MICROEMBOLIZATION PREDICTS SUBCLINICAL MYONECROSIS AFTER PERCUTANEOUS CORONARY INTERVENTIONS IN DiABETIC PATIENTS WITH STABLE CORONARY ARTERY DISEASE

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Tuesday, April 05, 2011, 9:30 a.m.-10:45 a.m.

Session Title: Endovascular Therapy - New Technologies and Techniques
Abstract Category: 13. Endovascular Therapy
Session-Poster Board Number: 1148-105

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Background: Elevation of cardiac troponin I (cTnI) is a well-known complication after percutaneous coronary interventions (PCI) and occurs more frequently in patients with type 2 diabetes mellitus (T2DM) and extensive coronary artery disease (CAD). Aim of this study was to quantify the extent of coronary microembolization during elective PCI and to identify predictors for periprocedural myocardial injury.

Methods: We included 48 consecutive patients (38 males) aged 66.7 ± 6.1 years with T2DM and 3-vessel CAD, who underwent successfully elective PCI with stent placement to treat single-vessel lesions. An intracoronary ultrasound Doppler guide wire (FloWire, Volcano) was used to detect real-time microembolization during PCI as high-intensity transient signals (HITS). Peak levels of cTnI were measured within 24 hours after PCI.

Results: In 47 of 48 patients microemboli were detected during PCI. Pathologic postprocedural elevation in cTnI > 0.12 ng/ml (0.13 to 28.9, median 0.39 ng/ml) occured in 19 patients without clinical manifestations. The total number of HITS correlated with the peak value of cTnI (r = 0.43, p = 0.003), but not with other clinical, angiographic or procedural data. ROC analysis proved that a high number of microemboli (HITS > 25) predicted a major cTnI elevation > 1 ng/ml with a sensitivity of 100% and specificity of 83 % (p = 0.002, Figure 1).

Conclusions: In diabetic patients with extensive CAD coronary microembolization predicted the occurrence of periprocedural myocardial necrosis.