**TCT-275**

**The Evolution of Thin-Capped Fibroatheroma in Left Main Coronary Artery**

As Assessed by Serial Virtual Histology Intravascular Ultrasound Analysis

<table>
<thead>
<tr>
<th>Baseline</th>
<th>PIT</th>
<th>ThCFa</th>
<th>TCFa</th>
<th>Fibrotic</th>
<th>Fibrocalcific</th>
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</thead>
<tbody>
<tr>
<td>PIT</td>
<td>(n=14)</td>
<td>14</td>
<td></td>
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<tr>
<td>ThCFa</td>
<td>(n=5)</td>
<td>1</td>
<td></td>
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<tr>
<td>TCFa</td>
<td>(n=13)</td>
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<td>10</td>
<td>3</td>
<td>2</td>
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<tr>
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<td>(n=15)</td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Fibrocalcific</td>
<td>(n=4)</td>
<td>3</td>
<td>3</td>
<td>9</td>
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</tr>
</tbody>
</table>

**Results:** Pt age was 57±13 yrs and 20% were diabetics. The incidence of LM-TCFA was 11.2% (56/500), following 16 pts with VH-TCFA at baseline and serial VH-IVUS, distal reference lumen area was 14.6±11.2% (56/500). following 16 pts with VH-TCFA at baseline and serial VH-IVUS, distal reference lumen area was 14.6±11.2% (56/500). EEM remodeling index (lesion/reference EEM) was 1.05±0.83. Only 37.5% (6/16) of VH-TCFA had healed to a minimal lumen area, and average %NC were larger; and VH-TCFA phenotype was more common (60% vs 31%, p=0.005) as was the frequency of VH-TCFA phenotype in the setting of culprit plaque ruptures (72% in RCA vs 29% in LAD-STEMI, p=0.005).

**Conclusions:** Plaque ruptures are not always detected by IVUS in culprit lesions of pts presenting with STEMI, and VH-TCFA phenotype is not always seen in culprit lesions whether or not plaque rupture is detected. Rather, plaque rupture and VH-TCFA phenotype in culprit lesions of STEMI pts appear to depend on location (RCA vs LCA) and vessel size.

**TCT-277**

**High Level of Copeptin in ST elevation Acute Myocardial Infarction patients is associated with In-Hospital Mortality and Plaque Rupture; TAMI-COP study**

**Background:** Copeptin has been known to predict heart failure and cardiovascular death in patients with acute coronary syndrome.

**Methods:** We collected coronary arterial blood samples from the infarct artery during primary percutaneous coronary intervention (PCI) in 80 STEMI pts and 28 controls. We assessed commonly used cardiac biomarkers (CK, CK-MB, troponin-1, CRP) and additionally measured recently introduced biomarkers [Copeptin [C-terminal Provaso-pressin] and N-terminal pro-B-type natriuretic peptide [NT-proBNP]].

**Results:** Pt age was 58±12 yrs and 93% were males. Intravascular ultrasound (IVUS) of culprit lesion in 80 pts showed ruptured plaques in 36 pts. STEMI pts had a higher Copeptin level (265.89±183.10 pmol/L) vs 48.07±16.83 pmol/L in controls, p=0.005. Especially, Copeptin levels were higher in ruptured plaque compared to non-ruptured plaques: 318.83±209.34 pmol/L vs 221.99±151.49 pmol/L, p=0.034. While troponin I, CK-MB, and CRP were not correlated with Copeptin, NT-proBNP was correlated with copeptin (r=0.579, p=0.0003). In hospital death occurred in 7 pts with a high Copeptin level (figure); all were due to cardiogenic shock after primary PCI.

**Conclusions:** Copeptin levels are associated with plaque rupture in STEMI pts and predict mortality after primary PCI.
TCT-278
Two Year Clinical Impact of Postprocedural Incomplete Stent Apposition and Late Acquired Incomplete Stent Apposition After Deployment of Zotarolimus Eluting Stent or Everolimus Eluting Stent
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Background: We already reported the preliminary data for the one year clinical impact of post-procedural incomplete stent apposition (PISA) and late incomplete stent apposition (LISA) in the newer generation of drug eluting stent. The aim of this study was to investigate the clinical impact of LISA and PISA during 24-month clinical follow up.

Methods: We prospectively enrolled 178 patients who underwent percutaneous coronary intervention (PCI) in de novo coronary lesions; stable angina (n=41), unstable angina (n=91), and non-ST segment elevation myocardial infarction (n=46) (63.7±9.4 years, 125 male, 187 lesions). The group was randomly assigned (proportion of 1:2) to everolimus eluting stent (group I, n=65, Xience V, Abbott Vascular, Illinois) or zotarolimus eluting stent (group II, n=122, Endeavor Resolute, Medtronic, MN). Post-PCI and follow up intravascular ultrasound (IVUS, mean 10.2±2.9 months) were performed in all patients. We analyzed 24-month major adverse cardiac events including death, myocardial infarction (MI) and target lesion failure (TLR).

Results: The Post-PCI external elastic membrane (EEM) volume vs follow up EEM volume (group I: 368.0±169.6 mm³ vs 373.6±167.2 mm³, p=NS, group II: 431.0±167.5 vs 440.1±172.0 mm³, p=NS), and post-PCI lumen volume vs follow up lumen volume (group I: 203.0±86.8 vs 201.7±86.0 mm³, p=NS, group II: 239.2±92.7 vs 239.5±92.5 mm³, p=NS) by IVUS were not different. There were three LISAs [1.6%, group I (n=1) vs group II (n=2)] and sixty four PISAs [34.2%, group I (n=24 vs group II (n=40)] that were resolved [12.5%, group I (n=2) vs group II (n=6)]. Post-PCI and follow up volume of PISA was not significantly different in both group I (6.4±5.3 vs 6.3±3.9 mm³, p=NS) and group II (6.4±5.3 vs 6.2±4.3 mm³, p=NS). Both PISA and LISA were not related with cardiac death or MI during 24-month clinical follow up. However, there were four TLRS in PISA subgroup [6.3%, group I (n=0) vs group II (n=4)].

Conclusions: The incidence of LISA was low in both groups. Both PISA and LISA were not related with cardiac death or MI during 24-month clinical follow up. Future long-term follow up study to clarify the clinical course of LISA and PISA would be needed to confirm our results.

TCT-279
Characterization of Plaque Removed by Rotational Atherectomy
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Background: Rotational atherectomy (ROTA) is a safe and effective treatment of severe calcified coronary lesions. It works by differential ablation of the inelastic components of the atherosclerotic plaque, in particular the calcified areas. However this has never been characterized in vivo. New tissue characterization techniques coupled with intracoronary ultrasound (IVUS), like MapCT (BSC, Mn), make this possible.

Methods: We present a prospective study conducted in pts submitted to ROTA under IVUS guidance using a 40 MHz probe with tissue characterization. Plaque morphology and composition was assessed pre and post ROTA. All pts had severely calcified coronary artery disease and an indication for reoblulation. After collection, data was sent to an independent reviewer who was not present during the procedure. Plaque composition was quantified with QIVUS (Medis) according to percentage fibrotic, lipid, necrotic, calcified and unknown components.

Results: 20 lesions with an exact landmark matching between basal and post ROTA were analyzed, after an increment in burr of 0.25-0.50 mm. Luminal area increased on average 0.99 ± 0.82 mm² due to removal of an average 24.5 ± 12.0% of plaque area. Plaque composition analysis showed that most of the removed plaque was fibrotic tissue (56%), followed by calcified (19%) and/or necrotic (18%). Lipid component had little change.

Conclusions: Despite the initial unfavorable effect on coronary reflow, presence of attenuated plaque did not affect acute as well as long-term clinical outcome in patients with ACS, possibly as a result of adjunctive pharmacological or aspiration therapies.