce the burden of social deprivation.


The current study examined the association between perceived social support, depressive symptoms and alcohol use among people living with HIV (PLWH) 50 and older who identified as Black. Participants included 96 men and women ages 50 and older. Participants completed an interviewer-administered assessment examining mental and behavioral health functioning. Mediation analyses examined whether perceived support mediated the association between depressive symptoms and hazardous drinking. Depressive symptoms were significantly associated with hazardous drinking \( (B = .068, SE = .035, t = 1.92, p = 0.05) \) and negatively associated with having the desired amount of contact with a primary supporter \( (B = -.072, SE = .018, z = -3.96, p < 0.001) \). In addition, having the desired amount of contact with a confidant was negatively associated with hazardous drinking \( (B = -.543, SE = .208, t = -2.61, p < .01) \). The effect of depressive symptoms on hazardous drinking when controlling for having adequate contact with a primary supporter was not significant \( (B = .033, SE = .04, t = .829, p = 0.41) \). Having a valued confidant mediated the association between depressive symptoms and hazardous drinking. Thus, social support interventions may be an effective method of reducing hazardous drinking among older PLWH.


PURPOSE: The Comparative Outcomes And Service Utilization Trends (COAST) Study in British Columbia (BC), Canada, was designed to evaluate the determinants of health outcomes and health care services use among people living with HIV (PLHIV) as they age in the period following the introduction of combination antiretroviral therapy (cART). The study also assesses how age-associated comorbidities and health care use among PLHIV may differ from those observed in the general population. PARTICIPANTS: COAST was established through a data linkage between two provincial data sources: The BC Centre for Excellence in HIV/AIDS Drug Treatment Program, which centrally manages cART dispensation across BC and contains prospectively collected data on demographic, immunological, virological, cART use and other clinical information for all known PLHIV in BC; and Population Data BC, a provincial data repository that holds individual event-level, longitudinal data for all 4.6 million BC residents. COAST participants include 13 907 HIV-positive adults \( (\geq 19 \) years of age) and a 10% random sample inclusive of 516 340 adults from the general population.
followed from 1996 to 2013. FINDINGS TO DATE: For all participants, linked individual-level data include information on demographics, health service use (eg, inpatient care, outpatient care and prescription medication dispensations), mortality, and HIV diagnostic and clinical data. Publications from COAST have demonstrated the significant mortality reductions and dramatic changes in the causes of death among PLHIV from 1996 to 2012, differences in the amount of time spent in a healthy state by HIV status, and high levels of injury and mood disorder diagnosis among PLHIV compared with the general population. FUTURE PLANS: To capture the dynamic nature of population health parameters, regular data updates and a refresh of the data linkage are planned to occur every 2 years, providing the basis for planned analysis to examine age-associated comorbidities and patterns of health service use 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.


Background and Objective: As HIV-infected (HIV+) individuals age, there is a need to understand successful aging (SA) from the patient perspective. This study compared SA definitions between HIV+ and HIV-uninfected (HIV-) older adults and then examined correlates of SA categories. Research Design and Methods: Ninety-three HIV+ and 46 HIV-older (aged 50+) adults provided brief definitions of SA, which was examined using content analysis. We then compared the frequency of SA categories by serostatus and examined the correlates of SA categories within both groups. Results: Seven SA categories emerged: General Health, Cognitive Health & Ability, Physical/Biological Health & Ability, Social Relationships, Attitudes, Psychological, & Emotional Well-Being, Proactive & Engaged Lifestyle, and Independence. While no significant differences emerged, HIV- older adults were more likely to report General Health and the subcategory of Longevity/Survival, while HIV+ older adults were more likely to report subcategories of Enjoying Life & Fulfillment and Maintaining Balance. Few demographic correlates of SA categories emerged. Mood and HIV characteristics were not associated with SA categories. In both groups, those without neurocognitive impairment were significantly more likely to endorse General Health than those with neurocognitive impairment. Discussion and Implications: HIV+ and HIV- older individuals may generally perceive SA similarly, and their definitions parallel with existing models of SA. Yet, living with a chronic illness may cause HIV+ older adults to place greater value on quality of life and life satisfaction than physical

OBJECTIVE: People living with HIV (PLWH) commonly report sleep disturbances which are associated with long-term health consequences, including disease progression. PLWH also experience internalised stigma as a result of their HIV status, which can be associated with increased loneliness and depression. Little attention focuses on the impact of these factors on sleep. Therefore, we examined whether internalised HIV-stigma was indirectly related to poorer sleep quality through higher levels of loneliness and depressive symptoms. DESIGN: 181 PLWH from across the United States completed an online survey. Main Study Measures: Internalised HIV-stigma was assessed using the HIV-Stigma Scale, loneliness was assessed using the UCLA-Loneliness Scale-Short Form, depressive symptoms were assessed with the Center for Epidemiologic Studies-Depression Index, and Sleep Quality was assessed using the Pittsburgh Sleep Quality Index. RESULTS: Internalised HIV-stigma was indirectly associated with poorer global sleep quality and daytime sleep dysfunction through both loneliness and depressive symptoms. CONCLUSIONS: PLWH who experience HIV-related stigma may experience greater feelings of loneliness, which are related to increased depressive symptoms and poorer sleep quality. Interventions focused on improving sleep in PLWH should focus on multiple factors that influence sleep, including psychosocial factors such as stigma, social isolation and depressive symptoms.


BACKGROUND: Developing guidelines and policies is critical to address HIV-related stigma and discrimination (SAD) in healthcare settings. To this end, a multidisciplinary panel developed a guideline to reduce SAD. This project evaluated the appropriateness of implementing the guideline in the Ethiopian context. METHODS: A consensus of the expert panel was established through a modified Delphi technique which was followed by a panel meeting. Initial tentative recommendations were distributed to experts through e-mails to be evaluated using the modified guideline implementability appraisal (GLIA) v.2.0 checklist. RESULTS: In the first round of the Delphi survey, all (13) panel members evaluated the guideline. The overall score for the general domain of the modified GLIA checklist was 96.56%. The scores for individual recommendations ranged from 68.33% to 92.76%. Maximum and minimum scores were attained for measurability (97.71%) and flexibility (59.77%) domains respectively. Percentages mean score lower than 75% was obtained for flexibility and validity domains. Participants suggested that additional tools and training should be added to the guideline. In the second round of the survey, all the recommendations received endorsement with scores above 75%. Maximum and minimum scores were attained for measurability (100%) and flexibility (86.88%) domains respectively. During the panel meeting, issues of responsibility for implementing the guideline were discussed. CONCLUSION: The project evaluated implementability of a guideline developed to reduce HIV-related SAD in healthcare settings. The Delphi survey was followed by a half-day meeting that helped in further clarification of points.


The ageing of the first generation of HIV long-term survivors brings into sharp focus the suffering that activism and the clinical management of HIV has not solved, particularly in regional areas. Although HIV is now usually a
manageable chronic condition, it also involves navigating unrelenting social stigma. Quality of life beyond viral suppression is not assured. Despite a history of affected communities demanding equal partnership with health-care providers, an increasingly biomedicalized orientation risks neglecting the psycho-social needs of those with a history of trauma, depression and other co-morbidities often more difficult to manage than HIV itself. [ABSTRACT FROM AUTHOR]


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: Community health worker (CHW) interventions are a successful strategy to promote health among HIV-negative and persons living with HIV (PLWH). Psychosocial factors are critical dimensions of HIV/AIDS care contributing to prognosis of the disease, yet it is unclear how CHW interventions improve psychosocial outcomes in PLWH. The purpose of this study was to critically appraise the types, scope, and nature of CHW interventions designed to address psychosocial outcomes in PLWH. Methods: We performed database searches—PubMed, EMBASE, CINAHL, and Cochrane—to identify randomized controlled trials published in English before April 2017. Fourteen articles met the eligibility criteria. Results: Half of the studies were conducted in the United States. Social cognitive theory was used more than once in nine theory-guided studies. CHW interventions were largely focused on reducing depression (n = 6) or stigma related to HIV (n = 4), or promoting quality of life (n = 4), social support (n = 4), and self-efficacy (n = 4). Didactic methods and role-playing were used to train CHWs. CHWs played multiple roles in delivering intervention, including a counselor and a supporter (n = 10), educator (n = 5), or a navigator (n = 3). CHW intervention fidelity was assessed in 4 studies. Five studies found positive changes in six psychosocial outcomes including quality of life (2 of 4) and self-efficacy (2 of 4). CHW interventions had no effect on social support in 2 of 4 studies, and stigma in 3 of 4 studies. None of the CHW interventions were successful in reducing depressive symptoms among PLWH. Conclusions: Evidence partially supported the use of CHWs in promoting psychosocial outcomes in PLWH. Future CHW intervention should be expanded in scope to address key psychosocial determinants of HIV/AIDS outcomes such as health literacy. Further, fidelity measures should be incorporated into intervention delivery. [ABSTRACT FROM AUTHOR]


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.


With the overarching goals of improving the healthcare of older transgender individuals and of inspiring pertinent clinical research, a session at the 2017 American Association for Geriatric Psychiatry Annual Meeting focused on an interdisciplinary approach to transgender aging. The older the transgender adult, the more likely the individual grew up in a historical context when there was greater social stigma towards their gender identity, even among mental health professionals. In order to provide optimal healthcare to transgender adults, mental health care providers should become familiar with the basic terminology presented in this article. Transgender older adults face greater risks of poor physical health, disability, anxiety and depressive symptoms, victimization, and stigma, and higher rates of smoking, excessive alcohol use, and risky sexual behavior compared with non-transgender older adults. In spite of notable health disparities, some evidence points to resilience among transgender older adults. The mental health professional often serves as the first contact for a patient who is struggling with gender identity. The role of a mental health professional can be divided into five categories: 1) assessment of gender dysphoria; 2) psychoeducation of patients and family members about the diversity of gender identities and various options for alleviating gender dysphoria; 3) referral to and collaboration with other healthcare professionals; 4) treatment of coexisting mental health concerns; 5) advocating for transgender patients and for the transgender community. Recently, the criteria for medical and surgical transition have been simplified. End-of-life preparations are especially important for transgender individuals.


CONTEXT: No prospective studies address disease-specific Advance Care Planning (ACP) for adults living with HIV/AIDS. OBJECTIVE: To examine the efficacy of FAmily-CEntered (FACE) ACP in increasing advance care planning and advance directive documentation in the medical record. METHOD: Longitudinal, two-arm, randomized controlled trial with intent-to-treat design recruited from 5 hospital-based outpatient HIV clinics in Washington, DC. Adults living with HIV and their surrogate decision makers (N=233 dyads) were randomized to either an intensive facilitated two-session FACE ACP (Next Steps: Respecting Choices goals of care conversation and Five Wishes advance directive) or Healthy
Living Control (conversations about developmental/relationship history and nutrition). RESULTS: Patients (n=223) mean age: 51 years, 56% male, 86% African-American. One hundred ninety-nine dyads participated in the intervention. At baseline, only 13% of patients had an advance directive. Three months post-intervention, this increased to 59% for the FACE ACP group versus 17% in the control group (p<0.0001). Controlling for race, the odds of having an advance directive in the medical record in the FACE ACP group was approximately 7 times greater than controls (Adjusted Odds Ratio=6.58, 95% C.I.: 3.21-13.51, p<0.0001). Among African-Americans randomized to FACE, 58% had completed/documented advance directives versus 20% of controls (p<0.0001). CONCLUSIONS: The FACE ACP intervention significantly improved ACP completion and advance directive documentation in the medical record among both African-American and non-African-American adults living with HIV in Washington, D.C., providing health equity in ACP which can inform best practices.


The development of highly active antiretroviral therapy (HAART) has shifted human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) from an acute to a chronic condition. Due to reduced fatality, approximately 1.1 million people living with HIV/AIDS (PLWHA) are faced with increased longevity in conjunction with functional consequences associated with chronic disability. Employment has been associated with increased treatment adherence, quality of life (QoL), and mental and physical health for people living with HIV/AIDS. The purpose of this study was to determine the relationship between employment status and QoL for PLWHA. Participants included 115 patients receiving services from two Ryan White HIV/AIDS Program (RWHAP) clinics in a rural Mid Atlantic Appalachian region of the U.S. Findings revealed statistically significant differences in employment status on six domains of the World Health Organization's Quality of Life scale for PLWHA (WHOQOL-HIV-Bref), except for spirituality/religion/personal beliefs. Implications for practice and research are discussed. [ABSTRACT FROM AUTHOR]


Resilience has been related to improved physical and mental health, and is thought to improve with age. No studies have explored the relationship between resilience, ageing with HIV, and well-being. A cross sectional observational study performed on UK HIV positive (N = 195) and HIV negative adults (N = 130). Associations of both age and 'time diagnosed with HIV' with resilience (RS-14) were assessed, and the association of resilience with depression, anxiety symptoms (PHQ-9 and GAD-7), and problems with activities of daily living (ADLs) (Euroqol 5D-3L). In a multivariable model, HIV status overall was not related to resilience. However, longer time diagnosed with HIV was related to lower resilience, and older age showed a non-significant trend towards higher resilience. In adults with HIV, high resilience was related to a lower prevalence of depression, anxiety, and problems with ADLs. It may be necessary to consider resilience when exploring the well-being of adults ageing with HIV.


CONTEXT: Advance care planning rates remain low, especially among people who are HIV positive, disadvantaged, and African American. Although advance care planning can be a sensitive topic for clinicians and patients to discuss, health values clarification can be an important initial step. OBJECTIVES: The purpose of the study was to
explore health values of African Americans living with HIV/AIDS and to examine correlates of these values. METHODS: Data were from the first 325 participants in the AFFIRM Care study, which enrolled adults living with HIV/AIDS in Baltimore, Maryland, who had histories of illicit drug use. Respondents were asked whether (yes/no) they thought any of six health states would be worse than death: severe unremitting pain, total dependency on others, irreversible coma, being on mechanical ventilation, nursing home residence, and severe dementia. Latent class analysis was used to group individuals by their pattern of responses, interpretable as preference for aggressive (life-sustaining) or nonaggressive (palliative) end-of-life care. Latent class regression analysis was used to examine associations between class membership and background, health status, and social variables. RESULTS: We found statistical support for a three-class latent class analysis model: 1) the nonaggressive treatment class, comprising 43% of cases, in which members perceived that every state was worse than death; 2) the aggressive treatment class, comprising 33% of cases, in which members perceived that none of the states was worse than death; and 3) the mixed class (24% of cases), in which members perceived that only four of the six states were worse than death. CONCLUSION: Three-quarters of participant response patterns had clear preferences for treatment decisions. Further research is needed to ensure inclusion of end-of-life scenarios relevant to this population.


• We use multiple dimensions of social networks (SN) to explore the effects of SN on health controlling for the social determinants of health. • More family members compose the personal social networks than any other type. • Positive effect of contacts who were spouses and financial support on physical health. • Receipt of emotional and informational support, having network members living within the households, and feeling part of the village all negatively correlate with health. • Positive effect of perception of people in the village, finding the village safe, being satisfied with life, working full time on report of physical health.

Personal social networks (SN) affect health and wellbeing. This study used a multidimensional approach of SN and social determinants of health (SDH) to examine the association between SN and self-reported physical health among the aging population of Agincourt, South Africa. We analyzed the composition of personal SN and used a multiple linear regression analysis to examine both network dimensions and SDH that correlate with physical health. Results highlight the complexity and nuances of social relationships. A few recommendations were also made.


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.

This study examined the association between social engagement and survival in people with or without HIV aged 50 years and over in Uganda. We analysed two waves of a survey from two sites in Uganda to assess predictors of mortality between waves. The first wave was conducted between 2009 and 2010 while the second wave was conducted between 2012 and 2013. A standardised questionnaire adapted from the World Health Organization study on global AGing and adult health (SAGE) was administered through face-to-face interviews at both survey waves. Cox proportional hazards models and Nelson-Aalen cumulative hazards functions were used to investigate associations between the strength of participants' social ties, using distance and intimacy metrics, and their social engagement with mortality between waves. Of the original 510 participants, 63 (12.3%) died between waves. Being more socially engaged and able to provide in-kind or financial contributions to family or friends were protective. After adjusting for covariates neither social tie measure was predictive of mortality. There were no significant differences in social engagement and survival by HIV status. Further research is needed in African settings on the relationship between social relationships and subsequent mortality in older adults to assess if improved social relationships could moderate mortality.


; CHICAGO, June 5, 2018 /PRNewswire-USNewswire/ -- A new report from The Reunion Project on HIV Long-Term Survivors Awareness Day (#HLTSAD) calls for a national coalition of survivors of HIV to advance the needs of survivors in four key areas: research, programs, community building, and advocacy. [ABSTRACT FROM PUBLISHER]


; NEW YORK, June 4, 2018 /PRNewswire/ -- "I was in shock." "I felt so alone." These sentiments were shared by a group of long-term survivors of HIV as they reflected on how they felt when they were diagnosed. After living through and overcoming many challenges since the beginning of the HIV epidemic in the United States, long-term survivors know how powerful it can be to share their stories as inspiration to those who might be struggling now. That's why the HIV: The Long View Coalition created the Never Alone video series, which helps people who are newly diagnosed or living with HIV feel less isolated and better connect with their community. [ABSTRACT FROM PUBLISHER]

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 \( \geq 50 \) 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.


With the increase in the US of the number of older adults living with HIV, more research is needed to understand the caregiving and advance care planning needs of this population. This descriptive study examined the relationship between social support and caregiving preferences and advance care planning. Older adults living with HIV were recruited from clinics in Los Angeles, CA and New Orleans, LA to complete cross-sectional surveys \((n = 154)\). Logistic regression analyses were modeled to determine the characteristics associated with 1) preference for formal short-term care, 2) preference for formal long-term care, 3) having at least one contact for emergency care, 4) having an advance directive or living will, and 5) having a healthcare proxy or agent. The mean age was 56.8 years. The majority of participants indicated a preference for informal support for both short-term (73.4%) and long-term care (66.2%), 13.2% had no one they could call for emergency care, 26.0% had an advance directive/living will, and 30.5% had a healthcare proxy/agent. In adjusted models, greater social support was associated with preference for informal short-term care and with having at least one emergency contact. Findings suggest that older adults living with HIV prefer informal sources of support for their caregiving needs despite having small social networks and individuals with limited social networks are particularly vulnerable due to lack of access to caregivers in sudden or unexpected health situations.


AIM: To explore perceptions of low income persons living with HIV/AIDS and history of substance abuse about how they decide whether an internet site is a credible source of health-related information. BACKGROUND: It is hard for any consumer to determine whether the information that is available on the internet is trustworthy and even more challenging for consumers with low health literacy and insufficient computer literacy skills. METHODS: Mixed methods with sequential explanatory design. Electronic health literacy was measured with eHEALS and a new instrument to measure confidence in choosing a credible internet site for health-related information was developed. Qualitative data were collected during three focus groups held in high prevalence neighborhoods in New York City and after participants watched a 16-minute video produced by the United States National Library of Medicine. RESULTS: Participants had low
electronic health literacy and there was no relationship between electronic health literacy and confidence in identifying a credible internet site. Six themes emerged: I haven't learned enough from the Medline video; I am not computer literate; the Internet has too many scams; the Internet piques interest in learning health-related information; prefer 1:1 interactions with trusted source for health information; and you don't have to expose HIV status to get information.

CONCLUSION: Low income persons are interested in using the internet for health information but reluctant to do so due to multiple complex barriers. Follow-up interventions would include skills training in which persons are taught how to identify credible sites.


BACKGROUND: The present study evaluated the distributional and structural characteristics and explanatory power of the 23-item Brief Appraisal Inventory (BAI), a more practical appraisal measure for use in clinical research and practice. METHODS: A heterogeneous, online cohort of chronic disease patients and caregivers completed the BAI, along with demographics, comorbidities, PROMIS-10, and the Brief NEO Personality Inventory. Principal components, bivariate, and linear and logistic regression analyses addressed BAI item distributions, structure, and construct validity. RESULTS: The study sample (n = 592) had a mean age of 43.8 (SD = 18.5), and was 79% female. The BAI items exhibited good distributions, and principal component analysis yielded five composite scores: (1) Health Worries; (2) Interpersonal and Independence concerns; (3) Accomplishing Goals and Problem-Solving; (4) Calm, Peaceful, and Active; (5) Spiritual Growth and Altruism. The construct validity of appraisal factors is supported by their zero-order correlations with demographic, health, personality, and health-related QOL measures. Comparisons of appraisal-correlates among comorbidity-burden subgroups shed light on the mediating role that appraisal may play in adapting to chronic illness. Appraisal moderated the influence of comorbidities on emotional but not physical functioning. The performance of the BAI in explaining unique variance in physical and emotional functioning is comparable to results obtained with earlier measures. CONCLUSIONS: The BAI provides a practical, short tool for evaluating appraisal in a wide range of assessment situations. Future research might utilize the BAI in longitudinal research aimed at detecting response-shift effects over time, and in clinical settings to improve patient-provider communication about concerns related to health, health care, or QOL.


Objective The aim of this study was to examine the buffering role of time-varying received and provided support in the relationship between stress and end-of-day mood among people living with HIV. In addition, the moderating role of intimate relationships in this buffering effect was verified.

Methods The participants included 115 patients with a confirmed diagnosis of HIV infection. The data were collected using an online diary method. For five consecutive days (from Monday to Friday), participants completed an online time-stamped questionnaire in the evening to assess their end-of-day mood, stress related to a central hassle on any given day and social support that was received and provided.

Results The results of the multilevel analysis showed that daily provided, but not received, support had the following partial buffering effect: the association between negative affect and stress was weaker on days with higher support...
provision. However, this effect was limited to those participants who were in an intimate relationship; the opposite effect was observed in single participants.

Conclusion These findings suggest that the buffering effect of daily support may be modified by other social resources, such as being in an intimate relationship, and when they are not available, it can even become detrimental.

- This study investigated daily functioning of people living with HIV.
- A diary study was performed on time-varying received and provided support.
- Daily provided, but not received, support had partial buffering effect on stress and end-of-day mood.
- However, this effect was limited to those participants who were in an intimate relationship.


BACKGROUND: Social determinants are known to be a driving force of health inequalities, even in high income countries. Aim of our study was to determine if these factors can limit antiretroviral therapy (ART) access, outcome and retention in care of people living with HIV (PLHIV) in Italy. METHODS: All ART naive HIV+ patients (pts) of Italian nationality enrolled in the ICONA Cohort from 2002 to 2016 were included. The association of socio-demographic characteristics (age, sex, risk factor for HIV infection, educational level, occupational status and residency area) with time to: ART initiation (from the first positive anti-HIV test), ART regimen discontinuation, and first HIV-RNA < 50 cp/mL, were evaluated by Cox regression analysis, Kaplan Meier method and log-rank test. RESULTS: A total of 8023 HIV+ pts (82% males, median age at first pos anti-HIV test 36 years, IQR: 29-44) were included: 6214 (77.5%) started ART during the study period. Women, people who inject drugs (PWID) and residents in Southern Italy presented the lowest levels of education and the highest rate of unemployment compared to other groups. Females, pts aged > 50 yrs., unemployed vs employed, and people with lower educational levels presented the lowest CD4 count at ART initiation compared to other groups. The overall median time to ART initiation was 0.6 years (yrs) (IQR 0.1-3.7), with a significant decrease over time [2002-2006 = 3.3 yrs. (0.2-9.4); 2007-2011 = 1.0 yrs. (0.1-3.9); 2012-2016 = 0.2 yrs. (0.1-2.1), p < 0.001]. By multivariate analysis, females (p < 0.01) and PWID (p < 0.001), presented a longer time to ART initiation, while older people (p < 0.001), people with higher educational levels (p < 0.001), unemployed (p = 0.02) and students (p < 0.001) were more likely to initiate ART. Moreover, PWID, unemployed vs stable employed, and pts. with lower educational levels showed a lower 1-year probability of achieving HIV-RNA suppression, while females, older patients, men who have sex with men (MSM), unemployed had higher 1-year risk of first-line ART discontinuation. CONCLUSIONS: Despite median time to ART start decreased from 2002 to 2016, socio-demographic factors still contribute to disparities in ART initiation, outcome and durability.


OBJECTIVE: The African HIV epidemic is aging, yet HIV testing behavior studies either exclude older persons or include too few to say much about age differences. METHOD: Strategically combining focus group interviews (participants in 40s/50s/60s-plus age groups) and survey data from rural South Africa (where HIV prevalence peaks in the late 30s, but continues to be over 10% into the late 60s), we examine gender and life course variation, motivations, and barriers in HIV testing. RESULTS: We find significant gender differences—Women test at higher rates at younger ages, men at older ages. Our qualitative data not only highlight recognition of testing importance but also suggest gendered motivations and perceptions of testing. Men and women report similar barriers, however, including fear of finding out their (positive) HIV status, limited confidentiality, and partner nondisclosure. DISCUSSION: We conclude with
recommendations to increase HIV testing uptake among older adults including home testing, couples testing, and HIV testing concurrently with noncommunicable diseases.


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.


HIV infections are growing the fastest amongst adolescents, especially in sub Saharan Africa. On reaching adolescence, perinatally-infected youth may have different needs to those who acquired infection behaviourally. Yet both have sub-optimal adherence with implications for their own health as well as onward transmission. This study uses the world’s largest community-based study of HIV-positive adolescents from the Eastern Cape, South Africa. Clinic records at N = 53 district health facilities generated a log of all ART-initiated adolescents who were then interviewed in the community: N = 1058 (90%) were tracked and participated. Ethical approval, informed consent and data collector training preceded data gathering. Inventories comprised validated measures of mental health (depression, anxiety, suicidality and internalised stigma), substance use, ART adherence, and clinic attendance. Analyses were conducted using SPSS25 and STATA15. Perinatally-infected adolescents (n = 792, 77.3%) were significantly more likely to be ART adherent (OR = 1.54 95%CI: 1.14-2.07 p = 0.005), retained in healthcare (OR = 1.59 95%CI:1.18-2.14 p = 0.002), and treated well by clinic staff (OR = 2.12 95%CI:1.59-3.07 p </= 0.001). Behaviourally-infected adolescents were more likely to be depressed (B = 0.81 p </= 0.001), anxious (B = 1.36 p </= 0.001), report internalised stigma (B = 0.91 p </= 0.001), express suicidal ideation (OR = 3.65 95%CI: 1.96-6.82 p </= 0.001) and report excessive substance use in the past year (OR = 9.37 95%CI:15.73-15.35 p </= 0.001). Being older explained most of these differences, with female adolescents living with HIV more likely to report suicidal ideation. However, behaviourally-infected adolescents were more likely to report substance use (OR = 2.69 95%CI: 1.48-4.91 p = 0.001), depression (B = 0.406, p = 0.022), anxiety (B = 1.359, p </= 0.001), and internalised stigma (B = 0.403, p = 0.007) in multivariate regression analyses, controlling for covariates. Moderation analyses (adjusting for multiple testing) suggest that behaviourally-infected HIV-positive adolescents who are also maternal orphans are more likely to report higher rates of depression (B = 1.075, p < 0.001). These notable differences by mode of infection suggest that studies which conflate HIV-positive adolescents may blur the clinical and psychological experiences of these two different sub-populations. Drivers of non-adherence, poor retention in care, and mental health problems may differ by mode of infection, requiring tailored interventions. Health and social service provision, if it is to be effective, needs to address these different youth profiles to ensure optimal adherence, development and wellbeing throughout the life course.

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.


OBJECTIVES: Telomere length (TL) is a robust indicator of cellular aging. TL erosion has been associated with exposure to social and traumatic stressors. Loneliness and perceived social support are strongly linked to increased morbidity and mortality, but have yet to be investigated in relation to TL after extreme stress. The present study examined whether loneliness and lack of perceived social support following wartime captivity may be associated with TL as repatriated prisoners of war (ex-POWs) enter old age and contribute to its prediction. METHOD: A cohort of Israeli ex-POWs from the 1973 Yom Kippur War (n = 83) were assessed. Questionnaires were utilized to assess loneliness and perceived social support 18 years after the repatriation (T1), and Southern blotting was used to measure TL 24 years later (T2). A zero-order Pearson correlation test and a hierarchical regression analysis were utilized in order to examine the research questions. RESULTS: Loneliness and lack of perceived social support each significantly predicted shorter TL in later life, and together added 25.8% to the overall explained variance. CONCLUSIONS: This is the first study to empirically demonstrate that loneliness and lack of perceived social support in early adulthood may be associated with shorter TL during transition to old age in a population that has endured extreme stress. Although the study design precludes causal inferences, several psychobiological mechanisms may explain the findings. The potential clinical significance of social deficits for longevity and health in related populations is therefore addressed, and an agenda for future investigations is suggested. (PsycINFO Database Record (c) 2018 APA, all rights reserved).


BACKGROUND: Deficiencies in older people's social relationships (including loneliness, social isolation, and low social support) have been implicated as a cause of premature mortality and increased morbidity. Whether they affect service use is unclear. OBJECTIVES: To determine whether social relationships are associated with older adults' use of health services, independently of health-related needs. SEARCH METHODS: We searched 8 electronic databases (MEDLINE, Embase, CINAHL, Web of Science, PsycINFO, Scopus, the Cochrane Library, and the Centre for Reviews and Dissemination) for data published between 1983 and 2016. We also identified relevant sources from scanning the reference lists of included studies and review articles, contacting authors to identify additional studies, and searching the tables of contents of key journals. SELECTION CRITERIA: Studies met inclusion criteria if more than 50% of participants were older than 60 years or mean age was older than 60 years; they included a measure of social networks, received social support, or perceived support; and they reported quantitative data on the association between social
relationships and older adults' health service utilization. DATA COLLECTION AND ANALYSIS: Two researchers independently screened studies for inclusion. They extracted data and appraised study quality by using standardized forms. In a narrative synthesis, we grouped the studies according to the outcome of interest (physician visits, hospital admissions, hospital readmissions, emergency department use, hospital length of stay, utilization of home- and community-based services, contact with general health services, and mental health service use) and the domain of social relationships covered (social networks, received social support, or perceived support). For each service type and social relationship domain, we assessed the strength of the evidence across studies according to the quantity and quality of studies and consistency of findings. MAIN RESULTS: The literature search retrieved 26 077 citations, 126 of which met inclusion criteria. Data were reported across 226 678 participants from 19 countries. We identified strong evidence of an association between weaker social relationships and increased rates of readmission to hospital (75% of high-quality studies reported evidence of an association in the same direction). In evidence of moderate strength, according to 2 high-quality and 3 medium-quality studies, smaller social networks were associated with longer hospital stays. When we considered received and perceived social support separately, they were not linked to health care use. Overall, the evidence did not indicate that older patients with weaker social relationships place greater demands on ambulatory care (including physician visits and community- or home-based services) than warranted by their needs. AUTHORS' CONCLUSIONS: Current evidence does not support the view that, independently of health status, older patients with lower levels of social support place greater demands on ambulatory care. Future research on social relationships would benefit from a consensus on clinically relevant concepts to measure. Public Health Implications. Our findings are important for public health because they challenge the notion that lonely older adults are a burden on all health and social care services. In high-income countries, interventions aimed at reducing social isolation and loneliness are promoted as a means of preventing inappropriate service use. Our review cautions against assuming that reductions in care utilization can be achieved by intervening to strengthen social relationships.


The concept of successful aging was recognized only recently by HIV researchers because people living with HIV (PLWH) in the early epidemic were not expected to survive. With the introduction of antiretrovirals that block viral replication, PLWH are now aging with HIV. Given the complex nature of HIV within the social, economic, and political climates in which it occurs, a holistic model of successful aging is needed to guide researchers and clinicians. Several overarching models exist, but must be updated for rapidly advancing HIV and aging research agendas. We provide an updated, adapted, and integrated biopsychosocial model of successful aging with HIV based on the principles of Baltes and Baltes (1998) on 8 essential components of successful aging: (a) length of life, (b) biological health, (c) mental health, (d) cognitive efficiency, (e) social competence, (f) productivity, (g) personal control, and (h) life satisfaction. Clinical practice and research implications are highlighted.


The experience of living with HIV, in the global north, has changed significantly over the past 20 years. This is largely the result of effective biomedical methods of treatment and prevention. HIV is now widely considered to be a long-term condition like many others -- it has been argued that HIV has been 'normalised'. Drawing on online qualitative survey data, with respondents aged 18–35 years, diagnosed with HIV in the past 5 years, this research explores contemporary subjective experiences of being diagnosed, and living, with HIV in the United Kingdom. The data reveal ambiguous experiences and expectations, as the 'normative' status of HIV exists alongside ongoing experiences of fear,
shame and stigma – maintaining its status as the most 'social' of diseases. In rendering HIV 'everyday', the space to articulate (and experience) the 'difference' which attaches to the virus has contracted, making it difficult to express ambivalence and fear in the face of a positive, largely biomedical, discourse. In this article, the concepts of normalisation and chronicity provide an analytical framework through which to explore the complexity of the 'sick role' and 'illness work' in HIV. [ABSTRACT FROM AUTHOR]


BACKGROUND: Suicide is a serious cause of mortality worldwide and is considered as a psychiatric emergency. People living with HIV/AIDS (PLWHA) have higher rates of suicidal behavior than the general population. This study assessed the prevalence and verified the syndemic effect of psychosocial health conditions on suicidal ideation among PLWHA in China. METHODS: An institutional-based cross-sectional study was conducted from July to August 2016 in Nanjing, China, using a self-report questionnaire. Sociodemographic characteristics, infection status, psychosocial variables and suicide ideation reports of participants were collected. Logistic regressions were used to identify potential factors associated with suicidal ideation and to verify the syndemic effect of psychosocial factors. Additionally, odds ratios (ORs) with 95% confidence intervals (95% CI) were computed. RESULTS: In total, four hundred sixty-five PLWHA participated, 31.6% (n = 147) of whom had suicidal ideation. The results from univariate analysis showed that older age, low education level, being married, having children, and psychosocial variables (high perceived stigma, depression, low self-esteem, social support and resilience) were significantly associated with increased suicidal ideation. Multiple logistic regression models revealed that depression (OR = 2.70, 95% CI = 1.62-4.51), perceived stigma (OR = 1.97, 95%CI = 1.17-3.32), and low social support (OR = 1.85, 95%CI = 1.08-3.20) and self-esteem (OR = 4.11, 95%CI = 2.06-8.16) were statistically significant. PLWHA with at least two psychosocial health problems were nearly 5 times more likely (OR = 4.72, 95% CI 3.11-7.17) to have had suicidal ideation. CONCLUSIONS: Suicidal ideation is frequent among PLWHA in China and is consistent with prevalence estimates from abroad. Psychosocial health problems were the determining factors associated with suicidal ideation, and a syndemic effect of psychosocial health conditions was confirmed in predicting suicidal ideation. Therefore, early screening of high-risk groups for suicidal ideation and more psychosocial health care among PLWHA are needed.


Abstract This paper aims to illuminate how serodiscordant couples were informed by their own and other's bodies in their experience of HIV/AIDS information. The lived body is the contact we have with the world. Our knowledge about others is through their bodies. In addition, illness is experienced first through the lived body. Therefore, when doctors want to learn about the illness, they extract information from the lived body. In this study, we investigated how serodiscordant couples experience HIV and AIDS information in Malawi. In-depth interviews were conducted in the homes of twenty-one serodiscordant couples and three individuals who had separated from their partners. Participants for the study were selected purposively. Data analysis was carried out using Max van Manen's phenomenological approach to generate descriptions and interpretations of the couples' experiences of HIV and AIDS information. The study found that the life-world is the overarching context of experiencing HIV and AIDS information.
and identified five structures of the life-world of serodiscordant couples: lived body, lived space, lived others, lived time, and spirituality. HIV and AIDS are first experienced through the lived body, and bodies were informational within the lived spaces. Thus, this research contributes to the study of HIV and AIDS information by revealing the lived body as an important source. It also identifies that the body can be an ambiguous source, since HIV and AIDS information available from the lived body may be ignored or misinterpreted by the serodiscordant couples and by those they interact with.


This study investigates the relationship between discrimination and mental health in aging transgender adults. Survey responses from 61 transgender adults above 50 (Mage = 57.7, SD = 5.8; 77.1% male-to-female; 78.7% White non-Hispanic) were analyzed. Multivariable logistic regression models examined the relationship between gender- and age-related discrimination, number of everyday discrimination experiences, and past-week depressive distress, adjusting for social support, sociodemographics, and other forms of discrimination. The most commonly attributed reasons for experiencing discrimination were related to gender (80.3%) and age (34.4%). More than half of participants (55.5%) met criteria for past-week depressive distress. In an adjusted multivariable model, gender-related discrimination and a greater number of everyday discrimination experiences were associated with increased odds of past-week depressive distress. Additional research is needed to understand the effects of aging and gender identity on depressive symptoms and develop interventions to safeguard the mental health of this vulnerable aging population.


Although the HIV epidemic continues to spread among older adults over 50 years old in China, little empirical research has investigated the interrelationships among ageism, adaptability, family support, and quality of life among older people living with HIV/AIDS (PLWHAs). In this cross-sectional study, among 197 older PLWHAs over 50 years old, path analytic modelling was used to assess the interrelationships among ageism, resilience, coping, family support, and quality of life. Compared with female PLWHAs, male PLWHAs had a higher level of resilience and coping. There were no significant differences in the scores of quality of life, ageism, family support, HIV knowledge, and duration since HIV diagnosis between males and females. The following relationships were statistically significant in the path analysis: (1) family support --> resilience [beta (standardised coefficient) = 0.18], (2) resilience --> ageism (beta = -0.29), (3) resilience --> coping (beta = 0.48), and (4) coping --> quality of life (beta = 0.24). In addition, male PLWHAs were more resilient than female PLWHAs (beta = 0.16). The findings indicate that older PLWHAs do not only negatively accept adversity, but build their adaptability to positively manage the challenges. Family-based interventions need take this adaptability to adversity into consideration.


BACKGROUND: Direct-acting antivirals (DAA) have dramatically increased HCV cure rates with minimal toxicity in HIV-HCV co-infected patients. This study aimed to compare the socio-behavioral characteristics of patients initiating pegylated-interferon (PEG-IFN)-based HCV treatment with those of patients initiating DAA-based treatment. METHODS: ANRS CO13 HEPAVH is a national multicenter prospective cohort started in 2005, which enrolled 1,859 HIV-HCV co-infected patients followed up in French hospital outpatient units. Both clinical/biological and socio-behavioral data were collected during follow-up. We selected patients with socio-behavioral data available before HCV treatment initiation. RESULTS: A total of 580 patients were included in this analysis. Of these, 347 initiated PEG-IFN-based treatment, and 233 DAA-based treatment. There were significant differences regarding patient mean age (45 years +/- 6 for the PEG-IFN group vs. 52 years +/- 8 for the DAA group, p<0.001), unstable housing (21.4% vs. 11.2%, p = 0.0016), drug use (44.7% vs. 29.6%, p = 0.0003), regular or daily use of cannabis (24.3% vs. 15.6%, p = 0.0002), a history of drug injection (68.9% vs 39.0%, p<0.0001) and significant liver fibrosis (62.4% vs 72.3%, p = 0.0293). In multivariable analysis, patients initiating DAA-based treatment were older than their PEG-IFN-based treatment counterparts (aOR = 1.17; 95%CI [1.13; 1.22]). Patients receiving DAA treatment were less likely to report unstable housing (0.46 [0.24; 0.88]), cannabis use (regular or daily use: 0.50 [0.28; 0.91]; non-regular use: 0.41 [0.22; 0.77]), and a history of drug injection (0.19 [0.12; 0.31]). CONCLUSION: It is possible that a majority of patients who had socio-economic problems and/or a history of drug injection and/or a non-advanced disease stage were already treated for HCV in the PEG-IFN era. Today, patients with unstable housing conditions are prescribed DAA less frequently than other populations. As HCV treatment is prevention, improving access to DAA remains a major clinical and public health strategy, in particular for individuals with high-risk behaviors.

Stigma


OBJECTIVE: People living with HIV (PLWH) commonly report sleep disturbances which are associated with long-term health consequences, including disease progression. PLWH also experience internalised stigma as a result of their HIV status, which can be associated with increased loneliness and depression. Little attention focuses on the impact of these factors on sleep. Therefore, we examined whether internalised HIV-stigma was indirectly related to poorer sleep quality through higher levels of loneliness and depressive symptoms. DESIGN: 181 PLWH from across the United States completed an online survey. Main Study Measures: Internalised HIV-stigma was assessed using the HIV-Stigma Scale, loneliness was assessed using the UCLA-Loneliness Scale-Short Form, depressive symptoms were assessed with the Center for Epidemiologic Studies-Depression Index, and Sleep Quality was assessed using the Pittsburgh Sleep Quality Index. RESULTS: Internalised HIV-stigma was indirectly associated with poorer global sleep quality and daytime sleep dysfunction through both loneliness and depressive symptoms. CONCLUSIONS: PLWH who experience HIV-related stigma may experience greater feelings of loneliness, which are related to increased depressive symptoms and poorer sleep quality. Interventions focused on improving sleep in PLWH should focus on multiple factors that influence sleep, including psychosocial factors such as stigma, social isolation and depressive symptoms.

BACKGROUND: Developing guidelines and policies is critical to address HIV-related stigma and discrimination (SAD) in healthcare settings. To this end, a multidisciplinary panel developed a guideline to reduce SAD. This project evaluated the appropriateness of implementing the guideline in the Ethiopian context. METHODS: A consensus of the expert panel was established through a modified Delphi technique which was followed by a panel meeting. Initial tentative recommendations were distributed to experts through e-mails to be evaluated using the modified guideline implementability appraisal (GLIA) v.2.0 checklist. RESULTS: In the first round of the Delphi survey, all (13) panel members evaluated the guideline. The overall score for the general domain of the modified GLIA checklist was 96.56%. The scores for individual recommendations ranged from 68.33% to 92.76%. Maximum and minimum scores were attained for measurability (97.71%) and flexibility (59.77%) domains respectively. Percentages mean score lower than 75% was obtained for flexibility and validity domains. Participants suggested that additional tools and training should be added to the guideline. In the second round of the survey, all the recommendations received endorsement with scores above 75%. Maximum and minimum scores were attained for measurability (100%) and flexibility (86.88%) domains respectively. During the panel meeting, issues of responsibility for implementing the guideline were discussed. CONCLUSION: The project evaluated implementability of a guideline developed to reduce HIV-related SAD in healthcare settings. The Delphi survey was followed by a half-day meeting that helped in further clarification of points.


Over the past 15 years, a significant increase in new HIV/AIDS diagnoses has been observed in the elderly population. This new epidemiological shift has been attributed to a longer sex life, lifestyle and changes in sexual behavior, poor sexual health education, and misconceptions about the absence of sexually transmitted disease in later life. Although many biomedical and behavioral interventions have proven useful to prevent sexually transmitted infections and HIV, pre-exposure prophylaxis (PrEP) has been shown to be the most successful biomedical intervention to prevent HIV in high-risk individuals. This approach is based on delivering a fixed dose of tenofovir disoproxil fumarate (300 mg), alone or combined with emtricitabine (300/200 mg) daily or on demand, before and after sexual intercourse. Despite the consistent number of clinical trials proving the effectiveness and safety of this strategy, no studies have focused specifically on elderly people. These individuals, who may benefit substantially from (PrEP), are at a higher risk of experiencing side effects secondary to tenofovir exposure. This review critically discusses the efficacy and safety of PrEP in people aged over 50 years and translates the knowledge of tenofovir management in patients with HIV into monitoring and stopping rules to be used in this special population. We provide practical recommendations to properly identify PrEP candidates among older adults. Furthermore, we define correct case management before and during PrEP delivery, and we suggest stopping rules and alternative sexually transmitted infection prevention strategies.


The ageing of the first generation of HIV long-term survivors brings into sharp focus the suffering that activism and the clinical management of HIV has not solved, particularly in regional areas. Although HIV is now usually a manageable chronic condition, it also involves navigating unrelenting social stigma. Quality of life beyond viral suppression is not assured. Despite a history of affected communities demanding equal partnership with health-care providers, an increasingly biomedicalized orientation risks neglecting the psycho-social needs of those with a history of trauma, depression and other co-morbidities often more difficult to manage than HIV itself. [ABSTRACT FROM AUTHOR]

BACKGROUND: Stigma across HIV/AIDS, mental illness, and physical disability can be co-occurring and may interact with other forms of stigma related to social identities like race, gender, and sexuality. Stigma is especially problematic for people living with these conditions because it can create barriers to accessing necessary social and structural supports, which can intensify their experiences with stigma. This review aims to contribute to the knowledge on stigma by advancing a cross-analysis of HIV/AIDS, mental illness, and physical disability stigma, and exploring whether and how intersectionality frameworks have been used in the systematic reviews of stigma. METHODS: A search of the literature was conducted to identify systematic reviews which investigated stigma for HIV/AIDS, mental illness and/or physical disability. The electronic databases MEDLINE, CINAHL, EMBASE, COCHRANE, and PsycINFO were searched for reviews published between 2005 and 2017. Data were extracted from eligible reviews on: type of systematic review and number of primary studies included in the review, study design study population(s), type(s) of stigma addressed, and destigmatizing interventions used. A keyword search was also done using the terms "intersectionality", "intersectional", and "intersection"; related definitions and descriptions were extracted. Matrices were used to compare the characteristics of reviews and their application of intersectional approaches across the three health conditions. RESULTS: Ninety-eight reviews met the inclusion criteria. The majority (99%) of reviews examined only one of the health conditions. Just three reviews focused on physical disability. Most reviews (94%) reported a predominance of behavioural rather than structural interventions targeting stigma in the primary studies. Only 17% of reviews used the concept and/or approach of intersectionality; all but one of these reviews examined HIV/AIDS. CONCLUSIONS: The lack of systematic reviews comparing stigma across mental illness, HIV/AIDS, and physical disability indicates the need for more cross-comparative analyses among these conditions. The integration of intersectional approaches would deepen interrogations of co-occurring social identities and stigma.


OBJECTIVES: The present study examined the intersectionality of stigma across varying groups of older persons living with HIV (PWH). METHODS: Four focus groups of older PWH (gay/bisexual men, heterosexual men, heterosexual and bisexual women, and Spanish-speaking) were audio-recorded and transcribed. Inductive thematic text analysis was used to identify qualitative themes. RESULTS: Five major themes emerged from the data: 1) disclosure of HIV status; 2) types of stigma experienced; 3) discrimination experienced; 4) other outcomes associated with experiencing stigma; and 5) influence of aging on social isolation experienced due to stigma. Findings indicate women did not suffer from the intersection of stigmas. Other groups suffered from the intersection of stigma due to HIV status and age (gay/bisexual males); HIV status and perceived stigma of sexual orientation or drug use (heterosexual males); and HIV status and culture/ethnicity (Spanish-speaking). CONCLUSIONS: Results indicate that many at-risk groups, including heterosexual men, homosexual men, and Spanish-speaking individuals, experience an intersection of stigma between aging and their sexuality, HIV status, or real or perceived drug use. CLINICAL IMPLICATIONS: Results highlight the need for HIV support, especially social support, to address intersection of stigmas for unique groups of individuals disproportionately affected by HIV.


BACKGROUND: Stigma remains a reality for many people living with HIV. Stigma bears on mental health, but we hypothesized that it might also affect cognition, in turn affecting function. METHODS: We estimated the impact of HIV-related stigma on brain health and everyday functioning among 512 older Caucasian men living with HIV in Canada,
using the International Classification of Functioning, Disability and Health as a comprehensive framework to integrate biopsychosocial perspectives. Experience of HIV-related stigma, as indicated by a single self-report item, was related to cognitive test performance, cognitive symptoms and mood. Structural equation modelling was used to estimate the relationships between these variables. FINDINGS: A comprehensive structural equation model was built including personal, environmental, biological factors, and measures of mental and cognitive health, activity limitations, and participation restrictions. HIV-related stigma contributed to lower cognitive test performance and worse mental health. These in turn affected real world function. The paths from stigma to cognition and mood had distinct downstream effects on physical, cognitive and meaningful activities. INTERPRETATION: This provides evidence that HIV-related stigma is a threat to cognitive as well as mental health, with a negative impact on everyday function in men aging with HIV. This argues for direct links between the psychosocial and biological impacts of HIV at the level of the brain. Stigma reduction may be a novel route to addressing cognitive impairment in this population. FUNDING: Operating support was provided by the Canadian Institutes of Health Research (TCO-125272), and by the CIHR HIV Clinical Trials Network (CTN-273).


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 conducted a 21-day, twice-daily ecological momentary assessment study with a sample of 52 HIV-positive gay and bisexual men. We utilized multivariate multilevel path analysis to test an autoregressive cross-lagged model of the direct and indirect effects of situational-level internalized HIV stigma and emotion dysregulation on non-prescription stimulant drug use. 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: Situational increases in internalized HIV stigma appear to exert a direct risk-enhancing effect on the likelihood of daily stimulant drug use and do 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.


BACKGROUND: People living with HIV are increasingly burdened by noncommunicable diseases (NCDs) as a result of the NCD susceptibility that accompanies increased life expectancy and the rising global prevalence of NCDs. Health systems are being strengthened and programs are being developed to address this burden, often building on HIV care strategies and infrastructure or through integrated care models. HIV remains a stigmatized condition and the role of HIV stigma in the provision of NCD care is not well understood. METHODS: We conducted a scoping literature review of both peer reviewed and grey literature to identify evidence of the role of HIV stigma in the NCD-care continuum (prevention, diagnosis, care seeking, retention in care, and adherence to treatment of NCDs). We searched PsychInfo and Pubmed and conducted additional searches of programmatic reports and conference abstracts. Included studies were published in English within the past decade and examined HIV-related stigma as it relates to NCD-care or to integrated NCD-and HIV-care programs. RESULTS: Sixteen articles met the inclusion criteria. Findings suggest: fear of
disclosure, internalized shame and embarrassment, and negative past experiences with or negative perceptions of health care providers negatively influence engagement with NCD care; HIV stigma can adversely affect not only people living with HIV in need of NCD care, but all NCD patients; some NCDs are stigmatized in their own right or because of their association with HIV; integrating NCD and HIV care can both reduce stigma for people living with HIV and a present a barrier to access for NCD care. CONCLUSION: Due to the dearth of available research and the variability in initial findings, further research on the role of HIV stigma in the NCD-care continuum for people living with HIV is necessary. Lessons from the field of HIV-stigma research can serve as a guide for these efforts.

**Substance Use: Including Alcohol & Tobacco**


**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.


**BACKGROUND:** For people living with HIV (PLWH), alcohol use is harmful and may be influenced by unique challenges faced by PLWH living in rural areas. We describe patterns of alcohol use across rurality among PLWH. METHODS: Veterans Aging Cohort Study electronic health record data were used to identify patients with HIV (ICD-9 codes for HIV or AIDS) who completed AUDIT-C alcohol screening between February 1, 2008, and September 30, 2014. Regression models estimated and compared 4 alcohol use outcomes (any use [AUDIT-C > 0] and alcohol use disorder
[AUD; ICD-9 codes for abuse or dependence] diagnoses among all PLWH, and AUDIT-C risk categories: lower- [1-3 men/1-2 women], moderate- [4-5 men/3-5 women], higher- 6-7], and severe-risk [8-12], and heavy episodic drinking (HED; >/=1 past-year occasion) among PLWH reporting use) across rurality (urban, large rural, small rural) and census-defined region. FINDINGS: Among 32,699 PLWH (29,540 urban, 1,301 large rural, and 1,828 small rural), both any alcohol use and AUD were highest in urban areas, although this varied across region. Predicted prevalence of any alcohol use was 54.1% (53.5%-54.7%) in urban, 49.6% (46.9%-52.3%) in large rural, and 50.6% (48.3%-52.9%) in small rural areas (P < .01). Predicted prevalence of AUD was 14.4% (14.0%-14.8%) in urban, 11.8% (10.0%-13.5%) in large rural, and 12.3% (10.8%-13.8%) in small rural areas (P < .01). Approximately 12% and 25% had higher- or severe-risk drinking and HED, respectively, but neither differed across rurality. CONCLUSION: Though some variation across rurality and region was observed, alcohol-related interventions are needed for PLWH across all geographic locations.


BACKGROUND: Our aim was to describe alcohol consumption trajectories in a cohort of people living with HIV and determine clinical and sociodemographic predictors of each trajectory. METHODS: This is a prospective cohort study of 7,906 patients in the 7 Centers for AIDS Research Network of Integrated Clinical Systems sites. Alcohol consumption was categorized as none, moderate, and alcohol misuse. Predictors included age, race/ethnicity, depressive or anxiety symptoms, illicit drug use (opioids, methamphetamines, cocaine/crack), marijuana use, hepatitis C virus (HCV) infection, HIV transmission risk factor, and HIV disease progression. We estimated sex-stratified alcohol consumption trajectories and their predictors. RESULTS: We found 7 trajectories of alcohol consumption in men: stable nondrinking and increased drinking (71% and 29% of initial nondrinking); stable moderate, reduced drinking, and increased alcohol misuse (59%, 21%, and 21% of initial moderate alcohol use); and stable alcohol misuse and reduced alcohol misuse (75% and 25% of initial alcohol misuse). Categories were similar in women, except lack of an increase to alcohol misuse trajectory among women that begin with moderate use. Older men and women were more likely to have stable nondrinking, while younger men were more likely to increase to or remain in alcohol misuse. Minorities, people with depressive or anxiety symptoms, HCV-infected individuals, and people who injected drugs were more likely to reduce use. Illicit drug use was associated with a reduction in overall drinking, while marijuana use was associated with stable moderate drinking or misuse. CONCLUSIONS: Longitudinal trajectories of increasing alcohol use and stable misuse highlight the need to integrate routine screening and alcohol misuse interventions into HIV primary care.


We used the 2012-2013 National Epidemiologic Survey on Alcohol and Related Conditions III (NESARC-III), a nationally representative sample of US adults (n = 34,653), to estimate the prevalence and correlates of HIV testing and HIV status. The diagnostic interview used was the Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-5 Version. We found that in 2012-2013, the prevalence of a history of HIV testing was 53.0% among females and 47.0% among males. Among individuals tested, the prevalence of HIV was 1.06%, resulting in a known estimated prevalence of 0.54% in the full sample. In adjusted results, being non-white, aged 30-44, having college, being non-heterosexual, having history of unprotected sex or history of childhood sexual abuse and lower mental health-related quality of life increased the odds of having been tested, whereas being foreign-born, 45 years or older, family income >/=$20,000, being unemployed or a student, living in a rural setting and older age at first sex lowered those odds. Among those tested, being 30-64, being non-heterosexual, having history of unprotected sex or having a sexually transmitted disease in the last year was associated with greater odds of being HIV+. Having some college decreased
those odds. In the adjusted results all psychiatric disorders were associated with increased rates of HIV testing, but only a lifetime history of drug use disorder and antisocial personality disorders were associated with HIV status among those tested. Despite CDC recommendations, only about half of US adults have ever been tested for HIV, interfering with efforts to eradicate HIV infection.


BACKGROUND: There is strong evidence for the effectiveness of addressing tobacco use in health care settings. However, few smokers receive cessation advice when visiting a hospital. Implementing smoking cessation technology in outpatient waiting rooms could be an effective strategy for change, with the potential to expose almost all patients visiting a health care provider without preluding physician action needed. OBJECTIVE: The objective of this study was to develop an intervention for smoking cessation that would make use of the time patients spend in a waiting room by passively exposing them to a face-aging, public morphing, tablet-based app, to pilot the intervention in a waiting room of an HIV outpatient clinic, and to measure the perceptions of this intervention among smoking and nonsmoking HIV patients. METHODS: We developed a kiosk version of our 3-dimensional face-aging app Smokerface, which shows the user how their face would look with or without cigarette smoking 1 to 15 years in the future. We placed a tablet with the app running on a table in the middle of the waiting room of our HIV outpatient clinic, connected to a large monitor attached to the opposite wall. A researcher noted all the patients who were using the waiting room. If a patient did not initiate app use within 30 seconds of waiting time, the researcher encouraged him or her to do so. Those using the app were asked to complete a questionnaire. RESULTS: During a 19-day period, 464 patients visited the waiting room, of whom 187 (40.3%) tried the app and 179 (38.6%) completed the questionnaire. Of those who completed the questionnaire, 139 of 176 (79.0%) were men and 84 of 179 (46.9%) were smokers. Of the smokers, 55 of 81 (68%) said the intervention motivated them to quit (men: 45, 68%; women: 10, 67%); 41 (51%) said that it motivated them to discuss quitting with their doctor (men: 32, 49%; women: 9, 60%); and 72 (91%) perceived the intervention as fun (men: 57, 90%; women: 15, 94%). Of the nonsmokers, 92 (98%) said that it motivated them never to take up smoking (men: 72, 99%; women: 20, 95%). Among all patients, 102 (22.0%) watched another patient try the app without trying it themselves; thus, a total of 289 (62.3%) of the 464 patients were exposed to the intervention (average waiting time 21 minutes). CONCLUSIONS: A face-aging app implemented in a waiting room provides a novel opportunity to motivate patients visiting a health care provider to quit smoking, to address quitting at their subsequent appointment and thereby encourage physician-delivered smoking cessation, or not to take up smoking.


BACKGROUND: There is growing concern about the health impact of heavy alcohol use in people infected with human immunodeficiency virus (HIV+). Mixed findings of past studies regarding the cognitive impact of alcohol use in HIV+ adults have been mixed, with inconsistent evidence that alcohol consumption exacerbates HIV-associated brain dysfunction. This study examined contributions of current heavy drinking, lifetime alcohol use disorder (AUD), and age to cognitive deficits in HIV+ adults, and relative to other HIV-associated clinical factors. METHODS: Cognitive performance of HIV+ adults (n = 104) was assessed, and comparisons were made between heavy current to nonheavy drinkers (NIAAA criteria), lifetime AUD versus no-AUD, and older (>50 years) versus younger participants. Hierarchical regression analyses were conducted to examine the association between cognitive performance and current heavy drinking, lifetime AUD, and older age, while also correcting for HIV clinical factors and history of other substance use. RESULTS: Individuals reporting current heavy drinking and meeting criteria for lifetime AUD demonstrated the greatest...
degree of deficits across multiple cognitive domains. Deficits were greatest among HIV+ adults with lifetime AUD, and older age was also associated with weaker cognitive performance. Lifetime AUD and older age independently exhibited stronger associations with cognitive performance than HIV clinical factors (e.g., viral load, current CD4, and nadir CD4) or past opiate and cocaine use. CONCLUSIONS: Current heavy drinking and lifetime AUD adversely affect cognitive function in HIV+ adults. Greatest deficits existed when there was a history of AUD and continued current heavy drinking, indicating that past AUD continues to have an adverse impact and should not be ignored. That alcohol use was more strongly associated with cognitive performance than HIV clinical factors underscore clinical importance of targeting reduction in heavy alcohol consumption in HIV+ adults.


Little is known about disparities in depression prevalence, treatment, and remission by psychiatric comorbidities and substance use among persons living with HIV (PLWH). We conducted a cross-sectional analysis in a large cohort of PLWH in routine care and analyzed conditional probabilities of having an indication for depression treatment, receiving treatment, receiving indicated treatment adjustments, and achieving remission, stratified by alcohol use, illicit drug use, and panic symptoms. Overall, 34.7% (95% CI 33.9-35.5%) of participants had an indication for depression treatment and of these, 55.3% (53.8-56.8%) were receiving antidepressants. Among patients receiving antidepressants, 33.0% (31.1-34.9%) had evidence of remitted depression. In a subsample of sites with antidepressant dosage data, only 8.8% (6.7-11.5%) of patients received an indicated treatment adjustment. Current drug users (45.8%, 95% CI 43.6-48.1%) and patients reporting full symptoms of panic disorder (75.0%, 95% CI 72.9-77.1%) were most likely to have an indication for antidepressant treatment, least likely to receive treatment given an indication (current drug use: 47.6%, 95% CI 44.3-51.0%; full panic symptoms: 50.8%, 95% CI 48.0-53.6%), or have evidence of remitted depression when treated (22.3%, 95% CI 18.5-26.6%; and 7.3%, 95% CI 5.5-9.6%, respectively). In a multivariable model, drug use and panic symptoms were independently associated with poorer outcomes along the depression treatment cascade. Few differences were evident by alcohol use. Current drug users were most likely to have an indication for depression treatment, but were least likely to be receiving treatment or to have remitted depression. These same disparities were even more starkly evident among patients with co-occurring symptoms of panic disorder compared to those without. Achieving improvements in the depression treatment cascade will likely require attention to substance use and psychiatric comorbidities.


Pain, tobacco cigarette smoking, and prescription opioid misuse are all highly prevalent among persons living with HIV (PLWH). Smoking and pain medication misuse can lead to deleterious outcomes, including more severe pain and physical impairment. However, we are not aware of any interventions that have attempted to address these issues in an integrated manner. Participants (N=68) were recruited from an outpatient infectious disease clinic and randomized to either a computer-based personalized feedback intervention (Integrated PFI) that aimed to increase motivation, confidence, and intention to quit smoking, and decrease intentions to misuse prescription analgesic medications, or a Control PFI. Results indicated that PLWH who received the Integrated PFI (vs. Control PFI) evinced greater post-treatment knowledge of interrelations between pain and tobacco smoking. Moreover, participants who received the Integrated PFI and smoked at least 10 cigarettes per day (but not <10 CPD) reported greater confidence and readiness/intention to quit smoking. Effects of the Integrated PFI on knowledge of pain and opioid misuse, and attitudes/intentions regarding prescription pain medication misuse were not statistically-significant. Taken together,
these results indicate that this novel intervention strategy may offer promise for addressing a critical public health need in a population that is generally underrepresented in clinical research.


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 HCV-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.


BACKGROUND: Alcohol use is risky for patients with hepatitis C virus (HCV) and/or human immunodeficiency virus (HIV) infection, but alcohol use disorder (AUD) treatment is underutilized in these populations. Comorbid drug use disorders (DUD) are common, but their influence on AUD treatment receipt is understudied. We evaluated the association between DUD and AUD treatment receipt in two national samples of patients with AUD, those with HIV and those with HCV, in the U.S. Veterans Health Administration. METHODS: Samples included patients with AUD and HCV and/or HIV among positive alcohol screens (AUDIT-C>/=5) documented 10/01/09-5/30/13 in the national electronic health record. Poisson regression models estimated incidence rate ratios for receiving specialty treatment (stop codes) and pharmacotherapy (filled prescription for naltrexone, disulfiram, acamprosate, or topiramate) within 365 days of positive alcohol screening for patients with DUD versus those without. Models were clustered on patient and adjusted for potential confounders. RESULTS: Among 22,039 patients with HCV/AUD, 45.2% (N = 9,964) had DUD, which was associated with receiving specialty treatment [adjusted incidence rate ratio: 1.89 (95% confidence interval 1.82-1.96)] and pharmacotherapy [aIRR: 1.50 (1.37-1.65)]. Among 1,834 patients with HIV/AUD, 56.9% (N = 1,043) had DUD, which was associated with receiving specialty treatment [aIRR: 1.94 (1.68-2.24)], but not pharmacotherapy. CONCLUSIONS: Rates of AUD treatment receipt among patients with AUD and HCV and/or HIV were low overall, but likelihood of treatment receipt was generally higher among those with comorbid DUD. Future research should investigate mechanisms underlying these associations, such as enhanced readiness for treatment or differential provider prescribing or referral practices.

BACKGROUND: Alcohol use is associated with many HIV-related behaviors that are associated with increased risk of re-infection, transmission, and poorer health outcomes in people living with HIV (PLHIV). The population of middle-aged and older PLHIV is growing because of increased life longevity and aging trend. METHODS: A systematic review across three databases was conducted to evaluate existing studies that examined the association between alcohol use and medication adherence, high-risk sex behaviors, HIV progression, depression, resource utilization, and survival among studies of PLHIV with an average age of 40 years and above. RESULTS: Among the 47 included studies, most found a positive association between alcohol use and depression, risky sex behaviors, medication nonadherence, and healthcare resource utilization among PLHIV. The association between alcohol use and response to treatment was variable. The association between alcohol use and survival warrants further study because of lack of existing studies. CONCLUSIONS: The results of this review support that alcohol use negatively impacts middle-aged and older PLHIV in many aspects; however, there is lack of studies exclusively targeting older PLHIV, and more relevant studies in the future are needed.


The World Health Organization estimates that smoking poses one of the greatest global health risks in the general population. Rates of current smoking among people living with HIV (PLHIV) are 2-3 times that of the general population, which contributes to the higher incidence of non-AIDS-related morbidity and mortality in PLHIV. Given the benefit of smoking cessation, strategies to assist individuals who smoke to quit should be a primary focus in modern HIV care. Tobacco harm reduction focuses on reducing health risk without necessarily requiring abstinence. However, there remains uncertainty about the safety, policy and familiarity of specific approaches, particularly the use of vaporised nicotine products. Evidence suggests that vaporised nicotine products may help smokers stop smoking and are not associated with any serious side-effects. However, there is the need for further safety and efficacy data surrounding interventions to assist quitting in the general population, as well as in PLHIV specifically. In addition, official support for vaping as a harm reduction strategy varies by jurisdiction and this determines whether medical practitioners can prescribe vaporised products and whether patients can access vaporised nicotine products. When caring for PLHIV who smoke, healthcare workers should follow general guidelines to assist with smoking cessation. These include: asking the patient about their smoking status; assessing the patient’s readiness to quit and their nicotine dependence; advising the patient to stop smoking; assisting the patient in their attempt to stop smoking through referral, counselling, pharmacotherapy, self-help resources and/or health education; and arranging follow-up with the patient to evaluate their progress.


PURPOSE: This study aimed to examine the impact of alcohol use on the antiretroviral therapy (ART) adherence of Koreans living with human immunodeficiency virus (HIV). METHODS: A total of 144 HIV-infected Koreans older than the age of 19 years who had been receiving antiretroviral drugs for at least 3 months were surveyed. Alcohol use was identified as nonhazardous, binge, hazardous, and alcohol dependent as determined by the Alchol Use Disorder Identification Test-Korea (AUDIT-K). ART adherence was defined according to the components of adherence motivation, adherence knowledge, and 95% medication adherence using the modified Morisky scale. Collected data were analyzed using logistic regression analysis for each component of therapy adherence. RESULTS: Of all participants, 13.9% were
binge drinkers, 17.4% were hazardous drinkers, and 4.2% were alcohol dependent. For low adherence motivation, the odds ratio for the hazardous drinkers was 7.47 (95% confidence interval (CI): 1.72-32.41; p = .007) and for the alcohol dependent, it was 12.61 (95% CI: 1.38-115.38; p = .025) when compared with the nonhazardous drinkers. For medication adherence under 95%, the odds ratio for binge drinkers was 4.65 (95% CI: 1.15-18.92; p = .032), for hazardous drinkers was 8.05 (95% CI: 2.08-31.20; p = .003), and for the alcohol dependent was 27.67 (95% CI: 2.12-360.51; p = .011). CONCLUSION: It is recommended that Korean institutions and governments develop specific mediation and counseling programs that include alcohol use-related monitoring for the improvement of the ART adherence of people living with HIV.


Background: People living with HIV smoke at a rate three times that of the general population. This randomized controlled pilot trial tested the feasibility and acceptability of a video-call smoking cessation intervention in women living with HIV and its preliminary efficacy compared with a voice-call smoking cessation intervention. The study focused on women due to a paucity of studies among this population, and women are less likely than men to quit smoking when provided with conventional treatment. Methods: Participants in both arms received an HIV-tailored smoking cessation intervention comprising eight 30-minute weekly counseling sessions in conjunction with active nicotine patches for 8 weeks. The only difference between the two arms was the delivery mode of the intervention: via either telephone-based video or voice call. Survival analysis and a Cox proportional hazard regression model were performed to identify factors predicting 6-month prolonged abstinence from smoking. Results: A video-call intervention was almost 30% less feasible than a voice-call intervention because women in their 50s and 60s or poorer women living in some southern states did not have access to video-call equipment. However, those who received the video-call intervention were more likely to complete the study than those who had the voice-call intervention. There was no difference in the acceptability of the two interventions. A survival analysis revealed that those in the video arm were significantly more likely to maintain smoking abstinence over the 6-month follow-up period than those in the voice arm (log rank chi (2)=4.02, P<0.05). Conclusion: Although a video-call intervention is less feasible than a voice-call intervention, the former seems to outperform the latter in achieving long-term smoking abstinence for women living with HIV, which may offer an advantage over establishing therapeutic alliance and visually monitoring their adherence to nicotine patches. Clinical trial registration: ClinicalTrials.gov NCT02898597.


BACKGROUND: Chronic obstructive pulmonary disease (COPD) is a leading cause of death and disability globally. Both cigarette smoking and HIV have been identified as independent risk factors for COPD. We used data from the strategic timing of antiretroviral treatment (START) Pulmonary Substudy to quantify the impact of smoking on rate of lung function decline in HIV. METHODS: We included START Pulmonary Substudy participants who contributed at least 2 good quality spirometry measures during the study. Slope of forced expiratory volume in 1 second (FEV1) was estimated using a repeated-measures model adjusted for the treatment group (immediate vs deferred treatment arm of START), age, sex, race, baseline COPD, and region. RESULTS: Of 1026 START Pulmonary Substudy participants, 915 (89%) were included in this analysis. Median follow-up time was 3.9 years. Smokers and nonsmokers were similar in baseline age (median 36 years), but smokers were more likely to be white, male, and from Europe/Israel/Australia. Smokers had faster average FEV1 decline compared with nonsmokers [-38.3 mL/yr vs -25.1 mL/yr; difference of -13.2 mL/yr (95% confidence interval: -23.6 to -2.7); P = 0.013], were more likely to meet criteria for rapid FEV1 decline [7.2%-11.7% more
likely ($P = 0.09 - P = 0.002$), depending on the definition of rapid decline], and had borderline, but not statistically
significant, higher incident COPD during follow-up (9.7% vs 5.8%, $P = 0.06$). CONCLUSIONS: Compared to nonsmokers,
HIV-positive smokers experience faster decline in lung function. These results underscore the need for a better
understanding of how to best support smoking cessation among HIV-positive populations.

with HIV." AIDS 32(15): 2247-2253.

OBJECTIVES: To investigate whether gender is associated with three recommended stages of the HIV care
continuum and whether gender modifies known associations between level of alcohol use and HIV care among US
veterans. DESIGN: Retrospective cohort. METHODS: Veterans Aging Cohort Study data were used to identify Veterans
Health Administration (VA) patients with HIV and AUDIT-C alcohol screening from 1 February 2008 to 30 September
2014. Modified Poisson regression models estimated the relative risk and predicted prevalences of engagement in HIV
care (documented CD4 cells/mul or viral load copies/ml lab values), ART treatment (at least one prescription), and viral
suppression (HIV RNA <500 copies/ml) in the year following AUDIT-C (1) for women compared to men, and (2) for each
level of alcohol use compared to nondrinking among women and among men. A multiplicative interaction between
gender and alcohol use was tested. RESULTS: Among 33 224 patients, women ($n = 971$) were less likely than men ($n = 32
253$) to receive HIV care ($P$ values <0.001). Respective predicted prevalences for women and men were $71.9\%$ (95\% CI
69.1-74.7\%) and $77.9\%$ (77.5-78.4\%) for engagement, $60.0\%$ (57.0-73.14\%) and $73.8\%$ (73.4-74.3\%) for ART treatment,
and $46.4\%$ (43.3-49.6\%) and $55.8\%$ (55.3-56.3\%) for viral suppression. Although the interaction between gender and
alcohol use was not statistically significant, stratified analyses suggested worse outcomes for women than men at higher
levels of alcohol use. CONCLUSION: In this large national cohort, women were less likely than men to be engaged in HIV
medical care, prescribed ART, and virally suppressed. Interventions to improve HIV care for women are needed at all
levels of alcohol use.

mercie, p., et al. (2018). "Efficacy and safety of varenicline for smoking cessation in people living with HIV in France

BACKGROUND: Tobacco smoking is common in people living with HIV, but high-quality evidence on
interventions for smoking cessation is not available in this population. We aimed to assess the efficacy and safety of
varenicline with counselling to aid smoking cessation in people living with HIV. METHODS: The ANRS 144 Inter-ACTIV
randomised, parallel, double-blind, multicentre, placebo-controlled phase 3 trial was done at 30 clinical hospital sites in
France. People living with HIV who had smoked at least ten cigarettes per day for 1 year or longer, were motivated to
stop smoking, were not dependent on another psychoactive substance, and had no history of depression or suicide
attempt were eligible. Using a computer-generated randomisation sequence, we allocated (1:1) the patients to receive
either varenicline titrated to two 0.5 mg doses twice daily or placebo twice daily for 12 weeks, plus face-to-face
counselling. Patients and investigators were masked to treatment group allocation. Patients who were not abstinent at
week 24 were offered open-label varenicline for 12 additional weeks. The primary outcome was the proportion of
smokers continuously abstinent from week 9 to week 48. Smoking status was confirmed by carbon monoxide in exhaled
air. Primary analyses were done in both the intention-to-treat (ITT) population and modified ITT (mITT) population,
which comprised all patients who took at least one tablet of their assigned study treatment. The safety analyses were
done in the mITT population. The trial is registered at ClinicalTrials.gov, number NCT00918307. The trial status is
complete. FINDINGS: From Oct 26, 2009, to Dec 20, 2012, of 303 patients assessed for eligibility, 248 patients were
randomly assigned to the varenicline group (n=123) or the placebo group (n=125). After randomisation, one participant
initially assigned to the placebo group was excluded from the ITT analysis for a regulatory reason (no French health-care
coverage). 102 patients in the varenicline group and 111 patients in the placebo group received at least one dose of their assigned treatment and were included in the mITT analysis. In the ITT analysis, varenicline was associated with a higher proportion of patients achieving continuous abstinence over the study period (week 9-48): 18 (15%, 95% CI 8-21) of 123 in the varenicline group versus eight (6%, 2-11) of 124 in the placebo group, adjusted odds ratio (OR) 2.5 (95% CI 1.0-6.1; p=0.041). In the mITT analysis, varenicline was also associated with higher continuous abstinence: 18 (18%, 95% CI 10-25) of 102 versus eight (7%, 2-12) of 111 in the placebo group (adjusted OR 2.7, 95% CI 1.1-6.5; p=0.029). The incidence of depression was 2.4 per 100 person-years (95% CI 0.6-9.5; two [2%] of 102) in the varenicline group and 12.4 per 100 person-years (95% CI 6.9-22.5; 11 [10%] of 111) in the placebo group. 14 (7%) of 213 participants had 18 cardiovascular events: six (6%) of 102 people in the varenicline group and eight (7%) of 111 people in the placebo group.

INTERPRETATION: Varenicline is safe and efficacious for smoking cessation in people living with HIV and should be recommended as the standard of care. FUNDING: The French National Institute for Health and Medical Research (INSERM)-French National Agency for Research on AIDS and Viral Hepatitis (ANRS) and Pfizer.


Short Summary: Effective combined antiretroviral therapy regimens have extended survival of persons living with HIV (PLWH). Heavy alcohol consumption is common in PLWH. This overview integrates evidence from clinical and preclinical research to identify salient alcohol-related mechanisms and comorbidities contributing to disease pathogenesis and accelerated aging and senescence in PLWH.


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.

BACKGROUND: Life expectancy of successfully treated human immunodeficiency virus (HIV)-infected individuals is approaching normal longevity. The growing HIV population >/=50 years of age is now at risk of developing HIV-associated neurocognitive disorder, acquiring coinfection with the hepatitis C virus (HCV), and engaging in hazardous drinking or drug consumption that can adversely affect trajectories of the healthy aging of brain structures. METHODS: This cross-sectional/longitudinal study quantified regional brain volumes from 1101 magnetic resonance imaging scans collected over 14 years in 549 participants (25 to 75 years of age): 68 HIV-infected individuals without alcohol dependence, 60 HIV-infected individuals with alcohol dependence, 222 alcohol-dependent individuals, and 199 control subjects. We tested 1) whether localized brain regions in HIV-infected individuals exhibited accelerated aging, or alternatively, nonaccelerated premature aging deficits; and 2) the extent to which alcohol or substance dependence or HCV coinfection altered brain aging trajectories. RESULTS: The HIV-infected cohort exhibited steeper declining volume trajectories than control subjects, consistently in the frontal cortex. Nonaccelerated volume deficits occurred in the temporal, parietal, insular, and cingulate regions of all three diagnostic groups. Alcohol and drug dependence comorbidities and HCV coinfection exacerbated HIV-related volume deficits. Accelerated age interactions in frontal and posterior parietal volumes endured in HIV-infected individuals free of alcohol or substance dependence and HCV infection comorbidities. Functionally, poorer HIV-associated neurocognitive disorder scores and Veterans Aging Cohort Study indices correlated with smaller regional brain volumes in the HIV-infected individuals without alcohol dependence and alcohol-dependent groups. CONCLUSIONS: HIV infection itself may confer a heightened risk of accelerated brain aging, potentially exacerbated by HCV coinfection and substance dependency. Confirmation would require a prospective study with a preinfection baseline.


INTRODUCTION: HIV-1-infected smokers are at risk of oxidative damage to neuronal cells in the central nervous system by both HIV-1 and cigarette smoke. Since neurons have a weak antioxidant defense system, they mostly depend on glial cells, particularly astrocytes, for protection against oxidative damage and neurotoxicity. Astrocytes augment the neuronal antioxidant system by supplying cysteine-containing products for glutathione synthesis, antioxidant enzymes such as SOD and catalase, glucose for antioxidant regeneration via the pentose-phosphate pathway, and by recycling of ascorbic acid. Areas covered: The transport of antioxidants and energy substrates from astrocytes to neurons could possibly occur via extracellular nanovesicles called exosomes. This review highlights the neuroprotective potential of exosomes derived from astrocytes against smoking-induced oxidative stress, HIV-1 replication, and subsequent neurotoxicity observed in HIV-1-positive smokers. Expert opinion: During stress conditions, the antioxidants released from astrocytes either via extracellular fluid or exosomes to neurons may not be sufficient to provide neuroprotection. Therefore, we put forward a novel strategy to combat oxidative stress in the central nervous system, using synthetically developed exosomes loaded with antioxidants such as glutathione and the anti-aging protein Klotho.

rates and relative risk of MICU admission between 1997 and 2014 among people with and without HIV, HCV, and ARD, using data from the largest HIV and HCV care provider in the United States. SETTING: Veterans Health Administration.

METHODS: Annual MICU admission rates were calculated among 155,550 patients in the Veterans Aging Cohort Study by HIV, HCV, and ARD status. Adjusted rate ratios (RR) and 95% confidence intervals (CI) were estimated with Poisson regression. Significance of trends in age-adjusted admission rates were tested with generalized linear regression. Models were stratified by calendar period to identify shifts in MICU admission risk over time.

RESULTS: Compared to HIV-/HCV-/ARD-patients, relative risk for MICU admission decreased among HIV mono-infected patients from 61% (95% CI 1.56-1.65) in 1997-2009 to 21% (95% CI 1.16-1.27) in 2010-2014, increased among HCV mono-infected patients from 22% (95% CI 1.16-1.29) in 1997-2009 to 54% (95% CI 1.43-1.67) in 2010-2014, and remained consistent among patients with ARD only at 46% (95% CI 1.42-1.50). MICU admission rates decreased by 48% among HCV-uninfected patients (p-trend<0.0001) but did not change among HCV+ patients (p-trend=0.34). CONCLUSION: HCV infection and ARD remain key contributors to MICU admission risk. The impact of each of these conditions could be mitigated with combination of treatment of HIV, HCV, and interventions targeting unhealthy alcohol use.


INTRODUCTION: Motivations for alcohol use to intoxication vary among young adults depending on social setting and other contextual factors. However, there is limited research exploring the role of different drinking motivations among young men who have sex with men (YMSM). METHODS: Data from a racially/ethnically and socioeconomically diverse sample of YMSM (n=426) were used to examine associations between recent (last 30days) alcohol use to intoxication and scores on three distinct drinking motivation subscales: convivial, intimate, and negative coping drinking. Multinomial logistic regression models were constructed to examine associations between drinking motivations and days of alcohol use to intoxication, controlling for sociodemographic characteristics. RESULTS: YMSM who scored higher on all three drinking motivation subscales were more likely to engage in recent alcohol use to intoxication compared to those who reported no alcohol use to intoxication. In multivariable models, Black and Hispanic YMSM had lower odds of intoxication compared to White YMSM, and those reporting lower perceived familial SES had lower odds compared to higher SES. In a final model including all three motivations, only convivial drinking was significantly associated with days of intoxication (1-2days: AOR=1.22; 3+ days: AOR=1.45). CONCLUSIONS: This study identifies distinct associations between different motivations for drinking and alcohol use to intoxication in a sample of YMSM. These findings highlight a need to incorporate an understanding of motivations for alcohol use to intoxication into research and clinical practice with YMSM, as different reasons for drinking carry respective potential health risks.


BACKGROUND: Limited primary care-based research has examined hazardous drinking risk factors and motivation to reduce use in persons with HIV (PWH). METHODS: We computed prevalence ratios (PR) for factors associated with recent (<30days) hazardous alcohol use (i.e., 4+/5+ drinks in a single day for women/men), elevated Alcohol Use Disorders Identification Test (AUDIT) scores, and importance and confidence (1-10 Likert scales) to reduce drinking among PWH in primary care. RESULTS: Of 614 participants, 48% reported recent hazardous drinking and 12%
reported high alcohol use severity (i.e., AUDIT zone 3 or higher). Factors associated with greater alcohol severity included moderate/severe anxiety (PR: 2.07; 95% CI: 1.18, 3.63), tobacco use (PR: 1.79; 1.11, 2.88), and other substance use (PR: 1.72; 1.04, 2.83). Factors associated with lower alcohol severity included age 50-59 years (PR: 0.46; 0.22, 2.00) compared with age 20-39 years, and having some college/college degree (PR: 0.61; 0.38, 0.97) compared with <=high school. Factors associated with greater importance to reduce drinking (scores >5) included: moderate/severe depression (PR: 1.43; 1.03, 2.00) and other substance use (PR: 1.49; 1.11, 2.01). Lower importance was associated with incomes above $50,000 (PR: 0.65; 0.46, 0.91) and marijuana use (PR: 0.65; 0.49, 0.87). HIV-specific factors (e.g., CD4 and HIV RNA levels) were not associated with alcohol outcomes. CONCLUSIONS: This study identified modifiable participant characteristics associated with alcohol outcomes in PWH, including anxiety and depression severity, tobacco use, and other substance use.


Importance: The prevalence of alcohol misuse increased substantially over a decade in adults, particularly in those aged 65 years or older. Ramifications for brain structural integrity are significant, especially in older adults. Objectives: To combine cross-sectional, longitudinal data to test age-alcoholism interactions and examine the association between prevalent comorbidities (drug dependence and hepatitis C virus [HCV] infection) and cortical volume deficits in alcohol dependence. Design, Setting, and Participants: During 14 years, 826 structural magnetic resonance images were acquired in 222 individuals with alcohol dependence and 199 age-matched control participants (aged 25-75 years at initial study), parcellated with a common atlas, and adjusted for brain volume. Longitudinal data were available on 116 participants with alcoholism and 96 control participants. DSM-IV criteria determined alcohol and drug diagnoses; serology testing determined HCV status. The study was conducted at SRI International and Stanford University School of Medicine from April 11, 2003, to March 3, 2017. Main Outcomes and Measures: Magnetic resonance imaging-derived regional cortical volumes corrected for supratentorial volume and sex. Results: Of the 222 participants with alcoholism, 156 (70.3%) were men; mean (SD) age was 48.0 (10.0) years; the mean age for the 199 control participants was 47.6 (14.0) years. Participants with alcohol dependence had volume deficits in frontal (t = -5.732, P < .001), temporal (t = -3.151, P = .002), parietal (t = -5.063, P < .001), cingulate (t = -3.170, P = .002), and insular (t = -4.920, P < .001) cortices; deficits were prominent in frontal subregions and were not sex dependent. Accelerated aging occurred in frontal cortex (t = -3.019, P < .02) and precentral (t = -2.691, P < .05) and superior gyri (t = -2.763, P < .05) and could not be attributed to the amount of alcohol consumed, which was greater in younger-onset than older-onset participants with alcoholism (t = 6.1191, P < .001). Given the high drug-dependence incidence (54.5%) in the alcoholism group, analysis examined drug subgroups (cocaine, cannabis, amphetamines, opiates) compared with drug-dependence-free alcoholism and control groups. Although the alcohol plus cocaine (t = -2.310, P = .04) and alcohol plus opiate (t = -2.424, P = .04) groups had smaller frontal volumes than the drug-dependence-free alcoholism group, deficits in precentral (t = -2.575, P = .01), supplementary motor (t = -2.532, P = .01), and medial (t = -2.800, P = .01) volumes endured in drug-dependence-free participants with alcoholism compared with control participants. Those with HCV infection had greater deficits than those without HCV infection in frontal (t = 3.468, P = .01), precentral (t = 2.513, P = .03), superior (t = 2.533, P = .03), and orbital (t = 2.506, P = .03) volumes, yet total frontal (t = 2.660, P = .02), insular (t = 3.526, P = .003), parietal (t = 2.414, P = .03), temporal (t = 3.221, P = .005), and precentral (t = 3.180, P = .01) volume deficits persisted in the uninfected participants with alcoholism compared with control participants with known HCV status. Conclusions and Relevance: Drug dependence and HCV infection compounded deleterious effects of alcohol dependence on frontal cortical volumes but could not account for the frontally distributed volume deficits in the drug-free participants with alcoholism. We speculate that age-alcohol interactions notable in frontal cortex put older adults at heightened risk for age-associated neurocompromise even if alcohol misuse is initiated later in life.

BACKGROUND: Among groups of persons living with HIV (PLWH), high-risk drinking trajectories are associated with HIV severity. Whether changes in individuals' alcohol use are associated with changes in HIV severity over the same period is unknown. METHODS: Veterans Aging Cohort Study (VACS) data from VA's EHR (2/1/2008-9/30/2016) identified AUDIT-C screens for all PLWH. Pairs of AUDIT-C screens within 9-15 months were included if CD4 and/or viral load (VL) was measured within 9 months after baseline and follow-up AUDIT-Cs. Linear regression assessed change in HIV severity (CD4 and logVL) associated with AUDIT-C change adjusted for confounders. Mean changes in HIV severity were estimated for each AUDIT-C change value. For all measures of change, positive values indicate improvements (lower drinking and improved HIV severity). RESULTS: Among PLWH, 21,999 and 22,143 were eligible for CD4 and VL analyses, respectively. Most had non- or low-level drinking and stable consumption over time (mean AUDIT-C change=.08, SD=1.91). HIV severity improved over time [mean CD4 change=20.5 (SD 180.8); mean logVL change=0.12 (SD 0.71)]. AUDIT-C changes were associated non-linearly with changes in CD4 (p=0.03) and logVL (p<0.001). Improvement in HIV severity was greatest among those with stable AUDIT-C scores over time; those with greater AUDIT-C increases fared worse than those with smaller increases in or stable AUDIT-Cs. CONCLUSIONS: Improvement in HIV severity was greatest among PLWH with relatively stable drinking, most of whom initially did not drink or drank at low levels. Those with large changes (especially increases) in drinking appear at greatest risk for poor HIV control.


We evaluated associations between levels of alcohol use and HIV care continuum components using national Veterans Aging Cohort Study data for all patients with HIV and AUDIT-C screening (2/1/2008-9/30/2014). Poisson regression models evaluated associations between alcohol use levels (non-drinking, low-, medium-, high-, and very high-level drinking) and: (1) engagement with care (documented CD4 cells/microl or viral load copies/ml labs), (2) ART treatment (>/= 1 prescription), and (3) viral suppression (HIV RNA < 500 copies/ml) within one year. Among 33,224 patients, alcohol use level was inversely associated with all care continuum outcomes (all p < 0.001). Adjusted prevalence of care engagement ranged from 77.8% (95% CI 77.1-78.4%) for non-drinking to 69.1% (66.6-71.6%) for high-level drinking. The corresponding range for ART treatment was 74.0% (73.3-74.7%) to 60.1% (57.3-62.9%) and for viral suppression was 57.3% (56.5-58.1%) to 38.3% (35.6-41.1%). Greater alcohol use is associated with suboptimal HIV treatment across the HIV care continuum.


As successfully treated individuals with Human Immunodeficiency Virus (HIV)-infected age, cognitive and health challenges of normal aging ensue, burdened by HIV, treatment side effects, and high prevalence comorbidities, notably, Alcohol Use Disorders (AUD) and Hepatitis C virus (HCV) infection. In 2013, people over 55 years old accounted for 26% of the estimated number of people living with HIV (~1.2 million). The aging brain is increasingly vulnerable to endogenous and exogenous insult which, coupled with HIV infection and comorbid risk factors, can lead to additive or synergistic effects on cognitive and motor function. This paper reviews the literature on neuropsychological and in vivo Magnetic Resonance Imaging (MRI) evaluation of the aging HIV brain, while also considering the effects of comorbidity for AUD and HCV.
Women


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.


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


We sought to examine risk and protective factors for Posttraumatic Stress Disorder (PTSD) among African American women living with HIV. This is a cross-sectional analysis of baseline data from a randomized trial of an HIV stigma reduction intervention. We examined data from two-hundred and thirty-nine African American women living...
with HIV. We examined whether age, marital status, level of education, internalized HIV-related stigma, and social support as potential protective and risk factors for PTSD symptoms using logistic regression. We analyzed bi-variate associations between each variable and PTSD symptoms, and constructed a multivariate logistic regression model adjusting for all variables. We found 67% reported clinically significant PTSD symptoms at baseline. Our results suggest that age, education, and internalized stigma were found to be associated with PTSD symptoms (p < 0.001), with older age and more education as protective factors and stigma as a risk factor for PTSD. Therefore, understanding this relationship may help improve assessment and treatment through evidence-based and trauma-informed strategies.


OBJECTIVE: Little is known about cervical cancer screening and results patterns among HIV-infected (HIV+) women in real-world healthcare settings. We characterized two periods of screening opportunity. DESIGN: Retrospective cohort. SETTING: US safety-net healthcare system in Dallas County, Texas. PARTICIPANTS: We analyzed data from electronic medical records (EMR) of 1490 HIV+ women receiving care 2010-2014. MAIN OUTCOME MEASURES: At baseline, we categorized a woman’s Pap status 15 months prior to index date as under-screened (vs. screened), and cytology result (normal vs. abnormal). Then, we examined screening completion and results, and colposcopy uptake and results after an abnormal screen, in the subsequent 15-month period. RESULTS: More than half of women (56%) had no evidence of a Pap test (i.e. under-screened) at baseline. Under-screened women were more likely to be older (50-64 years), have diabetes, and unknown viral load; they were less likely to be Black, Hispanic, have Medicaid, recently pregnant, have a HIV clinic visit, or a CD4 cell count at least 200 cells/mul. Nearly half of under-screened women (46%, n = 383) remained under-screened in the subsequent 15 months. Among women under-screened at baseline who later completed screening and follow-up during the study period, 21 high-grade dysplasia and three cancers were diagnosed. Overall, 40% of women did not receive colposcopy when needed, with most failures to follow-up occurring in women who were under-screened at baseline. CONCLUSION: Most HIV+ women receiving care in a safety-net system did not receive sufficient screening for cervical cancer and remained at exceptionally high risk of developing high-grade dysplasia.


While older African American women (e.g., aged 50 years and older) comprise only 11% of the female population in the United States, they account for 50% of HIV diagnoses among women in this age group. Unique sociocultural factors, including a lack of HIV knowledge and stigma, contribute to HIV risk among older African American women. The goal of this qualitative study was to obtain a nuanced perspective from older African American women about HIV knowledge and experiences with HIV using the framework of intersectionality theory. Focus groups were conducted with 35 African American women who were 50 years and older, nonpartnered, and heterosexual. Women were asked what they knew about HIV and if they thought older women were at risk for HIV. A thematic analysis using NVivo 11 yielded two central themes and three subthemes: HIV knowledge, including experiential knowledge, superficial knowledge, and no knowledge, and stigma around HIV in the Black church. Implications for developing HIV prevention programs and testing messages are discussed. [ABSTRACT FROM AUTHOR]

OBJECTIVE: Nonadherence reduces the effectiveness of behavioral change regimens for promoting health and decreasing morbidities and mortality. Such is the case with endocrine therapies, which lower the likelihood of recurrence in the approximately 70% of women with hormone receptor-positive breast cancers. This investigation tests a model of contributors to objective adherence. METHOD: Women with breast cancer receiving their 1st endocrine therapy prescription (N = 130) were recruited from a large community oncology breast clinic. Participants completed three interview and questionnaire sessions at prescription initiation, one month and four months later. Questionnaires addressed patients’ experience with cancer and included measures of coping (COPE and Emotional Approach Coping), social support (Interpersonal Support Evaluation List), and depressive symptoms (Center for Epidemiologic Studies Depression Scale). At the initial appointment, participants were provided a Medication Event Monitoring System (MEMS) cap to assess adherence; the MEMS cap was collected at the 4-month follow-up appointment. RESULTS: Structural equation modeling offered partial support for a mediational model, chi2(68, N = 130) = 77.47, p = .202, root-mean-square error of approximation = .03, comparative fit index = .97, standardized root-mean-square residual = .06. Greater social support at prescription initiation was associated with lower depressive symptoms 1 month later, which in turn were associated with higher objective adherence (MEMS) four months after study entry, controlling for significant covariates (p < .05). Use of avoidance-oriented coping was not statistically significantly related to depressive symptoms (p > .05). CONCLUSIONS: This model informs theory regarding medication adherence as well as intervention development for women prescribed adjuvant endocrine therapy. (PsycINFO Database Record Carter, A., et al. (2018). "Health-related quality-of-life and receipt of women-centered HIV care among women living with HIV in Canada." Women & Health 58(5): 498.

We measured health-related quality of life (HRQOL) using the SF-12 among women living with HIV (WLWH) in Canada between August 2013 and May 2015. We investigated differences by perceived receipt of women-centered HIV care (WCHC), assessed using an evidence-based definition with a 5-point Likert item: “Overall, I think that the care I have received from my HIV clinic in the last year has been women-centered” (dichotomized into agree vs. disagree/neutral). Of 1308 participants, 26.3 percent were from British Columbia, 48.2 percent from Ontario, and 25.5 percent from Québec. The median age was 43 years (interquartile range = 36-51). Most (42.2 percent) were White, 29.4 percent African/Caribbean/Black, and 21.0 percent Indigenous. Overall, 53.4 percent perceived having received WCHC. Mean physical and mental HRQOL scores were 43.8 (standard deviation [SD] = 14.4) and 41.7 (SD = 14.2), respectively. Women perceiving having received WCHC had higher mean physical (44.7; SD = 14.0) and mental (43.7; SD = 14.1) HRQOL scores than those not perceiving having received WCHC (42.9; SD = 14.8 and 39.5; SD = 14.0, respectively; p < .001). In multivariable linear regression, perceived WCHC was associated with higher mental (β = 3.48; 95 percent confidence interval: 1.90, 5.06) but not physical HRQOL. Improving HRQOL among Canadian WLWH, which was lower than general population estimates, is needed, including examining the potential of WCHC as an effective model of clinical care. [ABSTRACT FROM AUTHOR]


OBJECTIVE: To investigate the incidence of first-ever stroke/transient ischemic attack (TIA) and associated risk factors in a cohort of persons living with HIV infection (PLWH). DESIGN: Observational cohort study METHODS:: We determined incidence rates of first-ever stroke/TIA in PLWH after ART initiation from the AIDS Clinical Trials Group ALLRT cohort and its parent trials. Poisson regression models evaluated baseline and time-varying covariates as risk factors for stroke/TIA. RESULTS: The incidence rate of stroke/TIA was 1.69 per 1000 person-years. Incidence rates were highest in women (2.88 stroke/TIAs per 1000 person-years compared with 1.40 per 1000 person-years in men) and non-Hispanic
Blacks (2.51 stroke/TIAs per 1000 person-years compared with 0.77 per 1000 person-years in Hispanic/other race/ethnicities and 1.56 per 1000 person-years in whites). In a multivariable model, we found a significant age-by-sex interaction (P = 0.01). The higher risk of stroke/TIA in women was more pronounced at younger ages, whereas older age conferred a greater increase in stroke/TIA risk in men than women. Other risk factors for stroke/TIA included hypertension, higher LDL, and HIV RNA greater than 200 copies/ml. Overweight/obese BMI and higher CD4:CD8 ratio protected against stroke/TIA. CONCLUSION: Women and non-Hispanic Blacks living with HIV had the highest incidence rates of stroke/TIA. A concerted effort must be made to include PLWH from these at-risk groups in observational and interventional studies aimed at understanding stroke mechanisms and reducing stroke risk in HIV infection. Strategies to modify stroke risk in PLWH should employ a multipronged approach targeting vascular risk factors and engaging and retaining patients in HIV care.


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.


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 Ceara, 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.


OBJECTIVES: Psychosocial factors of trauma and abuse, racial discrimination, HIV stigma, and gender-related stressors (e.g., prioritizing others' needs) have been associated with antiretroviral treatment (ART) nonadherence and poor viral suppression among Black women living with HIV (BWLWH). To inform the development of an intervention addressing these psychosocial factors to improve ART adherence, the authors sought the insight of BWLWH. METHOD: Qualitative semistructured interviews were conducted with 30 BWLWH to gather information on their experiences with trauma, racism, HIV stigma, gender-related stressors, ART adherence, and coping strategies, and their insights on the
proposed intervention. Participants' interviews were audio-recorded, transcribed, and coded using thematic content analysis and grounded theory. RESULTS: Participants shared (a) their experiences with trauma/abuse, racism, HIV-stigma, gender-related stress, and medication adherence; (b) coping strategies they use (e.g., social support, awareness [acknowledging systemic racism], assertiveness, selective disclosure of HIV status, and prioritizing the self); (c) how each of these adversities relate to their medication adherence and how they found ways to self-validate and practice self-primacy and self-care, including medication adherence in spite of adversities; and (d) enthusiasm for the proposed intervention. CONCLUSIONS: Culturally adapted interventions are needed to improve the health of BWLWH by enhancing coping strategies for the multiple adversities they face and promoting self-validation, self-primacy, and self-care in spite of adversities. (PsycINFO Database Record

The aim of the present study was to investigate the effect of a short period of supplementation with glutamine dipeptide (GDP) on the acute responses to resistance training on the executive functions of people with HIV/AIDS. The sample consisted of 10 HIV+ women (45.00 +/- 12.77 years old; 65.71 +/- 12.04 kg; 1.54 +/- 0.05 m) who were submitted to a randomized double-blind crossover procedure according to two experimental conditions: orally supplemented with 20 g/day of GDP or with maltodextrin for seven days. On the seventh day of supplementation all participants did cognitive function tests before and immediately after a resistance training session. Seven days of washout were adopted between conditions. Stroop and N-back tests were used to evaluate the executive functions. The training reduced the response time of each card in isolation and the latency time among them. GDP supplementation increased the magnitude of this effect, thus, reducing the latency time from the first to the last card in the Stroop test by almost 50% (P < 0.01). Considering the N-back test, there were no significant differences. It is suggested that GDP supplementation may increase the magnitude of the effect of an acute resistance training session in cognitive functions, particularly in the inhibitory control of people with HIV/AIDS. This trial is registered with NCT03236532.


OBJECTIVES: To assess changes in disparities of HIV diagnosis rates among Black women aged 18 years or older living in the United States. METHODS: We calculated estimated annual percent changes (EAPCs) in annual diagnosis rates, rate differences (absolute disparity), and rate ratios (relative disparity) for groups (total, US-born, and non-US-born) of Black women (referent was all White women) with diagnosed HIV infection, using data reported to the National HIV Surveillance System. RESULTS: Of 39 333 Black women who received an HIV diagnosis during 2008 to 2016, 21.4% were non-US-born. HIV diagnosis rates declined for all Black women, with the smallest decline among non-US-born groups (EAPC = -3.1; P </= .001). Absolute disparities declined for both US-born and non-US-born Black women; however, the relative disparity declined for Black women overall and US-born Black women, whereas it increased for non-US-born (including Caribbean- and Africa-born) Black women. CONCLUSIONS: Differences in disparities in HIV diagnoses exist between US- and non-US-born (specifically Caribbean- and Africa-born) Black women. Accounting for the heterogeneity of the Black women's population is crucial in measuring and monitoring progress toward eliminating health disparities among Black women.


Background & objectives: Data on bone mineral density (BMD) and sarcopenia are scant from young females with HIV. This study was conducted to determine occurrence, predictors and impact of body composition alterations on osteoporosis in pre-menopausal women with HIV. Methods: A total of 214 females with serologically documented HIV infection were screened, of whom 103 pre-menopausal women, 25-45 yr age, clinically stable, having at least one year follow up data, underwent hormonal and dual-energy X-ray absorptiometry analysis for BMD and body composition. Seventy five matched controls were also evaluated. Results: Females with HIV had significantly lower BMD and Z-score at lumbar spine (LS), total femur, neck of femur (NOF), and radius ultra-distal (UD) compared to controls. Osteoporosis at least at one site was observed in 34.95 per cent patients, compared to eight per cent in controls (P<0.001). Most common site of osteoporosis in females with HIV was radius UD (24.27%), followed by radius 33 per cent (17.48%), radius total (15.53%) and greater trochanter, NOF and LS (6.80% each). HIV patients had significantly lower bone mineral content, lean mass (LM), fat per cent, android (A) fat, gynoid (G) fat, and A/G ratio. LM and fat mass (FM) were -15.65 and -11.54 per cent lower in HIV patients, respectively. Osteoporosis patients had significantly higher use of antiretroviral therapy and lower LM, FM and fat per cent. On logistic regression, LM followed by A/G ratio and BMI were the best predictors of osteoporosis. Sarcopenia was observed in 17.5 per cent patients. Interpretation & conclusions: Our results showed that osteoporosis and sarcopenia were significant problems in young women with HIV. HIV was associated with greater LM loss, which was critical for bone health. Sarcopenia may predict low BMD in HIV.


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.


This study examined factors impacting the psychological well-being of women living with human immunodeficiency virus/AIDS and the impact of depression on clinical outcomes. Nearly two-thirds of participants in this cross-sectional study reported significant depressive symptoms. Compared with women living with human immunodeficiency virus/AIDS without depressive symptoms, those with depression reported significantly poorer health outcomes. Health care providers should regularly screen these women for and adequately treat depression, and must collaborate with mental health providers and pastoral care counselors to address the mental health needs of women living with human immunodeficiency virus/AIDS to optimize their human immunodeficiency virus-related outcomes.


OBJECTIVES: To investigate the overall and the sex-specific association of preoperative and one-year post coronary artery bypass (CABG) surgery symptoms of depression and anxiety with 11-year all-cause mortality. METHODS: A multicenter prospective study including 1125 patients who completed the Hospital Anxiety and Depression Scale (HADS) before an elective CABG surgery, of whom 850 completed the HADS again at one-year follow-up. Information on all-cause mortality was obtained through the Israeli Ministry of Internal Affairs Register. Multivariable adjusted Cox regression models quantified the association of symptoms of depression and anxiety with all-cause mortality. RESULTS: Females comprised 22.7% of the cohort and were 5.5 years older than males (70.0+/-.9.3 and 64.4+/-.10.3 years, respectively). Controlling for sociodemographic and lifestyle factors, illness severity and post-surgery participation in cardiac rehabilitation, there was little evidence of an association between preoperative symptoms of depression and mortality in males [adjusted hazard ratio (aHRmales)=1.03, 95% CI 0.99-1.07, p=0.21] or females (aHRfemales=1.01, 95% CI 0.95-1.08, p=0.7). One-year postoperative symptoms of depression were associated with mortality in both males (aHRmales=1.05, 95% CI 1.01-1.10, p=0.03) and females (aHRfemales=1.07, 95% CI 1.02-1.13, p=0.013). Preoperative symptoms of anxiety were unrelated to mortality overall, but among females postoperative symptoms of anxiety predicted 11-year mortality (aHRfemales=1.07, 95% CI 1.00-1.14, p=0.049). There was no HADS by sex interaction (p for interaction=0.12-0.99). CONCLUSIONS: Symptoms of depression one-year after surgery were positively related to mortality with little evidence for sex differences. These findings underscore the need for identification and treatment of psychiatric symptoms in patients undergoing CABG surgery. CLINICAL TRIAL REGISTRATION: ClinicalTrials.gov: NCT00356863.


Sexual violence is associated with increased risk of HIV acquisition/transmission in women. Forced sex can result in physical trauma to the reproductive tract as well as severe psychological distress. However, immuno-biological mechanisms linking sexual violence and HIV susceptibility are incompletely understood. Using the Women’s Interagency HIV Study repository, a total of 77 women were selected to form 4 groups, stratified by HIV serostatus, in the following categories: 1) no sexual abuse history and low depressive symptom score (below clinically significant cut-off, scores <16)
(Control); 2) no sexual abuse history but high depressive symptom score, >/=16 (Depression); 3) chronic sexual abuse exposure and low depressive symptom score (Abuse); 4) chronic sexual abuse exposure and high depressive symptom score (Abuse+Depression). Inflammation-associated cytokines/chemokines/proteases (TNF-alpha, IL-6, IL-1alpha, IL-1beta, TGF-beta MIP-3alpha, IP-10, MCP-1, Cathepsin B), anti-inflammatory/anti-HIV mediators (Secretory leukocyte protease inhibitor (SLPI), Elafin, beta defensin 2 (HBD2), alpha defensins (HNP 1-3), Thrombospondin (TSP-1), Serpin A1, A5, Cystatin A, B), and wound-healing mediators (Gro-alpha, VEGF, PDGF, EGF, FGF, IGF), were measured in cervical-vaginal lavage (CVL) using ELISA. Linear regression was used to model association of biomarkers with depression and abuse as predictor variables; the interaction between depression and abuse was also tested. Anti-HIV activity in CVL was tested using TZM-bl indicator cell line. In HIV-uninfected women, median levels of IL-6 (p = 0.04), IL-1alpha (p<0.01), TGF-beta (p = 0.01), IP-10 (p = <0.01), PDGF (p<0.01) and FGF (p<0.01), differed significantly between groups. Specifically, an association was found between chronic sexual abuse and increased IL-1alpha (p<0.01), MIP-3alpha (p = 0.04), IP-10 (p<0.01), Serpin B1 (p = 0.01), FGF (p = 0.04) and decreased TGF-beta (p<0.01), MCP-1 (p = 0.02), PDGF (p<0.01). Further, there was evidence of significant interactions between chronic sexual abuse and current depression for IL-1alpha, IP-10, Serpin A1, Cystatin B, and FGF. In HIV-infected women, median levels of TNF-alpha (p<0.01), IL-6 (p = 0.05), MIP-3alpha (p<0.01), and MCP-1 (p = 0.01), differed significantly between groups. Specifically, an association was found between chronic sexual abuse and increased MCP-1 (p = 0.03), Gro-alpha (p = 0.01) and decreased TNF-alpha (p<0.01), IL-1alpha (p = 0.02), MIP-3alpha (p<0.01) and Cathepsin B (p = 0.03). Current depressive symptoms were associated with significantly decreased MIP-3alpha (p<0.01). There was evidence of significant interactions between chronic sexual abuse and current depression for MCP-1 and FGF. No significant differences were observed in anti-HIV activity among all eight groups. Heat-map analyses revealed distinct immune network patterns, particularly in the Abuse groups for both HIV-infected and uninfected women. Our data indicates a complex relationship between chronic sexual abuse exposure, depressive symptoms, and FRT immune mediators that are also affected by HIV status. Association of chronic sexual abuse with increase in inflammation-associated cytokine/chemokine expression, along with impaired wound-healing associated growth-factors can create a microenvironment that can facilitate HIV infection. Evaluation of longitudinal changes in exposures and biomarkers are needed to untangle the immuno-biological mechanisms that may put women who endure life-long sexual abuse at increased risk for HIV.


We sought to characterize the cardiovascular disease (CVD) risk factor profile of transgender women with HIV identified through a U.S. healthcare database. Compared with age- and race-matched cisgender men with HIV, transgender women with HIV had an increased prevalence of anemia and lower absolute hemoglobin levels. HIV control was sub-optimal and prevalence of HCV co-infection was high among transgender women. Further study of non-traditional CVD risk factors/immune activation among transgender women with HIV is warranted.


OBJECTIVE: To evaluate the prevalence of anal intraepithelial lesions and associated risk factors in women with cervical neoplasia. METHODS: The present cross-sectional study enrolled patients with intraepithelial or invasive cervical neoplasia who had been referred to the lower genital tract pathology outpatient department of the Instituto de Medicina Integral Prof. Fernando Figueira, Recife, Brazil, between December 1, 2008, and December 31, 2009; patients with HIV infections were excluded. All participants underwent anal cytology and high-resolution anoscopy; sociodemographic and clinical risk factors were identified using multivariate analysis. RESULTS: There were 324 patients included and 37 (11.4%) had anal intraepithelial neoplasia. Factors associated with anal intraepithelial neoplasia in the multivariate analysis were being older than 35 years of age (P=0.002), having completed no more than 4 years of education (P=0.012), anomalous anal cytology (P=0.003), and anomalous high-resolution anoscopy findings (P<0.001); subclinical HPV lesions on vulvoscopy (P=0.057) were not associated with anal intraepithelial neoplasia. CONCLUSION: The prevalence of anal intraepithelial neoplasia was high among patients with cervical neoplasia who did not have HIV, particularly patients older than 35 years.


HIV pre-exposure prophylaxis (PrEP) might lead individuals to view serodisclosure as unnecessary. We examined the prevalence of non-disclosure and lack of knowledge of partner status in a global cohort of men who have sex with men (MSM) and transgender women (TW) enrolled in the iPrEx Open Label Extension (OLE). We calculated prevalence ratios by fitting a logistic model and estimating predicted probabilities using marginal standardization. Prevalence of non-disclosure and lack of knowledge of partner status were highest in Thailand (73% and 74%, respectively) and lowest in the USA (23% and 37%, respectively). In adjusted analyses, PrEP use was not significantly associated with non-disclosure or lack of knowledge of partner status (p-values>0.05). We found that relationship characteristics were significantly associated with both outcomes. Non-disclosure was higher among casual (adjusted prevalence ratio [aPR] 1.54, [95% confidence interval 1.24-1.84]) and transactional sex partners (aPR 2.03, [1.44-2.62]), and among partners whom participants have known only minutes or hours before their first sexual encounter (aPR 1.62, [1.33-1.92]). Similarly, participants were less likely to know the HIV status of casual partners (aPR 1.50, [1.30-1.71]), transactional sex partners (aPR 1.62, [1.30-1.95]), and those they have known for only days or weeks (aPR 1.13, [0.99-1.27]) or minutes or hours (aPR 1.27, [1.11-1.42]). Our findings underscore the role of dyadic factors in influencing serodisclosure. Comprehensive risk reduction counseling provided in conjunction with PrEP that address relationship characteristics are needed to help patients navigate discussions around HIV status.


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.


The aim of this analysis is to identify latent subgroups of women based on substance use, exposure to violence, and risky sexual behaviors and quantify discrete stages of behavior change over time. Data comes from 317 women recruited from a Municipal Drug Court System in the Midwest. All participants were interviewed regarding their substance use and sexual behaviors, as well as their exposure to violence at baseline, a 4th-month follow-up, and an 8th-month follow-up. A latent transitional analysis (LTA), a longitudinal extension of a latent class analysis (LCA), was used to quantify discrete stages of behavior change. The results of our analyses revealed 4 distinct behavioral profiles in our sample: 1) women with high probabilities of risky sexual behaviors, exposure to violence, and crack/cocaine use, 2) women with a high probability of exposure to violence, and moderate sexual risk taking, 3) women characterized solely by a high probability of crack/cocaine use, 4) women with low probabilities of all factors. The proportion of women in latent statuses characterized by a high probability of crack/cocaine use did not substantially decrease over time. Women who experienced child sexual abuse, had a greater number of lifetime arrests, were older, and believed they had risky drug using behavior that needed changing at baseline were significantly more likely to be in higher-risk latent statuses. Targeted interventions tailored to crack/cocaine users, as well as a wide-spread need for trauma-informed interventions among females involved in the criminal justice system, are needed.


With advances in combination antiretroviral therapy (cART), people living with HIV are now surviving to experience aging. Evidence suggests that individuals living with HIV are at greater risk for low bone mineral density (BMD), osteoporosis, and fractures. Better understanding of the pathophysiology of bone health in women living with HIV (WLWH) is important for treatment strategies. The goal of this study was to explore new biological factors linked to low BMD in WLWH. Standardized BMD measures of WLWH were compared to reference values from an unselected population of women from the same geographical region of the same age range. Linear regression analysis was used to assess relationships among health-related characteristics, cellular aging (measured by leukocyte telomere length; LTL), cART, and BMD of WLWH. WLWH (n = 73; mean age 43 ± 9 years) had lower BMD Z-scores at the lumbar spine (LS) (mean difference = -0.39, p < 0.001) and total hip (TH) (-0.29, p = 0.012) relative to controls (n = 290). WLWH between 50 and 60 years (n = 17) had lower Z-scores at the LS (p = 0.008) and TH (p = 0.027) compared to controls (n = 167). Among WLWH, LS BMD was significantly associated with LTL (R² = 0.09, p = 0.009) and BMI (R² = 0.06, p = 0.042). Spinal BMD was adversely affected in WLWH. Reduction of LTL was strongly associated with lower BMD and may relate to its pathophysiology and premature aging in WLWH.

Background: People living with HIV smoke at a rate three times that of the general population. This randomized controlled pilot trial tested the feasibility and acceptability of a video-call smoking cessation intervention in women living with HIV and its preliminary efficacy compared with a voice-call smoking cessation intervention. The study focused on women due to a paucity of studies among this population, and women are less likely than men to quit smoking when provided with conventional treatment. Methods: Participants in both arms received an HIV-tailored smoking cessation intervention comprising eight 30-minute weekly counseling sessions in conjunction with active nicotine patches for 8 weeks. The only difference between the two arms was the delivery mode of the intervention: via either telephone-based video or voice call. Survival analysis and a Cox proportional hazard regression model were performed to identify factors predicting 6-month prolonged abstinence from smoking. Results: A video-call intervention was almost 30% less feasible than a voice-call intervention because women in their 50s and 60s or poorer women living in some southern states did not have access to video-call equipment. However, those who received the video-call intervention were more likely to complete the study than those who had the voice-call intervention. There was no difference in the acceptability of the two interventions. A survival analysis revealed that those in the video arm were significantly more likely to maintain smoking abstinence over the 6-month follow-up period than those in the voice arm (log rank chi (2)=4.02, P<0.05). Conclusion: Although a video-call intervention is less feasible than a voice-call intervention, the former seems to outperform the latter in achieving long-term smoking abstinence for women living with HIV, which may offer an advantage over establishing therapeutic alliance and visually monitoring their adherence to nicotine patches. Clinical trial registration: ClinicalTrials.gov NCT02898597.


Human immunodeficiency virus (HIV)-associated nonacquired immunodeficiency syndrome (AIDS) conditions, such as cardiovascular disease, diabetes, osteoporosis, and dementia are more prevalent in older than in young adult HIV-infected subjects. Although the oral microbiome has been studied as a window into pathogenesis in aging populations, its relationship to HIV disease progression, opportunistic infections, and HIV-associated non-AIDS conditions is not well understood. We utilized 16S rDNA-based pyrosequencing to compare the salivary microbiome in three groups: (1) Chronically HIV-infected women >50 years of age (aging); (2) HIV-infected women <35 years of age (young adult); and (3) HIV-uninfected age-matched women. We also examined correlations between salivary dysbiosis, plasma HIV RNA, CD4(+) T cell depletion, and opportunistic oral infections. In both aging and young adult women, HIV infection was associated with salivary dysbiosis characterized by increased abundance of Prevotella melaninogenica and Rothia mucilaginosa. Aging was associated with increased bacterial diversity in both uninfected and HIV-infected women. In HIV-infected women with oral coinfections, aging was also associated with reduced abundance of the common commensal Veillonella parvula. Patients taking antiretroviral therapy showed increased numbers of Neisseria and Haemophilus. High plasma HIV RNA levels correlated positively with the presence of Prevotella and Veillonella, and negatively with the abundance of potentially beneficial Streptococcus and Lactobacillus. Circulating CD4(+) T cell numbers correlated positively with the abundance of Streptococcus and Lactobacillus. Our findings extend previous studies of the role of the microbiome in HIV pathogenesis, providing new evidence that HIV infection is associated with a shift toward an increased pathogenic footprint of the salivary microbiome. Taken together, the data suggest a complex relationship, worthy of additional study, between chronic dysbiosis in the oral cavity, aging, viral burden, CD4(+) T cell depletion, and long-term antiretroviral therapy.

We used baseline data from a sample of African-American women living with HIV who were recruited to participate in a stigma-reduction intervention in Chicago and Birmingham (2013-2015) to (1) evaluate the relationship between HIV-related stigma and viral suppression, and (2) assess the role of depression and nonadherence to antiretroviral therapy (ART) as mediators. Data from women were included in this secondary analysis if they were on ART, had viral load data collected within 8-weeks of study entry and had complete covariate data. We used logistic regression to estimate the total effect of HIV-related stigma (14-item Stigma Scale for Chronic Illness) on viral suppression (< 200 copies/mL), and serial mediation analysis to estimate indirect effects mediated by depressive symptoms (8-item Patient Health Questionnaire) and ART nonadherence (number of days with missed doses). Among 100 women who met study inclusion criteria, 95% reported some level of HIV-related stigma. In adjusted models, higher levels of HIV-related stigma were associated with lower odds of being virally suppressed (AOR = 0.93, 95% CI = 0.89-0.98). In mediation analysis, indirect effects through depression and ART nonadherence were not significant. Findings suggest that HIV-related stigma is common among African-American women living with HIV, and those who experience higher levels of stigma are less likely to be virally suppressed. However, the mechanisms remain unclear.


INTRODUCTION: Men who have sex with men (MSM) and transgender women (TGW) in Brazil experience high rates of HIV infection. We examined the clinical and economic outcomes of implementing a pre-exposure prophylaxis (PrEP) programme in these populations. METHODS: We used the Cost-Effectiveness of Preventing AIDS Complications (CEPAC)-International model of HIV prevention and treatment to evaluate two strategies: the current standard of care (SOC) in Brazil, including universal ART access (No PrEP strategy); and the current SOC plus daily tenofovir/emtricitabine PrEP (PrEP strategy) until age 50. Mean age (31 years, SD 8.4 years), age-stratified annual HIV incidence (age <= 40 years: 4.3/100 PY; age > 40 years: 1.0/100 PY), PrEP effectiveness (43% HIV incidence reduction) and PrEP drug costs ($23/month) were from Brazil-based sources. The analysis focused on direct medical costs of HIV care. We measured the comparative value of PrEP in 2015 United States dollars (USD) per year of life saved (YLS). Willingness-to-pay threshold was based on Brazil's annual per capita gross domestic product (GDP; 2015: $8540 USD). RESULTS: Lifetime HIV infection risk among high-risk MSM and TGW was 50.5% with No PrEP and decreased to 40.1% with PrEP. PrEP increased per-person undiscounted (discounted) life expectancy from 36.8 (20.7) years to 41.0 (22.4) years and lifetime discounted HIV-related medical costs from $4100 to $8420, which led to an incremental cost-effectiveness ratio (ICER) of $2530/YLS. PrEP remained cost-effective (<1x GDP) under plausible variation in key parameters, including PrEP effectiveness and cost, initial cohort age and HIV testing frequency on/off PrEP. CONCLUSION: Daily tenofovir/emtricitabine PrEP among MSM and TGW at high risk of HIV infection in Brazil would increase life expectancy and be highly cost-effective.

**CONTEXT:** No prospective studies address disease-specific Advance Care Planning (ACP) for adults living with HIV/AIDS. **OBJECTIVE:** To examine the efficacy of FAmily-CEntered (FACE) ACP in increasing advance care planning and advance directive documentation in the medical record. **METHODS:** Longitudinal, two-arm, randomized controlled trial with intent-to-treat design recruited from 5 hospital-based outpatient HIV clinics in Washington, DC. Adults living with HIV and their surrogate decision makers (N=233 dyads) were randomized to either an intensive facilitated two-session FACE ACP (Next Steps: Respecting Choices goals of care conversation and Five Wishes advance directive) or Healthy Living Control (conversations about developmental/relationship history and nutrition). **RESULTS:** Patients (n=223) mean age: 51 years, 56% male, 86% African-American. One hundred ninety-nine dyads participated in the intervention. At baseline, only 13% of patients had an advance directive. Three months post-intervention, this increased to 59% for the FACE ACP group versus 17% in the control group (p<0.0001). Controlling for race, the odds of having an advance directive in the medical record in the FACE ACP group was approximately 7 times greater than controls (Adjusted Odds Ratio=6.58, 95% C.I: 3.21-13.51, p<0.0001). Among African-Americans randomized to FACE, 58% had completed/documented advance directives versus 20% of controls (p<0.0001). **CONCLUSIONS:** The FACE ACP intervention significantly improved ACP completion and advance directive documentation in the medical record among both African-American and non-African-American adults living with HIV in Washington, D.C., providing health equity in ACP which can inform best practices.


**OBJECTIVES:** Projections of fertility of HIV positive women as ART scales up are needed to plan prevention of mother-to-child transmission (PMTCT) services. We describe differences in exposure to pregnancy between HIV positive and HIV negative women by age, region and national ART coverage to evaluate the extent to which behavioural differences explain lower fertility among HIV positive women and assess whether exposure to pregnancy has changed with antiretroviral treatment (ART) scale-up. **METHODS:** We analysed 46 nationally representative household surveys in sub-Saharan Africa conducted between 2003 and 2015 to estimate risk of exposure to recent sex and pregnancy of HIV positive and HIV negative women by age using a log binomial model. We tested for regional and urban/rural differences and associations with national ART coverage. We estimated an adjusted fertility rate ratio of HIV positive to HIV negative women adjusting for differences in exposure to pregnancy. **RESULTS:** Exposure to pregnancy differs significantly between HIV positive and negative women by age, modified by region. Younger HIV positive women have a higher exposure to pregnancy than HIV negative women and the opposite is true at older ages. The switch occurs at 25-29 for rural women and 30-34 for urban women. There was no evidence that exposure to pregnancy of HIV positive women have changed as national ART coverage increased. The inferred rate of fecundity of HIV positive women when adjusted for differences in exposure to pregnancy were lower than unadjusted fertility rate ratios in women aged 20-29 and 20-24 in urban and rural areas respectively varying between 0.6 and 0.9 over regions. **DISCUSSION:** The direct effects of HIV on fertility are broadly similar across ages, while the dramatic age gradient that has frequently been observed is largely attributable to variation in relative sexual exposure by age.

There is a growing population of older women living with HIV/AIDS (WLWHA). Breast cancer is a common cancer in women worldwide, but the global number of breast cancers in WLWHA is not known. We estimated, for each UN sub-region, the number and age distribution of WLWHA who were diagnosed with breast cancer in 2012, by combining IARC-GLOBOCAN estimates of age-country specific breast cancer incidence with corresponding UNAIDS HIV prevalence. Primary analyses assumed no HIV-breast cancer association, and a breast cancer risk reduction scenario was also considered. Among 16.0 million WLWHA aged 15+ years, an estimated 6,325 WLWHA were diagnosed with breast cancer in 2012, 74% of whom were in sub-Saharan Africa, equally distributed between Eastern, Southern and Western Africa. In most areas, 70% of HIV-positive breast cancers were diagnosed under age 50. Among all breast cancers (regardless of HIV status), HIV-positive women constituted less than 1% of the clinical burden, except in Eastern, Western and Middle Africa where they comprised 4-6% of under age 50 year old breast cancer patients, and in Southern Africa where this patient subgroup constituted 26 and 8% of breast cancers diagnosed under and over age 50 respectively. If a deficit of breast cancer occurs in WLWHA, the global estimate would reduce to 3,600. In conclusion, worldwide, the number of HIV-positive women diagnosed with breast cancer was already substantial in 2012 and with an expected increase within the next decade, early detection and treatment research targeted to this population are needed.


OBJECTIVE: The burden of sleep disturbance and depressive symptomology is high for persons living with HIV and particularly so for women. While cognitive behavioral stress management (CBSM) is shown to reduce symptoms of depression and 24-hr urinary free cortisol output (CORT) in HIV+ men, less is known about the effects of CBSM on mood and concomitant sleep disturbance in HIV+ women. The study aim is to model longitudinal change in sleep disturbance, depressive symptomology, and CORT for HIV+ women exposed to a 12-week CBSM intervention or control condition. METHODS: Self-reported sleep quality and depressive symptomology, along with CORT, was collected from surveys at baseline and approximately every three months thereafter for nine months from 130 HIV+ women (Mage = 38.44, SD = 7.73). The data was used to specify a parallel process latent growth model with CORT as a time-varying covariate. RESULTS: The model showed acceptable fit. There was a linear decline in sleep disturbance (beta = -0.32, p < .05) and logarithmic decline in depressive symptomology (beta = -0.33, p < .05) for those receiving the intervention. Decline in sleep disturbance predicted lower CORT at nine months. Furthermore, having less depressive symptoms at baseline was associated with lower initial levels of sleep disturbance and greater improvement in sleep quality over time. There was no discernible association between sleep and mood disturbance in the control group. Across groups, there was a consistent association between older age and greater sleep disturbance (r = 0.34, p < .01). CONCLUSION: Sleep disturbance appears to be a behavioral target for CBSM in HIV+ women although older age, preintervention levels of depressive mood, and time-varying levels of CORT output may limit improvement in sleep quality over time.


OBJECTIVE: To develop a mobile health app for older women with HIV infection that will be used in a larger study. DESIGN: A qualitative study design. SETTING: Baltimore-Washington metropolitan area clinics and communities. PARTICIPANTS: Ten women 50 years and older (mean age = 62.8 years, standard deviation = 3.62, range = 58-69 years) who self-identified as Black or African American and were infected with HIV. METHODS: At the start of the study, we used relevant empirical and the self-determination theory to inform the draft Web-based app content that was shared with two focus groups. Data were analyzed with input from a community advisory board (CAB) to inform the
development of the mobile health app. RESULTS: We inductively identified eight subthemes within the coding structure of two overall themes: Navigating Content, Functions, and Features and Enhancing Provider Interaction With Patients that represented the perspectives of participants regarding the app. From the eight subthemes, we integrated the contributions from the CAB, which we then used to further optimize the app. CONCLUSION: The app was designed to provide support, tools, and resources for older women with HIV. Engagement of community collaborators could be challenging because of multiple personal and structural barriers. Nonetheless, the potential community member benefits are invaluables. If successful, the Web-based app could be a model to address the needs of older persons with HIV infection.


Food insecurity, internalized HIV stigma, and depressive symptoms are independently associated with poor HIV outcomes. Food insecurity, stigma, and depression may be interrelated among women living with HIV (WLHIV). We hypothesized that food insecurity would be independently associated with internalized stigma and depressive symptoms among WLHIV in the United States (US), and would partially account for associations between stigma and depressive symptoms. We tested hypotheses using regression models and partial correlation analysis with cross-sectional data among 1317 WLHIV from the Women's Interagency HIV Study. In adjusted models, greater food insecurity was associated with internalized HIV stigma and depressive symptoms (all \( p < 0.05 \)), exhibiting dose-response relationships. Food insecurity accounted for 23.2% of the total shared variance between depressive symptoms and internalized stigma. Food insecurity is associated with depressive symptoms and internalized HIV stigma among US WLHIV, and may play a role in the negative cycle of depression and internalized stigma.


Frequent Pap testing is recommended among women living with HIV (WLWH) due to their elevated risk for cervical cancer. However, there are few recent longitudinal evaluations of utilization and determinants of Pap testing among WLWH. Medical and pathology records of WLWH seen at Johns Hopkins Hospital between 2005 and 2014 were assessed using Prentice, Williams, Peterson models. Of 554 WLWH in care for \( \geq 18 \) months, 79% received Pap testing, however only 11% consistently received Pap testing at the recommended interval. Some women (5%) were consistently under-screened (tested at longer intervals) and 21% did not receive any Pap testing at during follow-up. WLWH with decreased likelihood of screening included older women, injection drug users, whites and those who had lived for longer with HIV. In contrast, only women with a prior abnormal Pap result were more likely to receive Pap testing. CD4 cell count and health insurance were not significant determinants. Although many WLWH in care received Pap testing, some WLWH were unscreened or underscreened. Determinants of Pap testing for WLWH include socio-demographic factors and a prior abnormal result; these present potential targets in an urban HIV care setting for closer monitoring and directed interventions to improve utilization among WLWH.


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: Low-dose hydrocortisone (LDH) enhances aspects of learning and memory in select populations including patients with posttraumatic stress disorder and HIV-infected men. HIV-infected women show impairments in learning and memory, but the cognitive effects of LDH in HIV-infected women are unknown. DESIGN: Double-blind, placebo-controlled, cross-over study examining the time-dependent effects of a single low-dose administration of hydrocortisone (10 mg oral) on cognition in 36 HIV-infected women. Participants were first randomized to LDH or placebo and then received the opposite treatment one month later. METHODS: Cognitive performance was assessed 30 min and 4 h after pill administration to assess, respectively, nongenomic and genomic effects. Self-reported stress/anxiety and salivary cortisol were assessed throughout sessions. RESULTS: LDH significantly increased salivary cortisol levels versus placebo; levels returned to baseline 4-h postadministration. At the 30-min assessment, LDH enhanced verbal learning and delayed memory, working memory, behavioral inhibition, and visuospatial abilities. At the 4-h assessment, LDH enhanced verbal learning and delayed memory compared with placebo. LDH-induced cognitive benefits related to reductions in cytokines and to a lesser extent to increases in cortisol. CONCLUSION: The extended benefits from 30 min to 4 h of a single administration of LDH on learning and delayed memory suggest that targeting the hypothalamic-pituitary-adrenal axis may have potential clinical utility in HIV-infected women. These findings contrast with our findings in HIV-infected men who showed improved learning only at the 30-min assessment. Larger, longer term studies are underway to verify possible cognitive enhancing effects of LDH and the clinical significance of these effects in HIV.


This article contributes new information to the literature on the role of spirituality in the lives of HIV positive African American women. Spirituality has been found to have a direct relationship with cognitive and social functioning

OBJECTIVE: Classify the diagnoses in the conceptual framework of vulnerability of Ayres and in the Orem's self-care theory; Elaborate operational definitions of nursing diagnoses for elderly women vulnerable to HIV/AIDS. METHOD: A descriptive exploratory study, developed from March to December 2016 in the stages: 1. Classification of diagnoses in the conceptual framework of vulnerability of Ayres and in the Orem's self-care theory; 2. Operational definition of nursing diagnoses. RESULTS: 70 nursing diagnoses were classified in the conceptual framework of vulnerability of Ayres and Orem's self-care theory, and their operational definitions were constructed, where 75.7% of these were validated. FINAL CONSIDERATION: Diagnoses represent conditions that make older women vulnerable to HIV/AIDS and are linked to their self-care practices. Operational definitions contribute to a systematic approach to care and greater clarity in its implementation.


OBJECTIVE: The majority of people living with HIV in the United States are now over the age of 50, but symptom burden research has seldom included older women or the potential role of menopause. The aim of the study was to examine the influence of menopause as part of sex differences in HIV symptom burden. METHODS: A cross-sectional study was conducted that included both a sex-based analysis of previously reported HIV symptom characteristics of 1,342 respondents to an online survey (males, n = 957; female, n = 385) and a follow-up online survey of menstrual bleeding patterns (inferred menopause) in eligible females (n = 242) from the respondent pool. Using linear mixed models, we identified predictors of symptom burden scores in female respondents. RESULTS: For the most troublesome symptoms assessed in the sex-based analysis, depression scores were similar (P > 0.05), but higher (worse) burden scores for fatigue (P = 0.013) and muscle aches/pains (P = 0.004) were exclusively observed in females after adjusting for covariates. Respondents to the female survey (n = 222) were predominantly Black, heterosexual, nonsmokers, and obese, with an HIV diagnosis of approximately 16 years and at least one comorbid condition. Burden scores were higher in women reporting amenorrhea due to natural menopause or hysterectomy (n = 104) versus the menstruating group (n = 118) for muscle aches/pains (P = 0.05), fatigue (P = 0.03), and difficulty falling asleep (P = 0.04), independent of age, HIV duration, and number of HIV-associated non-AIDS conditions. CONCLUSIONS: Two of the most common symptoms in people living with HIV-fatigue and muscle aches/joint pains-invoke additional burden in women. Independent of aging, symptom burden may be exacerbated after menopause, supporting a shifting paradigm for HIV care management.

BACKGROUND: Although fracture rates are higher in HIV+ than HIV- women, whether HIV infection increases risk of falls is unclear. We determined the longitudinal occurrence and risk factors for falls in the Women's Interagency HIV Study (WIHS), and explored associations with cognitive complaints. METHODS: Recent (prior 6 months) self-reported falls were collected in 1,816 (1,250 HIV+; 566 HIV-) women over 24 months. Generalized estimating equation models using stepwise selection determined odds of any fall (versus none). RESULTS: HIV+ women were older than HIV- women (median 49 versus 47 years; P=0.0004), more likely to report neuropathy (20% versus 16%; P=0.023), and had greater central nervous system (CNS) medication use. At least one fall was reported in 41% HIV+ versus 42% HIV- women, including >/=2 falls in 25% HIV+ and 24% HIV- (overall P=0.30). Cognitive complaints were associated with falls among HIV+ (odds ratio [OR] 2.38; 95% CI 1.83, 3.09) and HIV- women (OR 3.43; 95% CI 2.37, 4.97); in adjusted models, cognitive complaints remained significant only in HIV- women (adjusted [aOR] 2.26; 95% CI 1.46, 3.48). Factors associated with any fall in adjusted analyses included: depressive symptoms and neuropathy (both HIV+ and HIV-); age, marijuana use, multiple CNS medications, and HCV infection (HIV+ only); and cognitive complaints, quality of life, hypertension and obesity (HIV- only). CONCLUSIONS: Middle-aged HIV+ and HIV- women had similar fall rates. Among HIV+ women, factors affecting cognition such as age, depressive symptoms, marijuana use and multiple CNS medications were important predictors of falls, however, cognitive complaints were not.


Advances in the treatment of HIV have led to increasing numbers of people living with HIV reaching older age. Age-related comorbid conditions, such as cardiovascular disease (CVD), are therefore of increasing importance in HIV clinical practice. Over half the global population of people living with HIV are female. We present a narrative literature review of 39 studies exploring CVD in women living with HIV (WLHIV), with particular reference to coronary heart disease, and focusing on: (1) epidemiology, (2) pathophysiology, (3) risk factors (including traditional risk factors and HIV-related risk factors), and (4) management. Although we found significant gaps in the literature on CVD in WLHIV, data suggest that: HIV increases the risk of CVD in women even more than it does in men; certain cardiometabolic risk factors (such as obesity and metabolic syndrome) are more prevalent in WLHIV than their male counterparts; and risk factors such as hyperlipidaemia and hypertension are not optimally managed in this population. Clinicians working with WLHIV therefore need to be aware that this is a patient group at elevated cardiovascular risk, and should be familiar with relevant guidelines.


OBJECTIVES: To examine the episodic disability experiences of older women living with HIV over time. DESIGN: Qualitative longitudinal study, conducting semistructured in-depth interviews on four occasions over a 20-month time frame. Inductive thematic analyses were conducted cross-sectionally and longitudinally. SETTING: Participants were recruited from HIV community organisations in Canada. PARTICIPANTS: 10 women aged 50 years or older living with HIV for more than 6 years. RESULTS: Two major themes related to the episodic nature of the women's disability. Women were living with multiple and complex sources of uncertainty over time including: unpredictable health challenges, worrying about cognition, unreliable weather, fearing stigma and the effects of disclosure, maintaining housing and
adequate finances, and fulfilling gendered and family roles. Women describe strategies to deal with uncertainty over time including withdrawing and limiting activities and participation and engaging in meaningful activities. CONCLUSIONS: This longitudinal study highlighted the disabling effects of HIV over time in which unpredictable fluctuations in illness and health resulted in uncertainty and worrying about the future. Environmental factors, such as stigma and weather, may put older women living with HIV at a greater risk for social isolation. Strategies to promote dealing with uncertainty and building resilience are warranted.


This study aimed to assess the prevalence of and associated risk factors for anal high-risk human papillomavirus (hr-HPV) infection among men who have sex with men (MSM) and transgender women (TGW) in Indonesia, Thailand, and Malaysia. This was baseline data from a prospective cohort study with clinic sites in Jakarta and Bali (Indonesia), Bangkok (Thailand), and Kuala Lumpur (Malaysia). MSM and TGW aged 18 years and older from Indonesia, Thailand, and Malaysia were enrolled. Demographic and behavioral characteristics were assessed, and anal samples were collected for HPV genotyping. Multivariate logistic regression models were used to assess risk factors for anal hr-HPV overall and among HIV-positive participants. A total of 392 participants were enrolled, and 48 were TGW. As many as 245 were HIV-positive, and 78.0% of the participants were on combination antiretroviral therapy (cART). Median CD4 count was 439 cells/mm and 68.2% had undetectable HIV-RNA. HIV-positive participants had significantly more hr-HPV compared to HIV-negative participants (76.6% vs 53.5%, P < .001). HPV-16 was the most common high-risk type (20%), whereas HPV-33, -39, and -58 were significantly more common among HIV-positive participants. HIV-positive participant significantly associated with anal hr-HPV infection compared with HIV-negative (OR: 2.87, 95% CI: 1.76-4.70, P < .001), whereas among HIV-positive participants transgender identity had lower prevalence of hr-HPV infection (OR: 0.42, 95% CI: 0.19-0.91, P = .03). High-risk HPV infection was very common among MSM and TGW in South-East Asia. Overall, HIV-infection, regardless of cART use and immune status, significantly increased the risk, while among HIV-positive participants transgender identity seemed to decrease the risk of anal hr-HPV.


INTRODUCTION: Despite the popularity and analytical relevance of the concept of successful aging, little efforts have been made to address its relationship to sexuality in older individuals. AIM: To explore the relationship between successful aging and the (retrospectively assessed) change in sexual interest and enjoyment in the past 10 years, using a new multidimensional model of successful aging. METHODS: The data for this study was collected in 2016 using national probability-based surveys in four European countries (Norway, Denmark, Belgium and Portugal). In total, information from 2,461 sexually active and inactive participants aged 60-75 years was used for analyses. Multigroup structural equation analysis was employed to address the associations between key constructs. MAIN OUTCOME MEASURE: The dependent variable was a composite (two-item) indicator of change in sexual interest and enjoyment in the past 10 years; a multifaceted model of successful aging predicted the change by country and gender. RESULTS: Tested cross-culturally, the proposed model of successful aging demonstrated a good fit to the data. Furthermore, its metric characteristics enabled direct comparisons across gender and national cultures. Controlling for sociodemographic
charactersitics, higher successful aging scores were consistently related to lower reduction in sexual interest/enjoyment among men and women across the 4 countries. CLINICAL IMPLICATIONS: Given an increased life-expectancy and focus on healthy aging in many countries, the findings about the associations between sexual expression, quality of life and aging well are valuable to professionals working in the area of healthy sexual aging. STRENGTH & LIMITATIONS: This is the first study to systematically address the relationship between successful aging and sexuality. Furthermore, it provides a multidimensional measure of successful aging for a wide range of sexologic studies. Among limitations, possible self-selection bias (toward more sexually permissive and sexually active participants) and the fact that the findings are restricted to older heterosexual individuals, should be considered. CONCLUSION: Without stigmatizing the absence of sexual expression in aging individuals, the findings from this cross-cultural study point out that sustained sexual interest and sexual enjoyment are linked to successful aging in both genders. Stulhofer A, Hinchliff S, Jurin T, Hald GM, Traeen B. Successful Aging and Changes in Sexual Interest and Enjoyment Among Older European Men and Women. J Sex Med 2018;15:1393-1402.


BACKGROUND: In Los Angeles County, the rates of sexually transmitted infections and diseases among African Americans represent a significant public health disparity. Older African American women are at particular risk as they are more likely to engage in high-risk sexual behaviors and report social isolation and loneliness than their younger counterparts. However, the literature on the relationship between sexual health and mental health in this group is limited. The purpose of this study was to use a community-based participatory research (CBPR) approach to better understand sexual health behaviors and mental health among African American women over 50 years of age who reside in South Los Angeles. MATERIALS AND METHODS: This project was divided into two phases. Phase I (January-March 2017) of the project consisted of four dialog/focus groups (N = 45) (ages: 50-80; Mage = 67). The purpose of Phase II (April 2017) was to present study results from Phase I to the community via a community-based conference, as well as gather feedback and generate discussion about the next steps for community prevention/intervention. RESULTS: Women reported that they did not feel comfortable discussing sexual practices with their physician, partners, and friends. Most women identified depression, loneliness, and self-esteem issues as reasons for engaging in high-risk sexual behaviors. During Phase II, potential intervention avenues emerged to address issues such as lack of physician-patient communication, lack of community support, and dialogs about sex. CONCLUSIONS: The use of CBPR greatly enhanced our knowledge of the core issues surrounding sexual health and mental health among older African American women.


Scholars have anticipated that women who grew up during the 1960s may resist cultural pressures to achieve a feminine appearance into old age. Drawing on data from semi-structured interviews and personal journals from Australian women aged between 55 and 72, I argue that older women’s choices of dress and appearance are disciplined by their application of cultural norms regarding age-appropriateness, femininity and, increasingly, active ageing. Utilising the Foucauldian concept of self-surveillance in the operation of disciplinary power, this article explores the interaction of prevailing ideas about old age in the context of broader discourses on generational change and the emphases upon individual responsibility for the body. It focuses on the degree to which older women feel able to craft their own embodied old age within these competing discourses in order to explore tensions between shifting meanings of old age and structural constraints on choice. [ABSTRACT FROM AUTHOR]

Syndemic Zika virus, HIV and unintended pregnancy call for an urgent understanding of dual method (condoms with another modern non-barrier contraceptive) and consistent condom use. Multinomial and logistic regression analysis using data from the Pesquisa Nacional de Demografia e Saude da Criança e da Mulher (PNDS), a nationally representative household survey of reproductive-aged women in Brazil, identified the socio-demographic, fertility and relationship context correlates of exclusive non-barrier contraception, dual method use and condom use consistency. Among women in marital and civil unions, half reported dual protection (30% condoms, 20% dual methods). In adjusted models, condom use was associated with older age and living in the northern region of Brazil or in urban areas, whereas dual method use (versus condom use) was associated with younger age, living in the southern region of Brazil, living in non-urban areas and relationship age homogamy. Among condom users, consistent condom use was associated with reporting Afro-religion or other religion, not wanting (more) children and using condoms only (versus dual methods). Findings highlight that integrated STI prevention and family planning services should target young married/in union women, couples not wanting (more) children and heterogamous relationships to increase dual method use and consistent condom use.


Vaginal rings for pre-exposure prophylaxis are a female-initiated HIV prevention method that does not require daily or coitally-dependent dosing. As part of a randomized placebo-controlled trial of a tenofovir disoproxil fumarate intravaginal ring, we assessed product acceptability through in-depth interviews with 18 women during and after 14 days of continuous use. Women reported that the ring was comfortable with few side effects, regardless of experimental arm. However, interest in future use by this cohort was modest for several reasons including: low self-perceived HIV risk; concern that use implied promiscuity; potential for interference with relationship formation and trust; concern for interference with menstruation and cleanliness; and worries about partners' acceptability and sexual pleasure. Potential issues were raised with duration of use prior to ring exchange. Future studies should continue to identify and address individual and relationship factors that influence acceptability, early in the product development process.


Purpose Incarcerated transgender women often require healthcare to meet their physical-, mental-, and gender transition-related health needs; however, their healthcare experiences in prisons and jails and interactions with correctional healthcare providers are understudied. The paper aims to discuss these issues.

Design/methodology/approach In 2015, 20 transgender women who had been incarcerated in the USA within the past five years participated in semi-structured interviews about their healthcare experiences while incarcerated. Findings Participants described an institutional culture in which their feminine identity was not recognized and the ways in which institutional policies acted as a form of structural stigma that created and reinforced the gender binary and restricted access to healthcare. While some participants attributed healthcare barriers to providers' transgender bias, others attributed barriers to providers' limited knowledge or inexperience caring for transgender patients. Whether due to institutional (e.g. sex-segregated prisons, biased culture) or interpersonal factors (e.g. biased or inexperienced providers), insufficient access to physical-, mental-, and gender transition-related healthcare negatively impacted participants' health while incarcerated. Research limitations/implications Findings highlight the need for interventions
that target multi-level barriers to care in order to improve incarcerated transgender women's access to quality, gender-affirmative healthcare. Originality/value This study provides first-hand accounts of how multi-level forces serve to reinforce the gender binary and negatively impact the health of incarcerated transgender women. Findings also describe incarcerated transgender women's acts of resistance against institutional and interpersonal efforts to maintain the gender binary and present participant-derived recommendations to improve access to gender affirmative healthcare for incarcerated transgender women.


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.


Cervical cancer rates are disproportionately high among women living with the human immunodeficiency virus (wlhiv). Cervical cancer is preventable through hpv screening, regular Pap tests, and early cancer detection. Evidence indicates that hpv and cervical cancer screening are suboptimal among wlhiv, who face a myriad of access barriers. Considering that screening is an effective first-line defense to cervical cancer, we conducted a scoping review with the aim of gaining a better understanding about: (1) the knowledge and perceptions of hpv and cervical cancer screening among wlhiv; and (2) the acceptability of self-sampling for hpv among wlhiv. We searched five electronic databases for peer-reviewed articles that were published in English within the last ten years, reported on studies with hiv-positive women who were aged 16 or older, and satisfied the topics of the review. A total of 621 articles were found. After accounting for duplicates and unmet criteria, 17 articles and 1 abstract, reporting on studies in the United States and Africa, were included in this review. The review highlighted that most wlhiv had inadequate knowledge of hpv transmission and cervical cancer prevention, which influenced their perceptions of risk and susceptibility. Screening barriers included misconceptions about Pap tests, fear of diagnosis of serious illness, perceived pain, embarrassment, bodily modesty, and limited access to female health care providers. This review also affirms that self-sampling is an acceptable and promising screening option for wlhiv. Implications for policy, research, and practice are discussed.

Xiaowen, W., et al. (2018). "Depression and anxiety mediate perceived social support to predict health-related quality of life in pregnant women living with HIV." AIDS Care 30(9): 1147-1155.
Pregnant women living with HIV represent one of the most high-priority groups for HIV treatment and health assessment. Although social support has been shown to be a protective factor for improved health-related quality of life (HRQoL), and depression and anxiety have been identified as two major causes of psychological distress among people living with HIV, it is still unclear how social support, anxiety, and depression interact to influence HRQoL. The objective of our study was to demonstrate the nature of predictors, direct effects and mediator effects among social support, anxiety, depression symptoms and HRQoL in pregnant women living with HIV. We investigated a total of 101 pregnant women living with HIV in Yunnan province in China from April 2016 to June 2016. All participants completed the Social Support Rating Scale (SSRS), the Chinese version of the Hospital Anxiety and Depression Scales (HADS) and Quality of Life instruments (EuroQoL Five Dimensions Questionnaire, EQ-5D). The relationships between the variables were examined by Pearson’s or Spearman’s correlation analysis. Predictor effects were tested using separate multiple regressions, controlling for demographic variables and HIV diagnosis variables. Direct and mediation effects of social support on HRQoL were tested using a structural equation model (SEM). Anxiety and depression symptoms were negatively correlated with subjective social support, support utilization, social support and HRQoL. Social support significantly predicted better HRQoL, and anxiety and depression symptoms significantly predicted poorer HRQoL. Anxiety and depression symptoms partially mediated the associations between social support and HRQoL. Anxiety and depression symptoms completely mediated the associations of objective support and support utilization with HRQoL. Interventions to improve HRQoL in pregnant women living with HIV must consider the mediation effect of anxiety and depression symptoms on the association between social support and HRQoL. Social support interventions are valid only when anxiety and depression symptoms are managed effectively.


OBJECTIVES: A fracture risk assessment tool (FRAX) using clinical risk factors (CRFs) alone underestimates fracture risk in HIV-infected men. Our objective was to determine whether accuracy of FRAX would be improved by considering HIV as a cause of secondary osteoporosis, and further improved with addition of dual-energy X-ray absorptiometry parameters in HIV-infected women. DESIGN: Subgroup analysis of Women's Interagency HIV Study. METHODS: We included 1148 women (900 HIV-infected and 248 uninfected) over age 40 with data to approximate FRAX CRFs and 10-year observational data for incident fragility fractures; 181 (20%) HIV-infected women had dual-energy X-ray absorptiometry data. Accuracy of FRAX was evaluated by the observed/estimated ratios of fracture in four models: CRFs alone; CRFs with HIV included as a cause of secondary osteoporosis; CRFs and femoral neck bone mineral density (FN BMD); and CRFs, FN BMD and trabecular bone score. RESULTS: FRAX using CRFs were less accurate in HIV-infected than uninfected women for major osteoporotic (observed/estimated ratio: 5.05 vs. 3.26, P < 0.001) and hip fractures (observed/estimated ratio: 19.78 vs. 7.94, P < 0.001), but improved when HIV was included as a cause of secondary osteoporosis. Among HIV-infected women, FRAX accuracy improved further with addition of FN BMD (observed/estimated ratio: 4.00) for hip fractures, but no further with trabecular bone score. CONCLUSION: FRAX using CRFs alone underestimated fracture risk more in older HIV-infected women than otherwise similar uninfected women. Accuracy is improved when including HIV as a cause of secondary osteoporosis for both major osteoporotic and hip fractures, whereas addition of FN BMD only improved accuracy for hip fracture.

Yin, M. T., et al. (2018). "A randomized placebo-controlled trial of low versus moderate dose Vitamin D3 supplementation on bone mineral density in postmenopausal women with HIV." J Acquir Immune Defic Syndr. BACKGROUND: Prevalence of osteoporosis and fracture is increased among older people with HIV. We compared the effects of Low (1000 IU) vs Moderate (3000 IU) Vitamin D3 (VitD) supplementation on areal and
volumetric bone mineral density (aBMD and vBMD) in African American and Hispanic postmenopausal women with HIV on antiretroviral therapy. METHODS: We performed a 12-month prospective, randomized, double-blind, placebo-controlled study with primary outcomes of change in aBMD by dual-energy X-ray absorptiometry (DXA) and secondary outcomes of change in vBMD by quantitative computed tomography and bone turnover markers. An intent to treat analysis was performed on 85 randomized subjects (43 Low and 42 Moderate) for primary DXA outcomes, and complete case analysis performed for secondary outcomes. RESULTS: Mean age was 56±5 years, median CD4 count 722 cells/mm^3 and 74% had HIV RNA<50 copies/ml. Serum 25-OHD was higher in the Moderate than Low VitD group at 6 months (33.1+/−10.3 vs 27.8+/−8.1 ng/ml, p=0.03) and 12 months, but PTH levels remained similar. Percent change in aBMD, vBMD and bone turnover markers did not differ between Low and Moderate VitD groups before or after adjustment for baseline aBMD. CONCLUSION: VitD supplementation at 3000 IU daily increased mean total 25-OHD levels in postmenopausal women with HIV, but we did not find evidence of an effect on BMD beyond those observed with 1000 IU daily. Future studies are necessary to determine whether VitD supplementation is beneficial in this patient population, and if so, what dose is optimal for skeletal health.


BACKGROUND: Intimate partner violence (IPV) is a significant global health problem. Women who experience IPV have increased HIV incidence, reduced antiretroviral adherence, and a lower likelihood of viral load suppression. There is a lack of evidence regarding how to effectively identify and support women living with HIV (WLWH) experiencing IPV, including uncertainty whether universal or targeted screening is most appropriate for lower-resourced settings. We examined physical and sexual IPV prevalence and correlates among WLWH in Uganda to understand the burden of IPV and factors that could help identify women at risk. METHODS: We utilized data from women receiving ART and enrolled in the Uganda AIDS Rural Treatment Outcomes (UARTO) cohort study between 2011 and 2015. Bloodwork and interviewer-administered questionnaires were completed every 4 months. IPV was assessed annually or with any new pregnancy. Multivariate models assessed independent socio-demographic and clinical factors correlated with IPV, at baseline and follow-up visits. RESULTS: 455 WLWH were included. Median age was 36 years, 43% were married, and median follow-up was 2.8 years. At baseline 131 women (29%) reported any experience of past or current IPV. In the adjusted models, being married was associated with a higher risk of baseline IPV (ARR 2.33, 95% CI 1.13-4.81) and follow-up IPV (ARR 2.43, 95% CI 1.33-4.45). Older age (ARR 0.96, 95% CI 0.94-0.99) and higher household asset index score (ARR 0.81, 95% CI 0.68-0.96) were associated with lower risk of IPV during follow-up. CONCLUSION: There was a high prevalence of physical and sexual IPV amongst WLWH, and many women experienced both types of violence. These findings suggest the need for clinic-based screening for IPV. If universal screening is not feasible, correlates of having experienced IPV can inform targeted approaches.


Purpose The purpose of this systematic review of qualitative literature was (1) to identify self-management strategies, (2) to identify women's barriers to self-management, and (3) to compare self-management strategies of diabetes and human immunodeficiency virus (HIV). African American women living with HIV are at high risk for
developing diabetes because of genetics, lifestyle, and HIV treatment. Self-management of each of these conditions is critical to decrease morbidity and mortality. Conclusions A literature search resulted in 15 articles: 10 on the topic of HIV and 5 on diabetes. Self-management strategies included spirituality, family and social support, and indulgent self-care. Barriers included depression, stigma, and the role of caregiver. The themes identified for HIV and diabetes self-care barriers and facilitators were exceptionally similar. Themes of spirituality, family support, and indulgent self-care were part of both HIV and diabetes self-care. Women with HIV were less concerned with their independence than women with diabetes, and focused on disclosure of their HIV status and development of a support system.