THE CORONARY WALL BY OCT IN PATIENTS WITH CORONARY SPASM

i2 Poster Contributions
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Background: The aim of the study was to detect specific anatomical features in the coronary artery wall of patients presenting with “normal” arteries and coronary spasm, by a high resolution intracoronary optical coherence tomography (OCT).

Methods: To be enrolled patients had to have the following features: recurrent episodes of angina at rest and ECG ischemia, normal angiograms, no signs of early atherosclerosis by intravascular ultrasound (thickness of the coronary wall <1mm) and inducible coronary spasm. Coronary spasm (defined as >30% vessel diameter reduction) was provoked by inhibition of endothelial nitric oxide synthesis through administration of intracoronary acetylcholine (graded doses of 10-6, 10-5 and 10-4 mol/L over 3 minutes at 10-minute intervals). Intracoronary OCT (10-20 micron resolution) imaging, by automatic pull back, was performed in all patients at the site of vasoconstriction and at the adjacent segments as controls.

Results: We analyzed OCT 83 images from 15 patients. There were 49 OCT images from sites of vasoconstrictions. Of these, 9 (19.4%) showed a 3-layer structure (intima, media and adventitia) distinctive of a normal artery and the remaining 40 (81.6%) showed early structural atherosclerotic changes (loss of 3-layer structure and thickness of the coronary wall up to 380 micron maximum). OCT images of the control segments (n=34) revealed 3-layer structure in 5 (14.7%) and early atherosclerotic structural changes in the remaining 29 (76.3%). Nine patients showed early atherosclerotic structural changes at sites of abnormal vasoconstriction and in control vessel segments. Three patients exhibit early structural changes at sites of abnormal vasoconstriction, but not in control vessel segments. The remaining 3 patients showed evidence of a normal 3-layer structure both at sites of abnormal vasoconstriction and in control vessel segments.

Conclusions: OCT does not identify a distinctive anatomical feature characterizing those coronary segments having spasm due to inhibition of endothelial nitric oxide synthesis.