QUANTIFICATION AND CHARACTERIZATION OF NONCALCIFIED CORONARY PLAQUE BY HIGH DEFINITION COMPUTED TOMOGRAPHY : COMPARISON WITH INTEGRATED BACKSCATTER INTRAVASCULAR ULTRASOUND

ACC Moderated Poster Contributions
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Background: The utility of 64-slice CT remains unclear for evaluation of coronary plaque component. Recently high definition computed tomography (HDCT) with new gemstone detector has been developed, which has high spatial resolution. We evaluated the accuracy of HDCT for quantification and characterization of coronary plaque compared with integrated backscatter intravascular ultrasound (IB-IVUS).

Methods: We enrolled consecutive 20 patients with unstable or stable angina. Coronary plaque was evaluated by HDCT and the findings were compared with those of IB-IVUS at the same sites. Plaque was classified as lipid (-42 to 60 HU: Hounsfield unit), fibrous (61 to 112 HU) or calcified (>500 HU) and we evaluated total plaque volume and lipid volume, percentage of lipid area (%lipid), fibrous volume and percentage of fibrous area (%fibrous).

Results: A total 23 noncalcified coronary plaques were evaluated. Good correlation with IB-IVUS was obtained for plaque volume (180.2±95.0mm³ vs. 161.3±118.4mm³, r=0.869, P<0.001), lipid area (99.7±54.7mm³ vs. 88.5±72.3mm³, r=0.892, P<0.001), %lipid (54.2±10.0mm³ vs. 52.5±10.9mm³, r=0.619, P<0.01), fibrous area (61.6±31.1mm³ vs. 61.7±43.1mm³, r=0.735, P<0.001) and %fibrous (35.7mm³±8.1 vs. 40.2±9.5mm³, r=0.648, P<0.001). Minimum lipid density of lipid area was

Conclusions: HDCT with new gemstone detector can accurately quantify and characterize coronary plaque. HDCT could be a useful tool for identification of vulnerable plaque.