ACC.11
60th Annual Scientific Session & Expo

E727
JACC April 5, 2011
Volume 57, Issue 14

IMAGING AND DIAGNOSTIC TESTING

HEAD-TO-HEAD COMPARISON OF CALCIFICATION PATTERNS ON MULTIDETECTOR COMPUTED TOMOGRAPHY CORONARY ANGIOGRAPHY TO VULNERABLE PLAQUE CHARACTERISTICS ON VIRTUAL HISTOLOGY INTRAVASCULAR ULTRASOUND

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Sunday, April 03, 2011, 3:30 p.m.-4:45 p.m.

Session Title: CT Coronary Angiography - Plaque Imaging
Abstract Category: 36. CT Coronary Angiography
Session-Poster Board Number: 1061-204

Authors: *Joella E. van Velzen, Joanne D. Schuijf, Fleur R. de Graaf, Michiel A. de Graaf, Caroline E. Veltman, Martin J. Schalij, Lucia J. Kroft, Albert de Roos, Johannes HC Reiber, J. Wouter Jukema, Ernst E. van der Wall, Jeroen J. Bax, Leiden University Medical Center, Leiden, The Netherlands*

Background: Plaques with spotty calcifications on multidetector computed tomography angiography (CTA) have been related to presence of acute coronary syndrome. The purpose of the study was to compare calcifications patterns in plaques on CTA to vulnerable plaque characteristics on virtual histology ultrasound (VH IVUS).

Methods: In total, 108 patients underwent CTA and VH IVUS. On CTA, calcification patterns in plaques were classified as non-calcified, spotty or dense calcifications. Plaques with spotty calcifications were differentiated into small spotty (<1 mm), intermediate spotty (1-3 mm) and large spotty calcifications (≥3 mm). Vulnerable plaque characteristics on VH IVUS were defined by % necrotic core (NC) and presence of thin cap fibroatheroma (TCFA).

Results: In total, 300 plaques were identified both on CTA and VH IVUS. % NC was significantly higher (20% (12- 4%)) in plaques with small spotty calcifications as compared to non-calcified plaques (13% (6-20%)), plaques with intermediate spotty (14% (9-21%)), large spotty (17% (12-22%)) and dense calcifications (14% (12-22%))(p=0.003). Plaques with small spotty calcifications had the highest % TCFA (31%) as compared to non-calcified plaques (22%), intermediate spotty (17%), large spotty (9%) and dense calcifications (6%)(p=0.02).

Conclusion: Plaques with small spotty calcifications on CTA were related to more vulnerable plaque characteristics on VH IVUS. Possibly, CTA may be valuable in the assessment of the vulnerable plaque.