regression) almost exclusively due to increased risk of periprocedural myocardial infarction (MI) (1.6% vs. 0.2%; p=0.050), while the rates of cardiac death, spontaneous MI, and target lesion revascularization did not differ significantly between the two groups.

Conclusion: The adjunctive use of IVUS during PCI in the EXCELLENT trial was associated with more stents implanted, longer stenting, and bigger stenting. There were no significant advantages of IVUS guidance regarding clinical outcome, but rather a significant increase in periprocedural enzyme elevation, reflecting the more aggressive procedures performed with IVUS guidance.

TCT-105

Impact of Tissue Prolapse on Short- and Long-Term Clinical Outcomes after Stent Implantation in Patients with Acute Myocardial Infarction: An Intravascular Ultrasound Analysis

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Background: The impact of tissue prolapse (TP) on clinical outcomes after stent implantation is still not well known. We used intravascular ultrasound (IVUS) to evaluate the association of TP with short- and long-term clinical outcomes after stent implantation in 418 acute myocardial infarction (AMI) patients (155 ST segment elevation and 263 non-ST segment elevation MI).

Methods: TP was defined as tissue extrusion through the stent strut at post-stenting. We evaluated the incidences of stent thrombosis, no-reflow, and long-term clinical outcomes.

Results: After stenting, TP was detected in 34% without difference according to the stent types. Acute and subacute stent thromboses occurred more frequently in patients with TP compared with those without TP (3.5% vs. 0.7%, p=0.035, and 4.2% vs. 0.7%, p=0.013, respectively). However, no significant difference was observed in the incidence of late stent thrombosis between both groups. No-reflow was developed more frequently in patients with TP compared with those without TP (25.4% vs. 9.8%, p=0.001). Creatine kinase-MB and cardiac specific troponin-I were elevated more with TP compared with those without TP (3.5% vs. 0.7%, p=0.035, and 4.2% vs. 0.7%, p=0.001). This was accompanied by a decrease in the strut-free ostial area (BL: 1.89 ± 0.8 at baseline to 1.4 ± 1.21 mm², p=0.7), and the number of components was similar between baseline and 6 months following implantation (BL: 2.07±1.1, 6M: 1.93±1.0, p=0.16). At 12 months, 3D OCT showed that membranous tissue covers some struts, which was translated into a significant decrease in the number of compartments from 2.1 ± 0.8 at baseline to 1.4 ± 0.85 at 12 months (p=0.001). This was accompanied by a decrease in the strut-free ostial area (BL: 1.89 ± 1.35 mm² vs. 12M: 0.76 ± 1.98 mm²) without clinical implication.

Conclusion: The 3-D analysis showed that the ostial area free of struts remained unchanged at 6 months compared to baseline, while it was reduced at 12 months due to growing tissue covering the struts. The results of 2-year imaging will be presented at the time of meeting.

TCT-106

Fate of Side Branches at 6, 12 and 24 months after implantation of Bioresorbable Scaffolds: Assessment with 3-dimensional optical coherence tomography

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Background: Fully bioresorbable everolimus-eluting vascular scaffolds (ABSORB, Abbott Vascular, Santa Clara, USA) are a novel approach to treat coronary stenosis. However the outcome of jailed side branch with ABSORB has not been investigated yet. The purpose of this study is to assess the fate of struts covering the ostium of side branches at 6, 12 and 24 months after implantation of the BVS with three-dimensional (3-D) optical coherence tomography (OCT) reconstruction.

Methods: The ABSORB Cohort B trial is a single-arm trial to assess the safety and performance of the BVS. The first 45 patients (Group 1) underwent invasive imaging at 6 months and at 2 years, while the remained 56 patients (Group 2) underwent imaging follow-up at 1 and will repeat it at 3 years. FD-OCT imaging (C7XR system) are a novel approach to treat coronary stenosis. However the outcome of jailed side branch with ABSORB has not been investigated yet. The purpose of this study is to assess the fate of struts covering the ostium of side branches at 6, 12 and 24 months after implantation of the BVS with three-dimensional (3-D) optical coherence tomography (OCT) reconstruction.

Results: Following successful stenting in 697 patients with acute coronary syndromes (ACS), three-vascular grayscale and virtual histology (VH) intravascular ultrasound (IVUS) was performed. Based on histologic validation, an independent core lab identified calcified nodule as irregular and convex plaque shape. Patients were followed for three years.

Results: Overall, 314 calcified nodules were detected in 250 of 1573 analyzable arteries (185 of 623 patients). Thus, the prevalence of calcified nodules was 17% per artery and 30% per patient. The location of the calcified nodules were <40mm of the ostium of the coronary artery in 85% of LAD and 86% of LCX while calcified nodules within the RCA were evenly and more distally distributed. Patients with calcified nodules were significantly older, had more plaque volume (IVUS), and more thick-capped fibroatheroma (VH-IVUS), but fewer non-culprit lesion major adverse events follow on.

Conclusion: Calcified nodules in untreated non-culprit coronary segments in patients with ACS are more prevalent than previously recognized; their distribution mirrors the origin of most thrombotic events. However, they are unlikely to cause events during 3-year follow-up.

TCT-108

Intraoperative Shuntography for Immediate Control and Improvement of Results of Coronary Bypass Surgery

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Background: To analyze our experience with intraoperative shuntography for immediate evaluation of coronary shunts condition in patients after CABG.

Analysis from PROSPECT

Prevalence, Distribution, Predictors, and Outcomes of Patients with Calcified Nodules in Native Coronary Arteries: A Three-Vessel Intravascular Ultrasound Analysis from PROSPECT

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Background: Pathologic studies suggest that calcified coronary nodules account for 2-7% of thrombotic events. The frequency, distribution, predictors, and outcomes of calcified nodules detected in vivo have never been described.

Methods: Following successful stenting in 697 patients with acute coronary syndromes (ACS), three-vascular grayscale and virtual histology (VH) intravascular ultrasound (IVUS) was performed. Based on histologic validation, an independent core lab identified calcified nodule as irregular and convex plaque shape. Patients were followed for three years.

Results: Overall, 314 calcified nodules were detected in 250 of 1573 analyzable arteries (185 of 623 patients). Thus, the prevalence of calcified nodules was 17% per artery and 30% per patient. The location of the calcified nodules were <40mm of the ostium of the coronary artery in 85% of LAD and 86% of LCX while calcified nodules within the RCA were evenly and more distally distributed. Patients with calcified nodules were significantly older, had more plaque volume (IVUS), and more thick-capped fibroatheroma (VH-IVUS), but fewer non-culprit lesion major adverse events follow on.

Table. Clinical Characteristics, imaging parameters and clinical event rates comparing patients with vs without calcified nodules

<table>
<thead>
<tr>
<th>Variable</th>
<th>Calcified nodule (n=250)</th>
<th>No calcified nodule (n=1323)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>61 (53.5, 66.1)</td>
<td>57.2 (51.6, 66.6)</td>
<td>0.005</td>
</tr>
<tr>
<td># of shunt organs</td>
<td>2.0 (1.0, 3.0)</td>
<td>2.0 (1.0, 3.0)</td>
<td>1.0</td>
</tr>
<tr>
<td>p of shunt organs</td>
<td>2.0 (1.0, 3.0)</td>
<td>2.0 (1.0, 3.0)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% P value (%)</td>
<td>32.2 (48.6, 52.8)</td>
<td>45.4 (44.4, 53.4)</td>
<td>0.002</td>
</tr>
<tr>
<td>% NC value (%)</td>
<td>57.2 (40.0, 75.2)</td>
<td>54.5 (50.0, 62.3)</td>
<td>0.08</td>
</tr>
<tr>
<td>% BVS failure %</td>
<td>51.2 (47.3)</td>
<td>42.5 (42.5)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

1: mean, 2: median, 3: 95% confidence interval, 4: all DC = dense calcium; NC = necrotic core

Conclusion: Calcified nodules in untreated non-culprit coronary segments in patients with ACS are more prevalent than previously recognized; their distribution mirrors the origin of most thrombotic events. However, they are unlikely to cause events during 3-year follow-up.
from 41 to 78 years (mean 59.7±4.3). Mean number of shunts per patient was 2.5. All 2707 shunts were distributed as follows: 977 (36%) aortoarterial shunts using internal mammary artery to the system of the left coronary artery (LAD and DB); 998 (37%) autovenous shunts to the system of the left coronary artery (CxSB, OMB, Intermedia, DB, LAD); 732 (27%) autovenous shunts to the system of the right coronary artery. Thus, aortoarterial shunts were used in 36% and autovenous shunts – in 64% of cases. In 572 (62%) cases the operations were performed under extracorporeal circulation, and in 412 (38%) cases – on the beating heart.

Results: The problems in shunts or in shunted arteries were revealed in 289 (26.6%) patients, hence, the rate of complications as calculated for the totality of shunts is 10.7%. In 153 (53%) cases the stenoses were revealed in the site of distal anastomosis or the native artery beyond it the degree of stenosis varied from 50 to 90%. In 56 (19%) cases the stenoses of mammaro-coronary shunt were revealed, in 40 (14%) – venous shunt occlusions, in 24 (8%) – native artery occlusions and in 16 (6%) – mammaro-coronary shunt occlusions. In 100 (34.6%) repeated interventions with subsequent control shuntography were performed: in 9 (9%) the revealed lesion was corrected by stenting, in 91 (91%) cases surgery was applied.

Conclusion: Intraoperative shuntography can reveal certain technical problems related to immediate shunts performance, which can lead to early angina recurrence and shunts occlusion in early postoperative period. Intraoperative solution of these problems contributes to the improvement of immediate as well as of long-term results of aortocoronary bypass surgery.

TCT-109
Arterial Response to Sirolimus Eluting Stents with Bioabsorbable Polymer: First IVUS Report from the DESSOLVE-I FIM Trial
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Background: The MiStent consists of a cobalt chromium stent with a PLGA bioabsorbable polymer and sirolimus, enabling complete drug elution and polymer absorption within 90 days. DESSOLVE-I is a single-arm, multicenter, first-in-man trial, enrolling 30 patients with follow-up at 4, 6, or 8 months (10 patients each) and 18 months (all). This study aimed to evaluate initial arterial response to MiStent in de novo human coronary lesions.

Methods: In the 4-month cohort, volume index (VI: volume/length) was serially obtained in 10 patients. Neointimal obstruction was calculated as neointima/stent volume. Cross-sectional narrowing (CSN) was defined as neointima/stent area. Gross coverage of struts was assessed as neointima-free frame ratio (number of frames without neointima/total frame number).

Results: No significant changes were observed in vessel, plaque, or lumen VI during follow-up. Neointima at 4 months was minimum, and no case showed significant lumen encroachment. Neointima-free frame ratio was 20.2±16.6% (Cypher: 64±26% and Xience: 39±27% at 8-9 months in historical database), indicating the large part of the MiStent covered by neointima at 4 months. One case had late-acquired incomplete stent apposition. There was no target lesion revascularization, cardiac death or stent thrombosis.

Baseline 4 months P value
Vessel VI (mm²/mm) 14.1±4.6 13.7±3.6 0.52
Peri-stent plaque VI (mm²/mm) 7.3±3.0 6.8±2.5 0.38
Lumen VI (mm²) 6.8±1.7 6.8±1.3 0.16
Minimum lumen area (mm²) 6.0±1.5 5.5±1.1 0.12
Neointimal obstruction (%) NA 5.2±3.2 NA
Maximum CSN (%) NA 11.9±4.6 NA
Stents with max CSN>50% (%) NA 0 NA
Neointima-free frame ratio (%) NA 20.1±16.6 NA

* p value for post procedure vs. 4 months

Conclusion: Preliminary IVUS results from the first-in-man trial showed that the MiStent with sirolimus and bioabsorbable polymer had rapid and uniform neointimal coverage with no adverse vessel reaction. Follow-up of 6 and 8-month cohorts are ongoing.

TCT-111
Mirgaine Visual Aura with or without Headache: Association with Right to Left Shunt and Assessment Following Transcutaneous Closure
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Background: R to L shunting, usually caused by a patent foramen ovale (PFO), is associated with migraine headache (MH) with aura. There are patients who present with visual aura but deny headaches. It is unclear whether visual aura without headache is a form of migraine (“visual migraine”) or is due to some other transient neurologic dysfunction. This study assesses the prevalence of right to left (R to L) shunt in patients presenting with visual aura and evaluates if aura resolves following closure of PFO.

Methods: Of 590 patients referred to UCLA for potential PFO related conditions, 225 patients had visual aura with or without MH. Patients were assessed for a R to L shunt with Transcranial Doppler. They were evaluated for the presence of MH and/or visual aura and then divided into three groups: 1) Group A (Aura + MH)- Aura during MH or within 60 minutes of MH; 2) Group B (Aura unrelated to MH)- Aura not during MH or within 60 minutes of MH; 3) Group C (Aura only)- visual aura without MH. The frequency of R to L shunt was compared to a control group of 200 unselected patients referred for diagnostic catheterization, 80 patients (approx. 1/3 per group) underwent PFO closure. Residual MH and visual aura were assessed 12 months after the procedure.

Results: The prevalence of R to L shunt in groups A, B, C and the control group were 96%, 72%, 67% and 18% respectively. The prevalence was similar in groups B vs. C (p=0.66), but higher in group A due to selection bias. When compared to the control group, the frequency of R to L shunt in all three groups was much higher (p<0.0001). 12 months after PFO closure, symptoms of visual aura were completely resolved in 52%, 75% and 80% of patients in groups A, B and C respectively (p=ns).

Conclusion: There is a strong correlation between PFO closure and improvement of aura (with and without MH) suggesting a causative association between the presence of PFO and the aura phenomenon. Since isolated visual aura has a similar prevalence of R to L shunt and responds to the same PFO closure, it is likely similar in pathophysiology to MH with aura.