Safety of Bivalirudin as a Single Antithrombotic Agent in Patients Undergoing Percutaneous Coronary Intervention and Vascular Brachytherapy With Gamma and Beta Emitters

Roswitha Wolfram, Pramod K. Chukulaikanti, Seung-Woon Rha, Rebecca Torguson, Donna Whitman, Ellen Pinirow, Karin Nealon, Augusto Pichard, Lowell Satler, Kenneth Kent, Joseph Lindsay, Ron Waksman, Washington Hospital Center, Washington, DC

Background: Bivalirudin (Angiomax) has proven to be a valuable alternative to heparin in percutaneous coronary intervention (PCI). The aim of this study is to assess the efficacy and clinical safety of bivalirudin administration in patients undergoing PCI and vascular brachytherapy (VBT) with γ and β radiation.

Methods: A total of 100 patients who were included in the BRAVES (Brachytherapy and Bivalirudin Evaluation Study) trial at the Washington Hospital Center, and who underwent PCI and VBT with either γ (92Ir) or β (32P or 90Sr/Y) radiation were investigated for procedural, in-hospital, and 30-day clinical outcomes. All patients were treated with bivalirudin as a single antithrombotic agent during PCI.

Results: Baseline clinical and angiographic characteristics were similar between the two groups. In-hospital events showed a higher prevalence of early thrombotic occlusions in patients treated with γ radiation (25% vs 11.1%, p = 0.02) Thirty-day outcomes were comparable in both groups.

Conclusions: The use of bivalirudin as an antithrombotic agent during PCI and vascular brachytherapy was safe only with β radiation, and should not be used be used in the setting of PCI and γ radiation due to high incidence of intracoronary thrombosis.

Relationship of Troponin I Elevation After Uncomplicated Coronary Stenting With Thrombotic (D-imer), Inflammatory (C-Reactive Protein and Fibrinogen), Procedural, and Clinical Factors

Jose M. De la Torre-Hernandez, Susana Gonzalez-Enriquez, Fermin Sanz-Laso, Jose M Cuesta, Alvaro Figueroa, Javier Zuco, Thierry Colman, Hospital Marques de Valdecilla, Santander, Spain

Background: There is significant controversy regarding troponin release after non-compliant percutaneous coronary interventions (PCI) with stent. Pathogenic mechanisms and predictive factors are not well characterized. We examined the relationship of clinical, procedural, thrombotic and inflammatory factors.

Methods: We prospectively studied patients undergoing PCI with stent excluding those with recent myocardial infarction (<14 days). Levels of C-Reactive Protein (CRP), Fibrinogen (F), Fibrin Dimer (DD), Troponin I (TnI) and CRP were determined pre-PCI and 8 and 24 hrs post-PCI.

Results: A total of 221 patients were included with 200 (90.5%) not presenting any peri-procedural complication. Among the 200 non-complicated cases, 30 patients (15%) showed TnI elevation after PCI. We compared these 30 cases (group TnI+) with the remaining 170 without TnI elevation (group TnI-). Patients in group TnI+ were significantly older (69±8yrs vs 61±12yrs; P<0.05), had more diffuse lesions (60% vs 22%; P<0.05) and more lesions treated (1.85 ± 0.7 vs 1.45 ± 0.7; P<0.05). Basal and post-PCI levels of CRP and DD were significantly higher in group TnI+. Post-PCI increase in DD was significantly higher in TnI+ group (median 110mg/ml vs 23mg/ml; P<0.05). Logistic regression analysis showed as independent predictors for TnI increase the treatment of diffuse lesions, age >65 yrs, 2 or more lesions treated and a basal CRP>III cuartile. A strongly independent association was found between TnI increase and the post-PCI DD measurement (OR: 13: 95% CI, 4.4 to 37; P< 0.0001). The 30 patients in group TnI+ presented major cardiac events in 26 pts (86%) in a follow up of 11± 2 months. Only age >65 yrs, diabetes and treatment of diffuse lesions were independent predictors for events.

Conclusions: 1) These findings suggest microthrombosis-embolization as the main mechanism for TnI elevation in non-complicated PCI. 2)This event was related with age over 65 years, treatment of multiple and diffuse lesions and high basal CRP levels. 3) The prognostic significance found in other studies may be explained by the association of this phenomenon with a more diffuse and aggressive disease.

Coronary Blood Flow Velocity and Myocardial Perfusion With Balloon Occlusion and Filter-Based Distal Protection Devices in Saphenous Vein Graft Stenting: Early Experience of Two Centers

Giora Weisz, Amir Hakim, Costantino O. Costantini, Iassan Michiev, Arlene Reyes, Issam Moussa, Zoran Lasic, Tudor Veganoescu, Vladimir Ilic, Martin B. Leon, Antonio Colombo, Jeffrey W. Moses, Lenox Hill Heart and Vascular Institute, and Cardiovascular Research Foundation, New York, NY

Background: Distal emboli following saphenous vein grafts (SVG) stenting results in high rates of peri-procedural events. Distal protection devices (DPD) were shown to be associated with improvement in outcomes. We compared the effect of balloon vs. filter devices on blood flow (frame count) and myocardial perfusion (blush).

Methods: In two institutions, the first 57 consecutive pts that had filter- DPD SVG-stenting of de-novo lesions were compared to 57 consecutive pts in whom balloon - DPD was used, in the same period of time. Measurements were done before placement of the DPD, and post retrieval. Cinanographic frames were counted from ostium of graft to distal anastomosis (TFCo), anastomosis to a standardized distal landmark (TFCo), and combined (TFCo). Myocardial blush was graded 0-3 using the Ziolkow/CRF methodology.

Results: The two groups were balanced in demographics, risk factors, and clinical presentation. TIMI flows, frame counts, and blush are shown in Table. In-hospital non-Q-wave MI occurred in 5 pts in the filter group, and 1 in the balloon group (p=n.s). There were no Q-wave MIs, urgent revascularizations, or mortality in either group.

Conclusions: This early world experience in SVG’s treatment suggests that balloon occlusion and aspiration DPD enhance immediate post procedure coronary flow (especially in the native coronary segment) and myocardial perfusion compared to filter-based DPDs. Whether this is due to learning curve with filters, or has clinical relevance deserves further study.