TCT-185

Impact of Residual Stenosis of Side Branch on Clinical Outcomes in Patients treated with 1-stent technique for Coronary Bifurcations Lesions

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Background: In coronary bifurcation lesions, little is known about the effect of residual side branch (SB) stenosis after main vessel (MV) stenting on long-term clinical outcomes. Whether provisional approach is accepted as the default technique, but stent implantation on both branches of the bifurcations is still required in 15%-30% of cases. The provisional approach is accepted as the default technique, but stent implantation on both branches of the bifurcations is still required in 15%-30% of cases. The traditional approach is accepted as the default technique, but stent implantation on both branches of the bifurcations is still required in 15%-30% of cases. The traditional approach is accepted as the default technique, but stent implantation on both branches of the bifurcations is still required in 15%-30% of cases.

Methods: A total of 2,897 consecutive patients who underwent percutaneous coronary intervention using a drug-eluting stent for a coronary bifurcation lesion with a SB ≥ 2.3 mm were enrolled from 18 centers in South Korea. Of these, we analyzed data from patients who were treated with provisional approach for non-culprit lesions and finally have TIMI flow grade 3 of the SB. We compared cardiac death or myocardial infarction according to residual diameter stenosis (DS) of the SB ostium in those patients.

Results: 574 patients have residual SB DS ≥50%, and 989 patients residual SB DS <50% after the index procedure. During a median follow-up duration of 37 months, patients with residual SB DS ≥50% have a higher incidence of cardiac death or myocardial infarction (1.4 versus 3.3%, p<0.01) than those with residual SB DS <50%. Multivariable analysis revealed a higher risk of cardiac death or myocardial infarction (hazard ratio [HR], 2.52; 95% confidence interval [CI], 1.20-5.28; p=0.02) in the residual SB DS ≥50% group compared to the residual SB DS <50% group.

Table. Clinical Outcomes.

<table>
<thead>
<tr>
<th></th>
<th>n=1,563</th>
<th>n=989 (n=956)</th>
<th>Adjusted HR</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cause death</td>
<td>26 (2.6)</td>
<td>20 (2.1)</td>
<td>1.14 (0.61-2.12)</td>
<td>0.80</td>
</tr>
<tr>
<td>Cardiac death</td>
<td>13 (1.2)</td>
<td>11 (1.1)</td>
<td>1.00 (0.56-1.81)</td>
<td>0.97</td>
</tr>
<tr>
<td>MI</td>
<td>9 (0.9)</td>
<td>5 (0.5)</td>
<td>2.20 (1.37-3.64)</td>
<td>0.002</td>
</tr>
<tr>
<td>Cardiac or MI</td>
<td>14 (1.4)</td>
<td>12 (1.5)</td>
<td>2.35 (1.02-5.70)</td>
<td>0.01</td>
</tr>
<tr>
<td>Stent thrombosis</td>
<td>3 (0.3)</td>
<td>0 (0)</td>
<td>1.87 (0.38-9.30)</td>
<td>0.44</td>
</tr>
<tr>
<td>TLR</td>
<td>62 (6.3)</td>
<td>39 (6.2)</td>
<td>1.22 (0.43-3.46)</td>
<td>0.33</td>
</tr>
</tbody>
</table>

*Adjusted covariates included history of chronic renal failure, bifurcation location, true bifurcation, and SB DS before procedure. 

Definitions: Definite or probable stent thrombosis. 

Results: Cardiac death, MI, or TLR

Conclusions: In patients treated with 1-stent technique for non-main coronary bifurcation lesions, residual SB DS ≥50% may be associated with a worse clinical outcome compared to residual SB DS <50%. These findings need to be confirmed in randomized controlled trials.

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Clinical and angiographic outcome of mini-crush stenting for the treatment of true coronary bifurcation lesions

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Background: To evaluate the clinical and angiographic outcome of mini-crush stenting for the treatment of true coronary bifurcation lesions. Percutaneous treatment of coronary bifurcations lesions (CBL) is associated with a low procedural success rate and high incidence of target lesion revascularization (TLR), and stent thrombosis. The provisional approach is accepted as the default technique, but stent implantation on both branches of the bifurcations is still required in 15%-30% of cases. The mini-crush is one of the techniques used to implant stents on both branches of a CBL and provides complete coverage of the ostium of the side branch, while minimizing the length of the crushed stent. Data about outcomes for this technique are limited.

Methods: Between January 2006 and December 2012, 98 consecutive patients underwent implantation of DES with mini-crush technique for the treatment of true CBL. Clinical follow-up at our out-patient clinic was performed at 1-year. For the first 50 patients an angiographic control was scheduled at 9 months.

Results: Our results suggest that the treatment of bifurcation lesions by means of mini-crush stenting technique is associated with excellent immediate success and provides good angiographic and clinical outcomes at 1-year in a high-risk patients population.

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Procedural Feasibility and Clinical Efficacy of Biodegradable Vascular Scaffold in the Treatment of Bifurcation Lesions: Results from a Single Center Experience

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Background: The strut thickness and deliverability of biodegradable vascular scaffold (BVS) may lead to more challenging for bifurcation lesions. Furthermore, all data concerning BVS feasibility for bifurcation lesions are still limited.

Methods: We analyzed clinical outcome data of patients treated with BVS between May 2012 and May 2014. The measured end-points were cardiac death, follow-up myocardial infarction (MI), target lesion revascularization (TLR) in the side branch and stent thrombosis (ST), major bleeding (MB) and total revascularization rates at 12 months were 0%, 1.2%, 7.1%, and 8.5%, respectively. Definite stent thrombosis occurred in one case after discontinuation of dual antiplatelet therapy.

Conclusions: Our results suggest that the treatment with BVS is feasible and effective in a real life setting of bifurcation lesions, despite thick strut (>150 μm) scaffolds and limitation of side-branch access. Improvements in scaffold design may reduce the need for meticulous lesion predilatation with dedicated devices and increase the spectrum of lesions amenable to treatment with BVS.

TCT-188

2-year outcomes and angiograms from the bifurcation subgroup of the e-BioMatrix registry

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Background: PCI of bifurcation lesions is associated with higher rates of restenosis and thrombosis compared to non-bifurcation lesions. In the e-BioMatrix registry we compared the 2-year outcomes of bifurcation and non-bifurcation lesions treated with one or more BioMatrix™ or BioMatrix Flex™ drug-eluting stents (BES). These stents have an abluminal biodegradable polymer coating that releases Biolimus A9 and provide complete coverage of the ostium of the side branch, while minimizing the length of the crushed stent. Data about outcomes for this technique are limited.

Methods: A total of 504 patients had PCI of at least one bifurcation lesion, 4968 patients were in the non-bifurcation subgroup. The primary endpoint was Major Adverse Cardiovascular Events (MACE) defined as a composite of cardiac death, myocardial infarction (MI), and clinically-indexed target vessel revascularization (ci-TVR) at 12 months. Secondary endpoints were MACE at 30 days, 6 months, 2 years, and 3 stent thrombosis (ST), major bleeding (MB) and total revascularization rates at 30 days, 6 months, 12 months, 2 years and 3 years. Dual anti-platelet therapy (DAPT) treatment was mandatory for 6 months and recommended up to 12 months.

Results: Clinical follow-up at 2 years was obtained in 95.2% of the bifurcation subgroup and 93.7% of the non-bifurcation subgroup. DAPT compliance at 2 years was 90.9% vs. 30.5% (p=NS). A single stent strategy was employed in 79.9% of patients. MACE rates at 2 years were 10.9% vs. 6.4% (p<0.001) in the bifurcation and non-bifurcation groups, respectively. This difference was driven principally by MI (4.7% vs. 2.2%, p<0.001) and ci-TVR (8.1% vs. 3.9%, p=0.001) with no difference in cardiac death (1.2% vs. 1.5%, p>0.50). Both peri-procedural (1.6% vs. 0.4%, p=0.002) and spontaneous MB (2.3% vs. 1.1%, p=0.02) were repeat procedure of revascularization. Angiographic restenosis was documented in 8% (13/160 patients) and was located at the distal side branch in all of the cases.

Conclusions: Our results suggest that the treatment of bifurcation lesions by means of mini-crush stenting technique is associated with excellent immediate success and provides good angiographic and clinical outcomes at 1-year in a high-risk patients population.
Comparison of Effectiveness of Sirolimus Eluting and Paclitaxel Eluting Dedicated Coronary Bifurcation Stents – Results from Bulgarian Bifurcation Optimal Stenting Strategy with Dedicated Coronary Bifurcation Stent (Bul – BIOSS) Registry

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Background: The coronary bifurcation lesions are still problematic issue in interventional cardiology and their occurrence is a marker of increased procedural and long-term risk. The aim of present study was to compare clinical effectiveness and safety of newest version of BIOSS stent – BIOSS Lim, in comparison with historical version, covered with paclitaxel, BIOSS Expert.

Methods: From September 2009, all patients with coronary bifurcation lesions and 26 with BIOSS Expert (paclitaxel-eluting) and 26 with BIOSS (sirolimus eluting) were included in prospective registry. All patients had clinical examination at 30 days and every 3 months thereafter were contacted by phone call. The patients were excluded if they had ST-segment elevation myocardial infarction (STEMI) or recent (10 days) revascularization. From September 2009, all patients with coronary bifurcation lesions deemed appropriate for implantation of dedicated bifurcation stent BIOSS (Bifurcation Optimization Stent System, Balton, Poland) were included in prospective registry. The mean age was 64 and every 3 months thereafter were contacted by phone call.

Results: A total of 1,777 patients were enrolled, among these 826 (46.5%) patients were managed by MT, 776 (43.7%) by PCI and the last 175 (9.8%) were referred to CABG. At one year, patients undergoing successful PCI showed lower rate of MACCE and cardiovascular death in comparison with patients treated with MT and CABG (2.6% vs 8.2% and vs 6.9%, p < 0.001 and p < 0.01, and 1.4% vs 4.7% and vs 6.3%, p < 0.001 and p < 0.001 respectively). After PSM analysis patients treated with PCI showed lower incidence of death, acute myocardial infarction and re-hospitalization rate in comparison with MT (4.4% vs 1.5% p < 0.001, 2.9% vs 1.1% p = 0.03 and 4.4% vs 2.3% p = 0.04 respectively).

Conclusions: The present study provides current data on prevalence, characteristics and management of CTO patients. More importantly, our data showed as percutaneous revascularization of a CTO leads to a significantly improved survival rate and a reduction in MACCE at 1 year follow-up in comparison with MT and/or CABG management.