Abtracts from the current global literature Part - II: HIV and metabolic syndrome

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Relationship between younger age, autoimmunity, Cardio-metabolic risk, Oxidative stress, HAART, and ischemic stroke in Africans with HIV/AIDS.

Longo-Mbenza B, Longokolo Mashi M, Lelo Tshikwela M.*et al*. ISRN Cardiology, Volume 2011, Article ID 897908

Background and Purpose: It now appears clear that both HIV/AIDS and antiretroviral therapy (HAART) use are associated with higher risk of cardiovascular disease such as stroke. In this study, we evaluated the prevalence, the risk factors, and the cardio-metabolic co-morbidities of stroke in HIV/AIDS Central African patients. *Materials and Methods*: This hospital-based cross-sectional study collected clinical, laboratory, and imaging data of black Central African heterosexual, intravenous drug nonuser, and HIV/AIDS patients. *Results*: There were 54 men and 62 women, with a female to male ratio of 1.2: 1. All were defined by hyper-coagulability and oxidative stress. Hemorrhagic stroke was reported in one patient, ischemic stroke in 17 patients, and all stroke subtypes in 18 patients (15%). Younger age <45 years ($P = .003$), autoimmunity ($P < .0001$), and metabolic syndrome defined by IDF criteria ($P < .0001$) were associated with ischemic stroke. *Conclusions*: Clustering of several cardio-metabolic factors, autoimmunity, oxidative stress, and lifestyle changes may explain accelerated atherosclerosis and high risk of stroke in these young black Africans with HIV/AIDS. Prevention and intervention programs are needed.

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HIV medications: an update and review of metabolic complications.

Hester EK. Nutrition in Clinical Practice. 2012 Feb;27(1):51-64.

In the past 30 years, medical advances for those with human immunodeficiency virus (HIV) have reduced morbidity and mortality, to extend life with highly active antiretroviral therapy (HAART) and with the continued development of new therapies. With this success, HIV is being managed chronically, but other health issues of an aging HIV-infected population have emerged. The challenges of treating HIV infection have shifted from AIDS-related mortality improvements to drug-induced disease from HAART, including cardiovascular disease, metabolic disorders, and bone health. Prolonged use of antiretroviral therapy maintaining immune restoration appears to represent additional, ongoing risk factors for the development of these metabolic complications. These drug-related problems continue to challenge patients and clinicians in the management of HIV disease, as well as ongoing research for drug development improvements to minimize these risks. These health risks imposed by HAART must be vigilantly monitored and aggressively addressed to improve the overall health of those treated for HIV infection.

Myocardial infarction risk in HIV-infected patients: epidemiology, pathogenesis, and clinical management

Calza, Leonardo; Manfredi, Roberto; Verucchi, Gabriella. AIDS: 27 March 2010. Vol24(6) p789–802

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Atherosclerosis in HIV-positive patients is clearly multifactorial in origin and ensues from traditional cardiac risk factors, HIV itself, and antiretroviral therapy. However, the absolute risk of cardiovascular events among HIV-infected patients remains low and must be balanced against the remarkable benefits from HAART in terms of improvement in immune function and related morbidity and mortality.

Maintaining virological suppression should be considered still today the main concern in HIV-infected patients treated with HAART, because short-term rates of cardiovascular complications remain quite low and are significantly lower than death rates for AIDS-related conditions in patients with virological failure and immunological impairment. However, HIV and HAART should be routinely considered among the more traditional risk factors in assessing a patient for coronary heart disease, and a more aggressive intervention to reduce cardiac risk factors in persons with HIV infection is mandatory today.

Nonetheless, as HIV-infected patients live longer on new potent antiretroviral combinations, coronary events could become increasingly frequent and cardiovascular risk evaluation should be performed regularly in these patients, especially after initiation or change of antiretroviral regimen.

Preliminary guidelines regarding pharmacological therapy of metabolic alterations associated with HAART can be made from a limited number of studies. Moreover, the benefit of aggressive management of hyperlipidemia and diabetes must be balanced with the risk of additional medications, potential drug interactions, additional pill burden, compromise in patient adherence, and potential compromise of optimal HIV infection control.

Further, prospective studies with adequate design (including accuracy of collected data, prospective ascertainment of endpoints, and enough length of follow-up) are certainly needed in order to better investigate the association between HIV disease and myocardial infarction and to define specific guidelines for the management of HIV-related cardiovascular risk.

High prevalence of the metabolic syndrome in HIV-infected patients: impact of different definitions of the metabolic syndrome

Worm, Signe Wa; Friis-Muller, Ninaa; et. El AIDS: Jan 2010,Vol 24(3)-p427–435

Background: This study describes the characteristics of the metabolic syndrome in HIV-positive patients in the Data Collection on Adverse Events of Anti-HIV Drugs study and discusses the impact of different methodological approaches on estimates of the prevalence of metabolic syndrome over time. *Materials and Methods*: We described the prevalence of the metabolic syndrome in patients under follow-up at the end of six calendar periods from 2000 to 2007. The definition that was used for the metabolic syndrome was modified to take account of the use of lipid-lowering and antihypertensive medication, measurement variability and missing values, and assessed the impact of these modifications on the estimated prevalence. *Results*: For all definitions considered, there was an increasing prevalence of the metabolic syndrome over time, although the prevalence estimates themselves varied widely. Using our primary definition, we found an increase in prevalence from 19.4% in 2000-01 to 41.6% in 2006-7. Modification of the definition to incorporate antihypertensive and lipid-lowering medication had relatively little impact on the prevalence estimates, as did modification to allow for missing data. In contrast, modification to allow the metabolic syndrome to be reversible and to allow for measurement variability lowered prevalence estimates substantially. *Discussion*: The prevalence of the metabolic syndrome in cohort studies is largely based on the use of non-standardized measurements as they are captured in daily clinical care. As a result, bias is easily introduced, particularly when measurements are both highly variable and may be missing. We suggest that the prevalence of the metabolic syndrome in cohort studies should be based on two consecutive measurements of the laboratory components in the syndrome definition.

Role of viral replication, antiretroviral therapy, and immunodeficiency in HIV-associated atherosclerosis

Hsue, Priscilla Ya; Hunt, Peter Wb; Schnell, Amandaa; Kalapus, S Craiga; Hoh, Rebeccab; Ganz, Petera; Martin, Jeffrey Nb,c; Deeks, Steven Gb AIDS: 1 June 2009,Vol23(9) - p 1059-1067

Objective: HIV-seropositive patients are at higher risk for atherosclerosis than HIV-seronegative persons. This has been variably attributed to antiretroviral drug toxicity, immunodeficiency, and/or HIV-associated inflammation. To evaluate the contributions of these factors to HIV-associated atherosclerosis, we assessed carotid artery intima-media thickness in a diverse cohort of HIV-seronegative and seropositive adults, including a

unique group of HIV-infected patients who were untreated, had undetectable viral loads, and had preserved CD4+ T-cell counts (HIV controllers). *Methods and results*: Carotid intima-media thickness was measured in 494 participants, including 33 HIV controllers and 93 HIV-seronegative controls. HIV controllers had higher intima-media thickness than seronegative controls even after adjustment for traditional risk factors ($P = 0.003$). Intima-media thickness in controllers was similar to antiretroviral-untreated patients with detectable viremia. Across all participants, intima-media thickness was strongly associated with the presence of HIV disease rather than viral load or CD4+ T-cell count. C-reactive protein was higher in HIV controllers than HIV-seronegative persons. Antiretroviral drug exposure was also associated with higher intima-media thickness. *Conclusions*: Increased atherosclerosis with HIV infection can occur in the absence of antiretroviral therapy, detectable viremia, or overt immunodeficiency. Chronic inflammation - which is higher in controllers than in HIV-uninfected persons - may account for early atherosclerosis in these patients.