Multivessel Chronic Total Occlusion Outcomes Can Be Different with Single Vessel Chronic Total Occlusion?

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Background: Chronic total occlusion (CTO) intervention is still challenging because of the limited procedural success rate and higher recurrence. It is not clear whether the angiographic and clinical outcomes may differ between patients (pts) with single vessel CTO (SV-CTO) and multivessel CTO (MV-CTO).

Methods: A total of 238 consecutive pts underwent CTO intervention were divided according to the number of target CTO vessels (SV-CTO: n=220 pts, MV-CTO: n=18 pts). Six-month angiographic and 24-month clinical outcomes were compared between the two groups.

Results: The baseline clinical characteristics were balanced between the two groups except that incidence of myocardial infarction (MI) was lower in the MV-CTO group. The overall procedural success rate was lower in the MV-CTO group. The overall procedural success rate was lower in the MV-CTO group.

Conclusions: Baseline characteristics were worse and the procedural success rate was lower in the MV-CTO group. However, once the CTO lesion was successfully recanalized, the safety profiles, complications, mid-term angiographic and clinical outcomes up to 24 months were similar between the two groups.

<p>| Table: Six-month clinical outcomes |</p>
<table>
<thead>
<tr>
<th>Variables, N (%)</th>
<th>Non-CRI (n=212 patients)</th>
<th>CRI (n=19 patients)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>5 (2.35)</td>
<td>1 (4.54)</td>
<td>0.537</td>
</tr>
<tr>
<td>Cardiac Death</td>
<td>1 (0.47)</td>
<td>1 (4.54)</td>
<td>0.048</td>
</tr>
<tr>
<td>Non-cardiac Death</td>
<td>11 (4.1)</td>
<td>0 (0)</td>
<td>0.374</td>
</tr>
<tr>
<td>Any MI</td>
<td>1 (0.47)</td>
<td>2 (9.99)</td>
<td>0.001</td>
</tr>
<tr>
<td>Any Q MI</td>
<td>1 (0.47)</td>
<td>2 (9.99)</td>
<td>0.001</td>
</tr>
<tr>
<td>TLR</td>
<td>14 (6.60)</td>
<td>3 (13.6)</td>
<td>0.226</td>
</tr>
<tr>
<td>TVR</td>
<td>20 (9.43)</td>
<td>3 (13.6)</td>
<td>0.599</td>
</tr>
<tr>
<td>All MACE</td>
<td>29 (13.6)</td>
<td>4 (18.1)</td>
<td>0.564</td>
</tr>
<tr>
<td>TLR MACE</td>
<td>35 (16.0)</td>
<td>4 (18.1)</td>
<td>0.009</td>
</tr>
<tr>
<td>TVR MACE</td>
<td>25 (11.7)</td>
<td>4 (18.1)</td>
<td>0.387</td>
</tr>
</tbody>
</table>

Use Of Impella® In Complex High Risk Percutaneous Coronary Intervention

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Background: IMPELLA® is a new vascular micro-axial blood pump with a flow of 2.5 L/min. It allows the unloading of the left ventricle.

Methods: 11 consecutive male patients (mean age 65±7 years), with coronary artery disease (9 with three vessels disease, 2 with left main stenosis and two coronary vessels disease, 5 of them with last remaining vessel) and severe left ventricular dysfunction (mean EF 24±4%) were enrolled. All were poor surgical candidates because of severe comorbidities: diabetes 63%, renal insufficiency on dialysis 27%, severe respiratory insufficiency 18% Coronary artery lesions were 70% type C and 30% type B2. All these patients underwent high-risk PCI with Impella support. Cardiac index (CI), pulmonary wedge pressure (PWP) and derived parameters were monitored by Swan-Ganz Catheter, while LVEF was measured from TEE.

Results: Success rate was 100% without any device-related adverse event. The average time of IMPELLA® support was 42±16 min. No pts needed pharmacologic inotropic support. During IMPELLA® there was a significant improvement of CI (from 2.15±0.8 l/min/m² to 2.83±0.3 l/min/m², p<0.01), stroke volume (from 37.2±15 ml to 49.6±11 ml, p<0.01), mean blood pressure from 55±8 mmHg to 64±7 mmHg (p<0.001) while PWP pulmonary vascular resistances significantly decreased (from 24.8±11 mmHg to 20.7±6 mmHg, and 723±146 dyncem/cm-5 to 620±93 dyncem/cm-5, p<0.01).

Mean coronary occlusion time during IMPELLA® support was 184±18 sec.

Conclusion: Left Ventricle Unloading with Impella during complex PCI in pts with severe left ventricular dysfunction is able to improve hemodynamic basal condition, and to maintain it during prolonged coronary occlusion.
Two-Year Outcomes Following Platinum Chromium Everolimus-Eluting Stent Implantation in Small Vessel Lesions in Japan

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Background: Small vessel diameter is associated with increased restenosis rates and adverse outcomes following coronary stenting. The PLATINUM Japan Small Vessel multicenter study specifically assessed small vessel stenting in Japanese patients treated with the PROMUS Element everolimus-eluting stent (Boston Scientific, Natick, MA). Follow-up beyond 1 year has not been reported previously.

Methods: Patients with a single de novo target lesion ≥28 mm long and ≥2.5 to <2.50 mm in diameter were eligible for treatment with a 2.25 mm diameter PROMUS Element stent.

Results: A total of 60 patients were enrolled at 14 clinical sites; 32 patients were randomized to receive routine angiography following the 1-year clinical follow-up (angiography was completed in 29 patients). Patients were 69.2±9.8 years of age, 68.3% male, and 36.7% had medically treated diabetes. Average baseline reference vessel diameter was 2.02±0.26 mm. Technical success and procedural success were both 100% (60/60). Post-dilation was used in 70.0% with a 16.6 atm average pressure. Dual antiplatelet treatment was used in 78.3% of patients at 2 years post-procedure. Two-year clinical follow-up is complete in 100% of patients. Through 365 days post-procedure, there were no major adverse cardiac events. In-stent late loss was 0.18±0.30 mm in the angiographic subset. Following angiographic assessments (366-396 days post-procedure) target lesion revascularization (TLR) occurred in 2 patients (including 1 patient in the angiographic subset); there were no additional TLRs through the 2-year follow-up. Target vessel revascularization outside the target lesion occurred in 3 patients through the 2-year follow-up. One patient (1.7%) experienced a non-Q-wave myocardial infarction (MI) in the target vessel 413 days post-procedure. There were no Q-wave MIs or stent thromboses through 2 years.

Conclusion: The results support the safety and efficacy of the PROMUS Element 2.25 mm stent in Japanese patients.

Long term Outcomes of Patients Treated With The Paclitaxel- Versus The Everolimus -eluting Stents in a Consecutive Cohort of Patients at a Tertiary Medical Center

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Background: In this study we compare the outcomes of the paclitaxel-eluting stent (PES) versus the everolimus-eluting stent (EES) treated patients at a tertiary medical center and up to two years follow up.

Methods: Unselected consecutive patients were retrospectively recruited following stenting with PES (159 patients) or EES (189 patients). The first 100 consecutive patients in each cohort underwent syntax scoring. The primary endpoint of the study was target lesion failure (TLF) defined as the combined endpoint of cardiac death, non fatal myocardial infarction or target lesion revascularization (TLR). Secondary endpoints included target vessel failure (TVF), target lesion revascularization (TLR), target vessel failure (TVF), acute stent thrombosis (ST), total death, cardiac death, and non fatal myocardial infarction (MI). Analysis was performed with patient number as the denominator.

Results: The syntax scores in the 2 groups were similar (20.3±13.9 vs 20.4±13.8, p=0.97). Patients treated with the PES stent had less congestive heart failure and restenotic lesions, but a higher prevalence of longer lesions, non left main bifurcations, and restenotic lesions, but a higher prevalence of longer lesions, non left main bifurcations, and non-fatal myocardial infarctions (p=0.059). The secondary unadjusted endpoints for PES vs EES respectively were: TVF 36.7% vs 28.0% (p=0.106), TVR 35.7% vs 26.5% (p=0.079), definite and probable ST 1.2% vs 1.6%, non fatal MI 4.5% vs 4.2%, and cardiac mortality 5.6% vs 3.2%. A propensity matched analysis showed no significant difference in the primary endpoint of TLF (28.6%±16 vs 24.6%±14, p=0.67) in PES vs EES respectively.

Conclusion: Using unadjusted analysis, EES had lower TLF than PES in a broad cohort of patients and lesions undergoing PCI. However, when baseline differences between the 2 cohorts were adjusted for, similar efficacy between the PES and EES was seen at 2 years follow-up.

Drug Eluting Balloon for De-Novo, In stent Restenosis and Bifurcation Lesions of Coronary Artery Disease: Short and Intermediate Results, Prospective Registry

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Objectives: This prospective study designed to assess the safety and short and intermediate term efficacy of drug eluting balloon (DEB) in the treatment of de-novo, in-stent restenosis and bifurcation coronary artery disease (CAD) in Saudi Arabian Population.

Methods: Total of 64 patients so far enrolled in a prospective registry using a Be Brown Paclitaxel-coated balloons (DEB) at our hospital, 61 patients were studied for short and intermediate term outcomes (6 to 12 months). All patients with symptomatic CAD requiring percutaneous intervention (PCI) with DEB were included. Clinical follow-up was conducted at 6 to 12 months. Coronary angiography (CAG) or SPECT Scan were done in 70% of patients during this period. Primary outcome was a composite of target vessel revascularization and mortality.

Results: Procedural success was achieved in 96% of the patients. Two patients were failed due to failed DEB to cross heavily calcified vessel. Mean age was 60.8±30 years. 47 patients (77%) presented with stable angina and 9 patients 15% with acute coronary