A178.E1669
JACC March 9, 2010
Volume 55, issue 10A

i2 SUMMIT

ARE VULNERABLE PLAQUES WIDELY DISSEMINATED OR FOCAL? A BASELINE 3-VESSEL IVUS ANALYSIS FROM THE PROSPECT TRIAL

i2 Oral Contributions
Georgia World Congress Center, Room B310
Sunday, March 14, 2010, 8:24 a.m.-8:36 a.m.

Session Title: Imaging and Vulnerable Plaque
Abstract Category: Vulnerable Plaque
Presentation Number: 2902-07

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Background: A 2004 NY Times editorial stated "artery-opening methods - like bypass surgery, or insertion of a balloon to mash down plaque and a wire-cage stent to keep the channel open - can alleviate crushing chest pain and save some lives. But...patients may have hundreds of vulnerable plaques (VP) elsewhere that are more apt to burst and trigger a heart attack than are the more stable plaques in the narrow section. Most such patients might better be treated with drugs to lower their cholesterol levels, control their blood pressure and prevent blood clots, or should adopt a healthier life style."

Methods: The PROSPECT (Providing Regional Observations to Study Predictors of Events in the Coronary Tree) trial was performed in patients (pts) presenting with ACS to determine the extent of untreated VP that might predispose to future MACE. After PCI, the proximal 6-8cm of all 3 coronaries-both culprit and non-culprit lesion vessels-were imaged with intravascular ultrasound (IVUS) and virtual histology (VH)-IVUS. A fibroatheroma (FA) was defined as >10% confluent necrotic core (NC) over 3 consecutive frames in a lesion with >40% plaque burden; a thin-cap FA (TCFA) was defined as a FA with 30% of NC circumference abutting the lumen. Pt follow-up was at least 3 years (median 3.4 years).

Results: Of 697 pts, IVUS/VH-IVUS was analyzable in 615 (88%) pts with an average of 2.57±0.64 vessels and 193±82mm length imaged per pt. A total of 2698 lesions were identified by VH-IVUS. Overall, 87.0% of pts had at least one FA and 51.2% of pts had at least one VH-TCFA; the average # of VH-TCFAs was 1.0±1.3/pt, with 48.8% having no VH-TCFA, 27.3% having 1 VH-TCFA, 12.0% having 2 VH-TCFAs, 6.2% having 3 VH-TCFAs, and 2.7% having at least 4 VH-TCFAs. By multivariable analysis, future adverse cardiovascular events at untreated coronary segments were significantly more likely to occur at the site of a VH-TCFA than at any other VH lesion type (OR [95%CI] = 3.00 [1.68, 5.37], P=0.0002).

Conclusion: In contrast to widespread belief, approximately half of pts presenting with ACS have no additional VH-TCFAs. In the rest, VH-TCFAs occur focally and are limited in extent; as such, once identified, they may be amenable to local or regional therapies.