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Acute Coronary Syndromes

MANAGEMENT AND CLINICAL OUTCOME OF PATIENTS WITH ACUTE CORONARY SYNDROME CAUSED BY PLAQUE RUPTURE AND PLAQUE EROSION: AN INTRAVASCULAR OPTICAL COHERENCE TOMOGRAPHY STUDY

Poster Contributions

Hall C

Saturday, March 29, 2014, 10:00 a.m.-10:45 a.m.

Session Title: Acute Coronary Syndromes: NSTEMI

Abstract Category: 1. Acute Coronary Syndromes: Clinical

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Background: Plaque rupture and erosion are the two most common mechanisms for acute coronary syndrome (ACS). However, the impact of these two distinct pathologies on clinical outcomes in patients with ACS is unknown.

Methods: We studied 180 patients with ACS undergoing optical coherence tomography (OCT) imaging of culprit lesions from the Massachusetts General Hospital OCT Registry. Plaque rupture (Figure A) and erosion (Figure B) were defined by previously established criteria for OCT. Patients were followed up to 2 years.

Results: Among the 180 culprit lesions, rupture was found in 78 patients and erosion in 62. Stent implantation was performed in 76 (97.4%) patients with rupture versus 48 (77.4%) with erosion ($p < 0.001$). Patients with rupture had more severe stenosis ($69.3 \pm 12.4\%$ vs $51.4 \pm 17.4\%$, $p < 0.001$) and longer lesion (18.9 ± 6.5 mm vs 14.5 ± 5.2 mm, $p < 0.001$) on angiogram. Total stent number per lesion was higher in rupture compared with erosion (1.2 ± 0.7 vs 1.0 ± 0.9 , $p = 0.022$). In patients treated with stent, OCT showed a higher incidence of malapposition (37.5% vs. 7.3%, $p < 0.001$), thrombus (59.4% vs 14.6%, $p < 0.001$), and protrusion (93.8% vs 73.2%, $p = 0.008$) in rupture versus erosion. Although cardiac event rates were similar between the two groups, patients with erosion treated conservatively has lower event rate than those with stent.

Conclusion: OCT imaging allows identification of patients with erosion (as opposed to rupture) that may provide a rationale for medical therapy as opposed to PCI management.

