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VASCULAR DISEASE

YOUNG PATIENTS INFECTED WITH HUMAN IMMUNODEFICIENCY VIRUS HAVE ELEVATED CONCENTRATIONS OF ASYMMETRIC DIMETHYLARGININE AND CORONARY ARTERY CALCIFICATION

ACC Poster Contributions
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Background: Patients infected with human immunodeficiency virus (HIV) have an increased risk for cardiovascular events and mortality. Elevated concentrations of asymmetric dimethylarginine (ADMA), an endogenous inhibitor of nitric oxide synthase, and coronary artery calcification correlate with increased atherosclerotic burden and cardiovascular events. The objective of the study was to determine whether plasma ADMA levels are significantly increased in young HIV-infected patients and whether this is associated with elevated coronary artery calcification.

Methods: HIV-infected patients and control patients were prospectively recruited in a cross-sectional study. Plasma ADMA levels were measured in both cohorts. Coronary artery calcium was detected by multidetector computed tomography and measured in Agatston units (AU). Medical history and laboratory measurements including inflammatory biomarkers such as C-reactive protein, homocysteine, and fibrinogen were obtained in both cohorts. Bivariate differences between HIV-infected and control patients were analyzed.

Results: HIV-infected patients (n=37, male=27, age=45.7 years) had significantly higher concentrations of ADMA (0.40± 0.10 μmol/l) compared to a similar young cohort of non-HIV-infected patients (n=43, male=27, age=44.8 years), (0.35 ±0.07 μmol/l, p=0.01). There were no significant differences in traditional cardiovascular risk factors, C-reactive protein, homocysteine, and fibrinogen levels between the two cohorts. However, young patients infected with HIV had significantly higher median coronary artery calcium scores (0.5 ± 8.5 AU) compared to control patients (0.0 ± 0.0 AU, p= 0.005).

Conclusion: Independent of traditional cardiovascular risk factors and inflammatory biomarkers, young HIV-infected patients have significantly higher ADMA concentrations and coronary artery calcification compared to non-HIV-infected patients.