Changes of the Levels of Secretory Type II Phospholipase A2 in Patients With Coronal Artery Disease Undergoing Percutaneous Coronary Intervention

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Background: Type II phospholipases are a family of enzymes that can hydrolyze phospholipids at the sn-2 position to generate lysophospholipids, and precursors of various pro-inflammatory lipid mediators including leukotrienes, prostaglandins, and platelet-activating factors. They might be involved in modifying plaque in the artery wall and presented as prognostic factors. The circulating levels of secretory non-pancreatic type II phospholipase A2 (sPLA2) are increased in various chronic inflammatory diseases, including coronary artery disease (CAD). These inflammatory markers, as C-reactive protein (CRP) or sPLA2, may play a role in the pathogenesis of acute coronary syndrome with the rupture and inflammation of an atherosclerotic arterial plaque. The present study was designed to evaluate the changes of the levels of sPLA2 and other markers after mechanical plaque rupture by percutaneous coronary intervention (PCI) in CAD patients.

Methods and Results: Plasma levels of sPLA2 and CRP were measured in 61 consecutive patients with CAD by enzyme-immunoassay. Five serum samples were measured. They were: (1) before diagnostic angiography, (2) after diagnostic angiography, (3) after PCI, (4) 24 hours after procedure and (5) 48 hours after procedure respectively. The sPLA2 levels didn't change after the procedures of diagnostic angiography (207 ± 125.4 mg/dL vs. 201.9 ± 124.8 mg/dL, p = 0.7) and neither did the serum CRP levels (6.0 ± 4.4 ± 4.7 mg/dL, p = 0.10). The levels of sPLA2 significantly increased after the coronary intervention (212.3 ± 46.9 mg/dL vs. 430.3 ± 277.4 mg/dL, p = 0.001). The levels of CRP didn't rise immediately after PCI but elevated significantly later at 24 hours after intervention (5.02 ± 6.62 mg/dL vs. 13.43 ± 16.1 mg/dL, p = 0.02).

Conclusion: Data from the present study had shown that the procedure of PCI might result in immediate elevation of circulating levels of sPLA2 following the mechanical disruption of coronary plaque. The CRP levels didn't rise immediately but increased significantly until 24 hours after PCI. These results strongly suggest that sPLA2 plays a pro-inflammatory factor and may contribute in the pathogenesis of acute coronary event.

POSTER SESSION

1005 Optimizing Stent Results

Sunday, March 17, 2002, 9:00 a.m.-11:00 a.m.
Georgia World Congress Center, Hall G Presentation Hour: 9:00 a.m.-10:00 a.m.

1005-2 Late Angiographic and Clinical Findings After Elective Placement of the Penta Stent: Results From the PENTA Stent Registry

Jeffrey J. Poole, David Cox, Narm Farnat, Mark Modey, Alex Schomig, James Hermiller, Jeffrey Weinier, Marina Sievers, Stan Fink, Tom Linneanse, Brigham and Women's Hospital, Boston, Massachusetts.

Background: The MULTI-LINK PENTA coronary stent is the fifth generation MULTI-LINK stent that provides enhanced flexibility, conformability, deliverability, scaffolding, and radiopacity over prior generations of stents, in part, due to its variable thickness struts (1.33 + 0.244 mm). Methods: 100 patients with ischemic coronary artery disease and at least one stenosis > 50% in a native coronary vessel were treated with a single coronary intervention using the PENTA stent. Demographics included: age, 62.0 years; men, 65.5%; diabetes mellitus, 19.6%. The primary clinical endpoint of the study was the occurrence of a major in-hospital adverse cardiac event (MACE) including death, myocardial infarction, or urgent revascularization using PTCA or CABG. The primary angiographic endpoint was binary restenosis (>50% follow-up diameter stenosis) obtained using quantitative angiographic methods. Results: The reference vessel diameter was 2.91 mm and the minimal lumen diameter (MLD) was 1.01 mm yielding a 66% baseline diameter stenosis. The lesion length was 12.90 mm; ACC/AHA lesion complexity score was B2 or higher in 83.4% of cases. The in-hospital and 30-day MACE rate was 1.0%. Early events included: target vessel failure, 2.0%; death, 0%; non-fatal G-wave myocardial infarction (MI), 0.0%; non-fatal G-wave MI, 1.0%; target vessel revascularization (TVR), 1.0. There were no episodes of moderate or severe late lumen loss (SAT). The overall procedure success was 96.0%. The post-procedural % diameter stenosis was 3+11%. Six-month angiographic follow-up was obtained in 83.8% of patients. The binary restenosis rate was 17.4%.

Conclusion: The New PENTA stent design is associated with high acute success, low MACE, SAT, and TVR. Despite complex lesion morphology, a low six-month binary restenosis was shown. Complete clinical and angiographic evaluation at 6 months will be presented.

1005-3 Treatment of In-Stent Restenosis by Combining Cutting Balloon Angioplasty and Vascular Brachytherapy: A Report From the RENO Registry

Eric Perchoux, Hristian Roguelov, Eduardo De Benedetti, Philippe Coucke, Sigmund Silber, Remo Ablibi, Thomas Schiele, Raoul Bonan, Philip Urban, CHU, Laval, Quebec, Canada.

Background: The Reno Registry tracks all patients who are treated by Beta-Cath (NovoStent, Brussels) coronary brachytherapy (CBT) in Europe not included in another trial. The theoretical advantage of cutting balloon angioplasty over conventional angioplasty prior to CBT is the potential to avoid balloon slipping which may induce geographic miss.

Methods: From April 1999 on, 1111 patients have been included in this Registry. In 166 patients with in-stent-restenosis a combined approach using cutting balloon angioplasty followed by CBT was performed (Group1). In 712 patients with in-stent-restenosis conventional PTCA and CBT was performed (Group 2). The primary outcome measure was major adverse events (defined as a combination of death, myocardial infarction and target vessel revascularization) at 6 months.

Results: The clinical, angiographic and procedural characteristics of Group 1 were as follows: mean age was 62±10 years and 160 were men (87.4%); 44 patients (27.2%) had diabetes and 22 (13.6%) had unstable angina; 93.7% of lesions were located in native coronary arteries; reference vessel size was 3.25±0.39 mm and mean lesion length was 17.4±2.03 mm; median treatment time was 2.5±1.1 minutes (mean radiation dose 28.4±13.6 Gy at a depth of 2mm from the source); stents were implanted in 14.4% of cases. Procedures were successful in 97.7% of cases. During hospitalization, 1 patient died and 1 more patient experienced myocardial infarction (1.2% adverse events; death, myocardial infarction, target vessel revascularization). For Group 1 versus 1.8% for Group 2 (p=NS). At 6 months follow-up, there was a significant advantage in terms of target vessel revascularization for Group 1 (10.2% versus 16.6% for Group 2 (p=0.04) and in terms of the primary outcome measure (adverse events) for Group 1 (10.6% versus 19.2% for Group 2 (p=0.01)).

Conclusions: These results indicate the feasibility and safety of the strategy of combining cutting balloon angioplasty followed by CBT. They demonstrate additional clinical benefit at 6 months follow-up with this strategy compared to CBT and conventional PTCA.

1005-4 The Impact of Stenting in the Very Elderly

Pedro J. Colon Hernandez, Mark Rubenstein, Francisco Martin, Pedro L. Sanchez, Lani C. Harrell, Igor F. Paedas, Massachusetts General Hospital, Boston, Massachusetts.

Background: The effectiveness of the current era of percutaneous coronary intervention (PCI) characterized by high stent utilization in the very elderly (>75 years) is not well established.

Methods: The immediate and long-term outcomes of 123 consecutive patients >75 years old who underwent PCI in the current stent era (Group 1) were compared with those of 125 gender matched patients >75 years old who underwent PCI in the earlier new device era characterized by low stent utilization (urotipo 2).

Results: There were no significant differences in age (80±4 vs. 80±4, p=0.03) or in clinical and angiographic characteristics between the two groups. Stent utilization was 97% vs. 91% (p=0.04), for Groups 1 and 2 respectively. Although device prevention rates for Groups 1 and 2 were similar (95% vs. 91%, p=0.3), post-PCI minimal lumen diameter was superior for group 1 (2.7+/- 0.6 mm vs. 1.9+/-0.7 mm, p=0.05). In-hospital mortality (0% vs. 3%, p=0.03) and in-hospital MACE (death, G-Wave MI, and emergancy CABG) (0.0% vs. 7.3%, p=0.03) were lower for Group 1. At 2 years follow-up, Kaplan-Meier analysis demonstrated no significant difference in mortality (15% vs. 18%, p=0.39), MI (6% vs. 8%, p=0.30), or CABG (8% vs. 9%, p=0.84) between both groups. However, the need for repeat PCI was lower in Group 1 (9% vs. 24%, p=0.007; see Figure).

Conclusion: The use of coronary stenting in the very elderly resulted in significant decreases in major in-hospital complications and in the need for repeat PCI at 2-years follow-up.

Graph 1: Comparing the outcomes of Group 1 (Stent era) and Group 2 (Pre-stent era)