stent (BES) versus sirolimus eluting permanent polymer stent (SES) in 81 chronic total occlusions treated in the all-comers LEADERS trial which included 1,707 patients. Results: There were no major baseline clinical difference between patient with and without CTOs, except for slightly higher number of lesions and Syntax score in the CTO group and higher number of patients presenting with STEMI in the non-CTO group. Overall MACE rate at three years tended to be higher in the CTO group (24.7% vs 16.6%, HR 1.54; p=0.061). Patients with CTOs treated with BES (n=45) tended to have lower MACE rate than patients treated with SES (n=36) (15.6% vs 36.1%; HR 0.46; p=0.07) (Table). Mortality rate was 0% in the BES treated group and 11.1% in the SES treated group. There were no differences in the MI rates but TVR tended to be lower in the BES group (8.9% vs 19.4%; HR 0.44; p=0.19).

Three year outcomes of chronic total occlusion treatment with biolimus eluting biodegradable polymer stent versus sirolimus eluting permanent polymer stent in the LEADERS all-comers trial.

BES vs SES: 7(35.3%) vs 16(32.7%); p=0.68

CTO stenting:

BES vs SES: 8(44.4%) vs 16(32.7%); p=0.18

MI at 3yrs:

BES: 2(11.1%) vs 11(61.1%); p=0.005

Clinical TVR at 3yrs:

BES: 0(0.0%) vs 1(5.5%); p=0.37

Data presented as N(%). BES: biolimus eluting biodegradable polymer stent; SES: sirolimus eluting permanent polymer stent; MACE: composite endpoint of cardiac death, myocardial infarction (MI), and clinically indicated target vessel revascularization within 9 months.

Conclusion: Three year follow up in patients with CTOs treated in the LEADERS trial shows that treatment with BES tends to reduce MACE, mortality and TVR rate.

TCT-276

New Generation Drug Eluting Stent Nobori: 2 Year Clinical Outcome of Patients with Chronic Total Occlusion

Bernard Chevalier1, Dragun Sagic2, Carlo Trani3, Damras Tresukosol4, Peep Brunberg5, Kim, Chang Gyu Park, Hong Seog Seo, Dong Joo Oh Na, Seong Woo Han, Cheol Ung Choi, Hong Euy Lim, Jin Won Kim, Eung Ju Kim, Amro Elnagar, Seung Woon Rha, Byoung Geol Choi, Sung Il Im, SunWon Kim, Jin Yong Kim, Chang Gun Park, Hong Seog Seo, Dong Joo Oh

Background: Successful recalization of lesions totally occluded for more than 3 months (CTO) remains a challenging and controversial area of interventional cardiology. We evaluated efficacy and long-term safety after treatment of CTO lesions with Nobori drug eluting stent (DES), a new generation drug eluting stent coated only abluminally with a biodegradable polymer and Biolimus A9. Once the polymer is degraded and the drug completely released, this stent is expected to behave similarly to BMS.

Methods: A large all comers study is conducted in 125 centers across Europe and Asia. Primary endpoint of the study is target lesion failure (TLF), a composite of cardiac death, target vessel related MI, target lesion revascularization (TLR) at 24 months. Data are entered in an electronic database with extensive on-line and on-site monitoring. Adverse events are adjudicated by an independent clinical event committee and a corelab analyzes all angiograms. The pre-specified subgroup with at least one CTO lesion treated included 98 patients.

Results: CTO patients were 62.1±10.9 years old, 85.6% were males and 63.9% presented with stable angina; 19.6% had silent ischemia. The number of diseased vessels and lesions per patient was 1.9±0.8 and 2.2±1.2 respectively. Per patient, 1.5±0.7 highly complex lesions (73% type C) were treated by implantation of 2.0±1.3 study stents in average. QCA pre-procedure for all lesions per patient (including not occluded) measured RVD of 2.4±0.7mm, MLD 0.3±0.4mm and diameter stenosis 87.7±17.9%. QCA values post-procedure were: RVD 2.9±0.6mm, DS 14.4±6.6% and acute gain 2.2±0.5mm. At 2 year follow-up, 3 patients died (5.1%), 1 suffered MI (1.0%) and 3 underwent TLR (3.1%); 90.2% of patients were angina free. MACE (major adverse cardiac events) and TLF rates were 6.2% and 5.2% respectively and there were no stent thromboses.

Conclusion: Two year outcomes are proving Nobori stent to be safe and effective when used to treat totally occluded lesions. Particularly appealing is the absence of stent thrombosis up to 2 years in spite of multiple overlapping stents.

TCT-277

Effect of Coronary Revascularization for Chronic Total Occlusions on Long-Term Prognosis: Analysis of 585 Patients

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Background: The clinical benefit of chronic total occlusions (CTO) recalization is still being discussed. The aim of our study is to analyse long-term clinical results of CTO recalization with drug-eluting stent implantation.

Methods: Patients were divided into groups: main group A consisted of patients with successful revascularization (n=321, mean age 58±9.7 years) (compared with patients/control group B), who received medical therapy (n=264, mean age 61±10 years). In the control group revascularization attempt was either unsuccessful (n=57, 15.1% of cases) or was not carried out, so patients in group B were receiving medication at the same time period. The average follow-up was 3.8±3.6 years. Predictors of survival without coronary events (angina/myocardial infarction/coronary death) and chronic heart failure reoccurrence were analyzed employing Cox proportional hazards model.

Results: After a period of 3 years of follow-up, the mortality rate and frequency of MI did not differ between groups. The frequency of angina and chronic heart failure reoccurrence was lower in the group with successful revascularization of CTO (p<0.05). According to the functional tests, after a period of 3 years of follow-up, the frequency of positive exercise tolerance tests was higher in group B (p<0.05). Exercise tolerance was better in group A. Patients in group A required less antianginal therapy (p<0.05). Analysis of coronary events predictors in both groups revealed that the main factors negatively affecting the long-term prognosis are: patient’s age over 65 years and diabetes mellitus (p<0.006). The left anterior descending artery lesion (p<0.001) is the main factor that increases the risk of heart failure progression in the long run in group B. 3-year survival without coronary events was higher in group A. Survival without progression of chronic heart failure by the end of the 3-year observation period was also higher in group A.

Conclusion: Revascularization of CTO of coronary arteries is effective and feasible. Endovascular recalization of CTO with drug-eluting stent implantation can improve the long-term prognosis.

TCT-278

Short- and long-term clinical outcomes after percutaneous coronary intervention in patients with chronic total occlusions: results from a multicenter, prospective study

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Background: The long-term clinical results after stenting of coronary CTO has not been fully elucidated.

Methods: Between January 1, 2001 and January 12, 2008, 594 patients with 702 CTO lesions treated by PCI were studied. The primary endpoint was the occurrence of major coronary adverse events (MACE), including cardiac death, myocardial infarction (MI), and target vessel revascularization (TVR). The secondary endpoints included rates of perforation and stent thrombosis (ST).

Results: Successful recanalization was achieved in 85.5%. Mean angiographic and clinical follow-up of 1000.68 days was obtained in 78.6% and 96.7% of cases, respectively. At 1 year, the increment of MI, cardiac death, TVR, MACE and definite ST was 1.0%, 0.9%, 3.9%, 5.9% and 0.5%, respectively. The differences in in-hospital perforation and stent thrombosis (ST).

Conclusion: Successful recalization of CTO was associated with improved clinical outcomes. Incomplete recalization was associated with significant increase in cardiac mortality and/or need for subsequent CABG.

TCT-279

Impact of Lesion Length on Chronic Total Occlusion Intervention Outcomes

Amro Elnagar, Seung Woon Rha, Byoung Geol Choi, Sung Il Im, Sun Won Kim, Jin Oh Na, Seong Wool Han, Cheol Ung Choi, Hong Euy Lim, Jin Won Kim, Eung Ju Kim, Chang Gun Park, Hong Seog Seo, Dong Joo Oh

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Background: Chronic total occlusion (CTO) intervention is still challenging because of the limited procedural success rate and higher target failure. The aim of this study is to evaluate the impact of lesion length on procedural and clinical outcomes.

Methods: A total of 250 consecutive patients (pts) who underwent percutaneous coronary intervention (PCI) with drug-eluting stents (DES) for CTOs were enrolled for this study. Study population was divided into short lesion group (less than 30 mm, n=123),

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and diffuse long lesion group (more than 30 mm, n=127).

Results: Baseline clinical characteristics & procedure details were similar between the two groups except with RE and diffuse long lesions were more smokers (59.1% vs. 46.3%, p < 0.044). In long lesion group, use of retrograde approach, number of wires, microcatheter, amount of dye and total fluoroscopy time, were higher. Except for perforation, procedure related complications were similar between the two groups. At one year, diffuse long lesion group showed worse clinical outcomes including higher incidence of target lesions revascularization (TLR), target vessel revascularization (TVR) and TLR-major adverse cardiac events (MACE, Table).

Table. Procedure details, related complications and one year clinical outcomes

<table>
<thead>
<tr>
<th>Procedure details</th>
<th>Shorter lesion (n=113 pts)</th>
<th>Diffuse Long lesion (n=127 pts)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure details:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POBA only</td>
<td>10 (8.7)</td>
<td>1 (0.8)</td>
<td>0.005</td>
</tr>
<tr>
<td>CAST</td>
<td>2 (1.8)</td>
<td>2 (1.6)</td>
<td>0.67</td>
</tr>
<tr>
<td>Retrograde approach</td>
<td>0 (0.0)</td>
<td>4 (3.2)</td>
<td>0.047</td>
</tr>
<tr>
<td>Numbers of wire</td>
<td>2.02±1.16</td>
<td>2.2±1.66</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Total fluoroscopy time</td>
<td>61.95±14.41</td>
<td>96.25±69.8</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Amount of dye</td>
<td>383.33±193.2</td>
<td>447.51±45.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Microcather</td>
<td>46 (37.4)</td>
<td>70 (55.6)</td>
<td>0.004</td>
</tr>
<tr>
<td>Double wire</td>
<td>10 (8.7)</td>
<td>19 (15.1)</td>
<td>0.087</td>
</tr>
<tr>
<td>Procedure success</td>
<td>122 (92.9)</td>
<td>126 (99.2)</td>
<td>0.986</td>
</tr>
</tbody>
</table>

Methods: Related complications:

- Dissection
- No recoil
- Perforation
- Acute thrombosis
- Macrodilution
- Mortality

Conclusion: Diffuse long CTO lesions needed more complex procedure techniques and devices. Further, those were associated with worse clinical outcomes at one year follow up as compared with shorter CTO lesions.

TCT-281

Three Different Strategies for Restenosis With Stent Fracture After Sirolimus-eluting Stent Implantation: POBA vs. DES vs. DEB

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Background: Stent fracture is related to restenosis after drug-eluting stent (DES) implantation. As percutaneous coronary intervention (PCI) cases for complex lesions increase, those for stent fracture-related restenosis could also increase. However, the optimal PCI strategy for such restenosis remains unclear. We evaluated the results of PCI with plain old balloon angioplasty (POBA), DES, and drug-eluting balloon (DEB, ScQunt Please) for restenosis with stent fracture after sirolimus-eluting stent (SES) implantation.

Methods: From November 2002 to October 2010, 5334 patients with 6299 lesions underwent SES implantation successfully. Of these lesions, 5298 were angiographically followed after 6 to 8 months (midterm FU) and 3981 were followed at 12 months after midterm FU (late FU). Stent fracture occurred at 294 lesions (stent fracture rate, 5.5%) and stent fracture with restenosis occurred at 123 lesions. Of these 123 lesions, target lesion revascularization (TLR) by PCI with POBA, DES, or DEB was performed on the DEB cases.

Results: No differences were observed in hospital outcome.

Conclusion: Restenting with DES could be an acceptable treatment for restenosis with stent fracture after SES implantation.

TCT-282

Practice of Treatment of In-Stent-Stenosis in PCI for ACS in Clinical Practice in Europe: Results of the EHJS PCI Registry

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Background: The number of PCI has been increasing during the last years in Europe. Little is known about the characteristics of interventional treatment of in-stent-restenosis (ISR) in clinical practice in Europe.

Methods: Between 2005 and 2008, 47,407 consecutive patients undergoing PCI were enrolled into the PCI-Registry of the Euro Heart Survey Programme to document patient characteristics, PCI details and hospital complications in different PCI indications. We examined the differences between treatment of ISR versus de novo-lesions in patients undergoing PCI for ACS in clinical practice.

Results: A total of 14,011 patients underwent PCI for ACS, in 789 (5.6%) the treated culprit lesion was an ISR. Patients with ISR more often were male; more often had diabetes, prior MI and CABG than patients undergoing PCI in de-novo lesions. No differences were found in the use of anti-thrombotic drugs despite a more frequent use of GP IIb/IIIa receptor blockers even in patients with de-novo lesions rather than in ISR. In ISR, 70.1% of patients did receive a stent, of which 64.6% were DES. The rate of stenting in de-novo lesions was 94.8%, with a relative proportion of 38.0% of DES. No differences were observed in hospital outcome.