

60th Annual Scientific Session & Expo

E1070

JACC April 5, 2011

Volume 57, Issue 14



MYOCARDIAL ISCHEMIA AND INFARCTION

PLAQUE RUPTURE IS ASSOCIATED WITH LARGER INFARCT SIZE FOLLOWING SUCCESSFUL PERCUTANEOUS CORONARY INTERVENTION IN ST-SEGMENT ELEVATION ACUTE MYOCARDIAL INFARCTION

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

Monday, April 04, 2011, 3:30 p.m.-4:45 p.m.

Session Title: Acute Myocardial Infarction -- Risk Prediction

Abstract Category: 3. Acute Myocardial Infarction—Therapy

Session-Poster Board Number: 1105-310

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Background: Pathological studies report that acute ST-segment elevation myocardial infarction (STEMI) is caused not only by plaque rupture but also by other causes, such as erosion. We sought to assess whether coronary plaque rupture at culprit lesions is associated with infarct size in patients with STEMI. Some patients with STEMI have large infarcts despite early reperfusion. Whether culprit plaque morphology impacts infarct size or not remains unknown.

Methods: Patients who had a first STEMI with reperfusion within 12 hours after onset were enrolled and divided into 2 groups according to the presence or absence of plaque rupture at the culprit lesion as defined by Optical Coherence Tomography(OCT): patients with rupture (n =27) and without rupture (n = 13).

Results: Patients with plaque rupture had higher peak creatine kinase levels (4182.4 ± 2109.7 vs. 1680.5 ± 1845.3 IU/l ; $p < 0.05$), creatine kinase-myocardial band were higher (357.3 ± 174.8 vs. 155.8 ± 139.2 IU/l ; $p < 0.05$). And infarct sizes detected by contrast-enhanced cardiac magnetic resonance were higher (18.8 ± 9.0 vs. 8.9 ± 5.4 % ; $p < 0.05$) in ruptured group than non-ruptured group. Transmural extent of infarction Grade (TEI-Grade) was higher ($p < 0.05$) in ruptured group. The presence of microvascular obstruction (MVO) was higher (44.4 vs. 7.7 % ; $p < 0.05$) in ruptured group.

Conclusions: Plaque rupture is associated with morphologic characteristics of vulnerable lesions, as well as with larger infarcts size.