



ACC.15

TCT@ACC-12 | innovation in intervention

A1156
JACC March 17, 2015
Volume 65, Issue 10S

Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

CORONARY ARTERY CALCIUM DISTRIBUTION IS AN INDEPENDENT PREDICTOR OF INCIDENT MAJOR CORONARY HEART DISEASE EVENTS: RESULTS FROM THE FRAMINGHAM HEART STUDY

Poster Contributions

Poster Hall B1

Saturday, March 14, 2015, 3:45 p.m.-4:30 p.m.

Session Title: Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography

Abstract Category: 16. Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography

Presentation Number: 1136-021

Authors: *Maros Ferencik, Karol M. Pencina, Ting Liu, Joseph Massaro, Ralph D'Agostino, Christopher O'Donnell, Udo Hoffmann, Oregon Health and Science University, Portland, OR, USA, Massachusetts General Hospital and Harvard Medical School, Boston, MA, USA*

Background: The presence and amount of coronary artery calcium (CAC) is associated with increased risk of future cardiovascular events. We studied whether the distribution of CAC in individual coronary segments as detected by cardiac computed tomography (CT) predicts incident major coronary heart disease (CHD).

Methods: The total amount of CAC (Agatston score) was measured by CT in participants from the Offspring and Third generation cohorts of the Framingham Heart Study (FHS) who were free of known cardiovascular disease. CT was analyzed for coronary dominance and the presence of CAC in all 17 coronary segments. Cardiovascular risk factors were recorded and measured during the standardized clinic examination and Framingham Risk Score (FRS) was calculated. The outcome was defined as major CHD (myocardial infarction or coronary death). Multivariate Cox proportional model was used to determine association of measures of CAC distribution (presence of CAC in the dominant, proximal dominant, and distal coronary arteries and number of coronary segments and coronary arteries with CAC) with the outcome after adjusting for FRS and total amount of CAC (categories of Agatston score 1-100, 101-300, >300).

Results: We studied 1100 subjects (mean age 56±10 years, 64% men) with detectable CAC (Agatston score ≥1) and complete records of cardiovascular risk factors. A total of 35 major CHD events occurred during follow-up (median 7.3 years). The number of coronary arteries with CAC (HR 1.64 per artery, 95% CI 1.03-2.61, p=0.04), number of coronary segments with CAC (HR 1.20 per segment, 95% CI 1.01-1.42, p=0.04) and presence of CAC in the proximal dominant coronary artery (HR 3.02, 95% CI 1.26-7.26, p=0.01) were associated with major CHD events after multivariate adjustment for FRS and total amount of CAC.

Conclusion: A greater distribution of coronary atherosclerosis with the presence of CAC in the proximal dominant coronary artery and increased number of coronary arteries and segments with CAC predict major CHD events independently of FRS and total amount of CAC in asymptomatic community-dwelling men and women. In persons with CAC, measures of CAC distribution may serve as an additional marker of risk for CHD events.