805-1 Ethnicity and Calcified Atherosclerosis: Can Data on Coronary Calcium Be Applied Equally Across Ethnic Groups? Results From The Prospective Army Coronary Calcium Project


Background: Black Americans have more prevalent coronary risk factors and experience greater rates of incident coronary heart disease than white Americans. Coronary artery calcium (CAC), a specific marker for coronary atherosclerosis that is quantifiable with EBCT, is increasingly used to indicate cardiovascular (CV) risk. However, whether existing data should be evenly applied across ethnic groups is unclear because black and white Americans may differ in their prevalence of CAC. This study examines the prevalence of CAC on EBCT across different ethnic groups among asymptomatic, active-duty personnel in the Prospective Army Coronary Calcium Project.

Methods: Among 1000 consecutive participants, 986 (mean age 42 ± 7 yrs; range 40-45 yrs) indicated a specific racial affiliation. This included white, nonhispanic in 695 (70.3%) and black, nonhispanic in 194 (19.6%). Univariate associations between race and CV risk variables were entered into a logistic regression model for CAC, controlling for race and socioeconomic status.

Results: CAC was nearly twice as prevalent in white (19.3%) than in black participants (10.3%; p<0.001); between the ages of 40 and 45 yrs. Blacks had different CV risk profiles, including a greater prevalence of hypertension, (17.7% vs. 6.6%; p<0.01), LVH (13.3% vs. 4.1%; p<0.01), ST-T wave abnormalities (18.1% vs. 3.8%; p<0.01), and former cigarette smoking (16% vs. 5.2%; p<0.01). Black subjects also had significantly greater diastolic BP, HDL, glycosylated hemoglobin, lipoprotein (a) and fibrinogen levels, and lower triglyceride and waist girth than white subjects. After adjustment for these differences, and including socioeconomic adjusters, logistic regression revealed white race, and higher body mass index and triglyceride levels remained statistically significant predictors of CAC.

Conclusions: CAC is less prevalent in black than in white Americans, and this difference is unexplained after adjusting for differences in CV risk factors and socioeconomic status. These differences imply that the use of EBCT as an accurate risk prediction tool in black Americans will require ethnic-specific data on the presence and severity of CAC.

9:30 a.m.

805-2 Sub-Clinical Atherosclerosis in Hypertensive Individuals: The Role of Conditional Risk Factors


Background: The ability of 'conditional' risk factors [lipoprotein (a), fibrinogen, homocysteine, triglycerides, small-dense LDL, and C-reactive protein] to predict the presence and extent of sub-clinical atherosclerosis is poorly understood.

Methods: We studied the relationship between conditional risk factors and quantity of coronary artery calcification (CAC) as determined non-invasively by electron beam computed tomography among 518 hypertensive siblings recently re-examined in the community-based Genetic Epidemiology Network of Arteriopathy (GENOA) study. The 10-year Framingham risk score was calculated based on conventional risk factors and the CAC score was calculated by the method of Agatston. Population-averaged generalized estimating equations (GEE1) were used to assess the association between the log-transformed CAC score and conditional risk factors while allowing for the familial correlation in these siblings.

Results: Framingham risk score was significantly associated with quantity of CAC (p<0.01). After adjusting for Framingham risk score, homocysteine was the only independent significant predictor of the quantity of CAC among the conditional risk factors (p<0.029). One standard deviation increase in homocysteine was associated with a 1.34 multiplicative increase in the quantity of CAC.

Conclusion: In hypertensive individuals, homocysteine levels are significantly correlated with the extent of sub-clinical atherosclerosis. This suggests a pro-atherogenic role for homocys
teine in hypertensive individuals.