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

QUANTITATIVE AND QUALITATIVE CHARACTERIZATION OF CORONARY ATHEROSCLEROTIC PLAQUE FOR PREDICTION OF FUTURE MYOCARDIAL INFARCTION: A PROSPECTIVE MULTICENTER INTERNATIONAL CASE-CONTROL STUDY OF THE CONFIRM REGISTRY

Moderated Poster Contributions
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Background: Prior studies have identified coronary plaque features by coronary CT angiography (CCTA) that are associated with future myocardial infarction (MI), including stenosis severity, PR, LAP and SC. However, these studies are limited by low clinical events, qualitative evaluations, and lack of control groups. We performed a case-control study of matched individuals who underwent CCTA.

Methods: From a prospective international multicenter study of 27,125 patients, we performed a 1:1 propensity matching for traditional coronary artery disease (CAD) risk factors; CAD severity and location; and follow-up duration. Plaque was analyzed quantitatively and other atherosclerotic plaque features.

Results: The study population characteristics are listed in Table 1. On a per-patient basis, features suggesting future MI included higher plaque burden, larger plaque volumes, greater numbers of coronary segments with plaque (segment involvement score), and greater segment stenosis scores. For plaque volume, fibrous, fibro-fatty and calcified plaque volumes were all greater for MI patients than non-MI patients. In contrast, % diameter stenosis (%DS:24.1% vs.25.7%, p=0.132) and % area stenosis (%AS:41.3% vs.39.0%, p=0.082) were not associated with future MI. Further, vessel volume, lumen volume, PR, LAP and SC did not differ between matched 2 groups.

Conclusion: Compared to matched controls, plaque burden and volume are associated with future MI. In contrast, %DS, %AS, PR, LAP and SC are not.