

POSTER SESSION

1197 Percutaneous Interventions

Tuesday, April 01, 2003, 3:00 p.m.-5:00 p.m.
McCormick Place, Hall A
Presentation Hour: 3:00 p.m.-4:00 p.m.

1197-187

Primary Percutaneous Intervention in Patients With Prior Coronary Artery Bypass Grafting Admitted With Acute Myocardial Infarction: Results of the ALKK-Registry

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Background: Primary percutaneous coronary intervention in patients with acute myocardial infarction (AMI) has been shown to be associated with an improved outcome. Little is known about the outcome of primary PCI in patients with prior coronary artery bypass grafting (CABG). **Methods:** All patients admitted with an AMI < 24 hrs duration in 82 German hospitals of the ALKK between 6/94 and 3/2001 were prospectively registered in the ALKK-Primary-PTCA-Registry. Cath-lab and in-hospital complications were prospectively recorded. The completeness of data was over 98%. **Results:** A total of 10,946 interventions in AMI patients were performed, of these 324 (0.3%) in patients with prior CABG. Patients with prior CABG were significantly older (66 vs. 61 years) and had more often 3-vessel disease (85% vs. 24%). The total procedural (68 vs. 55 min) and fluoroscopy (16 vs. 11 min) times were significantly longer in prior CABG patients. The PCI results and in hospital outcomes are shown in the table.

Conclusion: Primary PCI in patients with prior CABG is associated with lower procedural success rates and more adverse in-hospital events. Therefore additional adjunctive pharmacological and interventional therapies such as thrombectomy- or distal-protection devices should be considered to improve outcome in this high-risk subgroup of patients with AMI.

	Prior CABG (n=324)	Others (n=10622)	p-value
TIMI 3 after PCI	70 %	87 %	< 0.001
Death	17.6 %	10.8 %	< 0.001
Death in pts.w/o shock	8.6 %	4.6 %	< 0.001
Reinfarction	4.3 %	2.1 %	< 0.001
CABG	5.1 %	0.3 %	< 0.001

1197-188

A Comparative Study of Rotational Atherectomy in Unstable and Stable Coronary Syndromes in the Modern Era

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Background: Rotational atherectomy (RA) is commonly used in the treatment of calcified lesions and facilitates successful delivery/deployment of stents. Early experience with RA cautioned its use in possibly thrombus containing lesions and after a recent myocardial infarction (MI) due to a greater incidence of slow flow and non-Q wave MI. However, improved RA technique (slower burr speeds, shorter burr periods, smaller burr/artery ratios) and modern antiplatelet agents may have broadened the eligibility of patients considered for RA.

Methods: A retrospective study of angiographic and clinical outcomes in patients presenting with an acute or stable coronary syndrome (ACS or SS) treated with RA.

Results: 1112 consecutive patients treated with RA between July 1999 and February 2002 were identified (ACS n=269, SS n=843). Age was 68±12 vs 66±11 years (p<0.05), and male sex was 65% vs 71% (p=NS) in ACS vs SS. 22.3% of ACS patients had suffered a recent (<2 weeks) acute MI. Pre-procedure Troponin-I was elevated (>2ng/ml) in 33% ACS vs 0.6% SS (p=0.001). CKMB was measured pre, 6-8 and 12-24hrs post RA. AHA/ACC lesion type C was 43% vs 41% and presence of moderate or severe calcification was 70% vs 66% in ACS vs SS (p=NS). Burr/artery ratio was 0.51 vs 0.52, GP IIb/IIIa use was 91.8% vs 89.6% and stent implantation 82.9% vs 79.8% in ACS and SS (p=NS). Angiographic success was 98.9% vs 98.7% and post procedure TIMI 3 flow was 97% vs 98% in ACS vs SS respectively (p=NS). Angiographic complications occurred in 18.6% ACS vs 13.1% SS (p=0.024), due largely to an excess of side branch closure (4.5% vs 2%, p=0.029). Any post-procedure CKMB was elevated (>16U/L) in 17.1% ACS vs 18.9% SS (p=NS). CKMB 1-3x normal was 12.1% vs 14.5%, CKMB >3-5x ULN 3.1% vs 3.2% and CKMB>5x ULN 1.9% vs 1.2% in ACS vs SS groups respectively (p=NS). 30-day MACE (death, MI, ischemic TVR, urgent CABG, CKMB >x3) was 5.9% vs 4.6% in ACS and SS groups (p=NS).

Conclusion: With current RA technique and modern antiplatelet agents, RA can be safely performed in ACS when lesion morphology dictates. Although angiographic complications occurred more frequently in the ACS group this did not result in a significantly higher incidence of post-procedure CKMB elevation or 30-day MACE.

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Embololic Volume Retrieved During Native Coronary Percutaneous Coronary Intervention With Distal Protection Is Far Lower Than During Saphenous Vein Graft Percutaneous Coronary Intervention Regardless of Plaque Burden

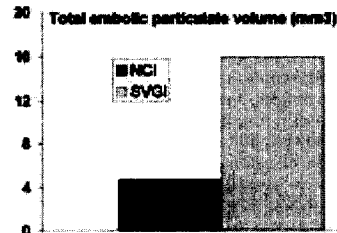
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Background: Embololic protection improves outcomes during SVG intervention (SVG) but has an unproven role in native coronary PCI (NCI).

Objective: Compare the aggregate volume, size distribution, and composition of particles retrieved via embololic protection during NCI or SVGI.

Methods/Results: Aspirates from 6 patients undergoing NCI and 17 SVGI treated with occlusion balloon embololic protection (PercuSurge, Medtronic/AVE) were analyzed for particle size distribution and aggregate embololic volume using an automated computer imaging system (Rapidvue, Beckman Coulter). Most particles were found to be ≤ 96 μm in longest dimension with identical size distributions between SVGI and NCI. However, the total volume of debris was substantially less for NCI than for SVGI (median 4.75 mm³ vs. 16 mm³, p ≤ 0.016) (Figure). The maximum embololic volume obtained for NCI was 9.8 mm³, 42 mm³ for SVGI. Univariate, as well as multivariable linear regression analysis correcting for stented area and volume showed SVGI increased embololic volume by 11 mm³.

Conclusion: Embololic debris from SVGI with distal embololic protection is approximately 3-fold greater than that from NCI, with similar size distribution. SVGI is an independent predictor of increased embololic volume compared to NCI. This may be explained by differences in particulate composition, lesion composition, vessel characteristics, or incomplete capture during NCI with loss down side branches or the native vessel.



1197-190

Does Directional Atherectomy Before Stenting Reduce Wall Stretch? A Serial Intravascular Ultrasound Evaluation of the Mechanisms of Lumen Enlargement

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Background: Directional coronary atherectomy (DCA) before stenting reduces the risk of in stent restenosis in large prospective trials. Aims of the study were determine mechanism of lumen enlargement after stenting preceded by DCA using 3-D intravascular ultrasound (IVUS), to compare it with stenting after balloon predilatation, and to verify whether vessel stretching influences late restenosis.

Methods: 20 patients treated with DCA followed by stenting (Group 1) and 30 patients after IVUS guided optimized stenting after balloon angioplasty (Group 2) were studied with 3-D serial IVUS examinations. Volumetric assessment of external elastic membrane (EEM), lumen, and plaque cross-sectional area was performed pre-intervention and post-stenting. Applying a semi-quantitative algorithm along the entire stent length and in the proximal and distal reference segments (5 mm from the stent edge). EEM stretch index was as the difference between EEM post stenting and EEM pre intervention. Axial plaque shift (APS) was calculated in the group of stents having a length of 13 mm as the mean change in plaque volumes measured in the segments 5 mm proximally and distally from the stent edges. Six months angiography follow-up was performed in all patients.

Results: There were no differences in clinical, angiographic, IVUS and procedural characteristics between the 2 groups. The increase in EEM area was significantly smaller in Group 1 than in Group 2 (3.05±0.8 mm² vs 4.28±1.98 mm² respectively, p<0.001). EEM stretch index was significantly bigger in Group 2 than in Group 1 (p<0.01). Axial plaque shift into the segments proximal and distal to the stent edges was significantly reduced in the DCA group. Follow-up angiography revealed in stent restenosis in 10.0 % of Group 1 vs. 23.3% of Group 2, p=NS.

Conclusion: Plaque removal by means of DCA followed by stent deployment reduces vessel stretch and plaque shift at the stent margins, with a trend to lower late restenosis.

1197-191

The Importance of Microvascular Resistance in Restoration of Coronary Perfusion After Percutaneous Coronary Intervention

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Background: The goal of percutaneous coronary interventions (PCI) is to improve perfusion of the distal coronary vascular bed by minimizing the resistance to flow in the epicardial supply vessel. We assessed velocity-based indices of both stenosis (SRv) and coronary microvascular resistance (MRv) to determine their respective contribution to the overall gain in flow velocity.