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

DISTRIBUTION AND PROGNOSTIC VALUE OF CORONARY ARTERY CALCIFICATION IN A HIGH RISK DIABETIC POPULATION: A SUB-ANALYSIS OF THE FACTOR64 STUDY

Poster Contributions
Poster Hall B1
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Background: Coronary artery calcification (CAC) is pathognomonic for atherosclerosis and has been demonstrated to be associated with elevated risk of cardiovascular (CV) events. Diabetes (DM) is considered a "coronary equivalent" suggesting a risk of a first CV event comparable to that in those who have had a prior coronary event (e.g. MI). We report the distribution of CAC in a prospectively enrolled cohort of diabetics further stratified by diabetes type, years with diabetes, age, and gender, and its relation to outcomes.

Methods: The full study population has previously been described in detail with the primary study results. A cohort of 393 diabetics (51 Type I, 12.9%, and 342 Type II, 87%) received coronary computed tomography angiography (CCTA) on a 64-slice CT scanner to assess CAC. Patients were followed for 4.0 +/- 1.7 years; there were 22 outcomes of death, MI, or hospitalized unstable angina. CAC distribution and predictive value for outcomes were assessed. Statistical comparisons used ordinal logistic regression and Cox regression analysis.

Results: CAC score spanned a full spectrum of values in diabetic patients. Increasing age [OR 1.10 (1.07 - 1.13)], years with DM [OR 1.06 (1.03-1.09)], male gender [OR 3.97 (2.69-5.88)], and type II DM [OR 1.06 (1.03-1.09)] were significantly associated with higher CAC. Overall, CAC score significantly predicted the primary clinical outcome: (p=0.030). By specific CAC score category, with CAC 0 as the referent, CAC 1-99 HR=1.14 (0.19-6.81); CAC 100-299, HR=4.34 (0.84-22.40), and CAC > 300, HR=5.17 (1.15-23.24).

Conclusion: CAC was found to be heterogeneously distributed in DM, and was confirmed to be predictive of outcomes. These observations argue against treating DM as a monolithic risk factor. Within DM, increasing age, years with DM, and gender were significantly associated with elevated CAC. Greater CAC was incrementally and statistically associated with CV outcomes. Our results suggest CAC is a promising screening tool to refine prognosis and select diabetic patients for more personalized risk factor reducing strategies.