

COLOR CODED TISSUE CHARACTERIZATION BY 40 MHZ INTRAVASCULAR ULTRASOUND RELIABLY IDENTIFIES PLAQUE COMPOSITION COMPARISON WITH 64 SLICE COMPUTED TOMOGRAPHY

i2 Poster Contributions

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Background: Identification of coronary plaque composition is important for selecting the treatment strategy, and 64-slice computed tomography (CT) is a noninvasive method of characterizing atherosclerotic plaques. However, the correlation between plaque characteristics detected by CT and intravascular ultrasound (IVUS) is not clear. A 40 MHz IVUS imaging system (iMap-IVUS) has recently been developed to evaluate plaque composition. The aim of this study was to compare iMap-IVUS with 64-slice CT angiography for the characterization of noncalcified coronary plaques.

Methods: Both 64-slice CT angiography and iMap-IVUS were performed in 19 patients (38 plaques). CT values were measured as Hounsfield units (HU) in circular regions of interest (ROI) drawn on the plaques. The iMap-IVUS system analyzed coronary plaques as fibrotic, lipidic, necrotic, or calcified tissue based on the radiofrequency spectrum.

Results: A positive correlation was found between CT values and the percentage of fibrotic plaque ($r=0.34$, $P=0.036$) or calcified plaque ($r=0.40$, $P=0.011$). Conversely, a negative correlation was found between CT values and the percentage of lipidic plaque ($r=-0.41$, $P=0.01$), or necrotic plaque ($r=-0.41$, $P=0.01$).

Conclusions: Good correlations were observed between the characteristics of noncalcified plaque determined by iMap-IVUS and the CT values of plaque detected by 64-slice CT scanning.

