



Non Invasive Imaging

DETECTION AND IMPACT OF SUBCLINICAL CORONARY AND CAROTID ATHEROSCLEROSIS ON CARDIOVASCULAR RISK PREDICTION AND RECLASSIFICATION IN ASYMPTOMATIC US ADULTS: INSIGHTS FROM THE HIGH RISK PLAQUE BIOIMAGE STUDY

Oral Contributions

Room 146 A

Sunday, March 30, 2014, 8:24 a.m.-9:35 a.m.

Session Title: Coronary Calcium and Computed Tomography: Breaking New Grounds

Abstract Category: 18. Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography

Presentation Number: 914-04

Authors: *Usman Baber, Roxana Mehran, Samantha Sartori, Mikkel Schoos, Erling Falk, Henrik Sillesen, Pieter Muntendam, Mario Garcia, John Gregson, Stuart Pocock, Valentin Fuster, Mount Sinai Medical Center, New York, NY, USA*

Background: Although a systemic disease, studies evaluating the role of subclinical atherosclerosis in cardiac risk prediction have primarily involved the coronary arteries (CACS). Whether detection of non-coronary (carotid) atherosclerosis also enhances risk prediction and reclassification over traditional (Framingham) risk factors (FRS) is unknown.

Methods: The High-Risk Plaque BioImage study enrolled 5808 asymptomatic US adults (69 years, 56.5% female) in a prospective cohort evaluating the role of vascular imaging on cardiovascular risk prediction. All patients were evaluated by CACS and carotid ultrasound. Plaque areas from both carotid arteries were summed as the carotid plaque burden (cPB).

Results: Over 3 years, the rate of MACE (death, MI, stroke, unstable angina and coronary revascularization) was 3.72%. After adjustment for FRS, HR for MACE were 1.56 (0.90-2.70), 2.20 (1.31-3.68) and 2.95 (1.79-4.88) for cPB categories while HR for CACS were 1.34 (0.84-2.13), 1.78 (1.12-2.83) and 3.49 (2.24-5.45). Adding cPB or CACS to FRS improved discrimination ($p < 0.001$) and net reclassification ($\text{NRI} = 11\%$; $p < 0.001$). MACE rates increased with higher levels of cPB across CACS strata and vice versa (Figure).

Conclusions: Detection of subclinical carotid or coronary atherosclerosis improves risk predictions and reclassification compared to FRS with comparable results for either modality. Cost-effective analyses are warranted to define the optimal role of these complementary techniques.

