A112.E1050
JACC March 9, 2010
Volume 55, issue 10A

MYOCARDIAL ISCHEMIA AND INFARCTION

CLINICAL PRESENTATION AND PLAQUE MORPHOLOGY IN UNSTABLE ANGINA PECTORIS: AN OPTICAL COHERENCE TOMOGRAPHY STUDY

ACC Poster Contributions
Georgia World Congress Center, Hall B5
Monday, March 15, 2010, 9:30 a.m.-10:30 a.m.

Session Title: Outcomes after Percutaneous Coronary Intervention
Abstract Category: Unstable Ischemic Syndrome--Clinical
Presentation Number: 1152-257

Authors: *Masato Mizukoshi, Takashi Kubo, Atsushi Tanaka, Shigeho Takarada, Hironori Kitabata, Takashi Tanimoto, Akio Kuroi, Hideyuki Ikejima, Kenichi Komukai, Yasushi Ino, Kumiko Hirata, Hiroto Tsujioka, Keishi Okochi, Manabu Kashiwagi, Yuichi Ozaki, Aiko Shimokado, Toshio Imanishi, Takashi Akasaka, Wakayama Medical University, Wakayama, Japan*

Background: Unstable angina is a clinical and heterogeneous syndrome and is often categorized clinically with the Braunwald classification. Different causes of primary unstable angina are recognized: a nonocclusive thrombus on a preexisting plaque, dynamic obstruction, progressive mechanical obstruction, and inflammation. However, the relationship between clinical presentation and plaque morphology has not been fully elucidated in relation to the etiology. The aim of the present study was to use optical coherence tomography (OCT) to evaluate the relationship between clinical presentation and in vivo plaque morphology in patients with primary unstable angina.

Methods and Results: We enrolled 115 consecutive patients with primary unstable angina. Patients were divided into each class of the Braunwald classification and underwent coronary angiography and OCT. A coronary spasm provocation test using acetylcholine was conducted in patients without significant organic stenosis. In class III, the highest frequency of plaque rupture (class I, 43%; class II, 13%; class III, 71%; $p<0.001$), the thinnest fibrous cap thickness (median [Q1-to-Q3]: class I, 135 [95-156] μm; class II, 140 [130-160] μm; class III, 60 [40-100] μm; $p<0.001$), the highest frequency of thin cap fibroatheroma ($p<0.001$) and spotty calcification ($p<0.001$) were observed. In class I, the highest frequency of ulceration without any disruption of fibrous cap (class I 32%, class II 7%, class III 8%; $p=0.003$) and the smallest minimum lumen area (median [Q1-to-Q3]: class I, 0.64 [0.42-0.91] mm^2; class II, 1.80 [1.50-2.50] mm^2; class III, 2.09 [1.03-2.97] mm^2; $p<0.001$) were detected. In class II, the highest frequency of coronary spasm (class I, 0%; class II, 33%; class III, 13%; $p<0.001$) and the lowest frequency of thrombus (class I, 72%; class II, 30%; class III, 73%; $p<0.001$) were detected.

Conclusions: The morphologic features of OCT images differ in each class of the Braunwald classification. These features of plaque vulnerability, progressive mechanical stenosis, and vasoconstriction may be related to the etiology and the distinct clinical presentations in primary unstable angina.