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PROSPECTIVE VALIDATION BY INTRAVASCULAR ULTRASOUND WITH RADIOFREQUENCY BACKSCATTER THAT HIGHER PLAQUE VOLUME AND FIBRO-FATTY TISSUE AND LESS DENSE CALCIUM IS ASSOCIATED WITH MAJOR ADVERSE CARDIOVASCULAR EVENTS

i2 Poster Contributions
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Background: Little is known about features of non-obstructive plaques that contribute to subsequent major adverse cardiovascular events (MACE). Intravascular ultrasound with radiofrequency backscatter (IVUS-VH) allows for the characterization of plaque components.

Methods: Fifty subjects (Age 60.2±6.7; 58% Male) with intermediate coronary artery lesions prospectively had IVUS-VH with standard pullback (0.5 mm/s). Total plaque, fibrous tissue (FI), fibro-fatty tissue (FF), necrotic core (NC) and dense calcium (DC) volume and percentage were quantified. Additionally, lesions were classified as fibrotic, fibrocalcific, pathological intimal thickening (PIT), thick-cap fibroatheroma (ThCFA) or thin-cap fibroatheroma (TCFA). Pre-specified MACE (death, myocardial infarction, target lesion revascularization [TLR] and ischemia) were adjudicated at one year. Unpaired student's t-test was used to compare plaque parameters between those with and without MACE.

Results: At one year, there were five clinically-indicated TLRs (8.3%) with no other MACE reported. Comparing IVUS-VH characteristics in subjects with MACE vs. non-MACE, there was significantly higher plaque volume, higher FF volume and FF%, and lower DC% in those with MACE (Figure). In the MACE group, all lesions were TCFAs.

Conclusion: In intermediate coronary lesions, larger plaque volume, more fibro-fatty and less calcified tissue is associated with MACE.