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**Comparison of Predicted Cardiovascular Risk Profiles by Different CVD Risk-Scoring Algorithms between HIV-1-Infected and Uninfected Adults: A Cross-Sectional Study in Tanzania**

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**Abstract**

**Purpose**: Cardiovascular disease (CVD) risk assessment is a suitable way to differentiate between high-risk individuals requiring intervention and risk modification, and those at low risk. However, concerns have been raised when adopting a CVD-risk prediction algorithm for HIV-infected patients in sub-Saharan Africa.

**Patients and Methods**: We compared cardiovascular risk profiles between HIV-infected (with and without antiretroviral therapy (ART)) and HIV-uninfected adults as predicted by the American College of Cardiology/American Heart Association (ASCVD) and the Framingham cardiovascular risk score (FRS) algorithms and assessed the concordance of the algorithms in predicting 10-year CVD risk separately in HIV-infected and uninfected groups in a hospital-based cross-sectional study in Tanzania. A cross-sectional hospital-based study including 40 HIV-infected ART-naive, 64 HIV-infected on ART, and 50 HIV-uninfected adults was conducted. Traditional cardiovascular risk factors were determined by standard investigations. The primary outcome was the absolute 10- year CVD risk score based on the two algorithms.

**Results:** Compared to HIV-uninfected, HIV-infected adults were classified at a higher 10- year CVD risk. ASCVD algorithms predicted a higher proportion of high-risk individuals compared to FRS in both HIV-infected and uninfected groups. The concordance between ASCVD and FRS-lipid algorithms was reasonable for both HIV-infected and uninfected groups though relatively higher in the HIV-uninfected group.

**Conclusion**: HIV-infected individuals have a higher 10-year cardiovascular risk compared to HIV-uninfected persons. The concordance between ASCVD and FRS-lipid algorithms is reasonable in both HIV-uninfected and infected persons in Tanzania. Development of an HIV-specific algorithm is needed to accurately predict CVD risk in this population at highrisk. Keywords: atherosclerotic cardiovascular disease risk score, Framingham risk score, antiretroviral therapy, Kilimanjaro Christian Medical Center, Moshi