Impact of Chronic Statin Therapy on Development of Glucose Intolerance and New-onset Diabetes Mellitus in Asian Population

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Background: There have been several reports that statin therapy is associated with a slightly higher incidence of new-onset diabetes mellitus (DM) or impaired glucose intolerance (IGT). It is still controversial whether the chronic statin therapy is a risk factor of IGT and new-onset DM, in Asian population.

Methods: We investigated the 13,561 patients (pts) that was HbA1c level < 6.0% and fasting glucose level < 124 mg/dL (statin therapy group = 4016 and control group = 9545).

To adjust potential confounders including age, gender, hypertension, hyperlipidemia, chronic kidney disease, hyper/hypo-thyroidism, lipid profile, beta-blocker, diuretics, a propensity score matched analysis was performed using the logistic regression model. The primary end-point was the cumulative incidence of new-onset DM, IGT, and impaired fasting glucose (IFG). Also, Multivariable Cox-regression analysis adjusted aforementioned variables was performed to determine the impact of statin therapy on the incidence of new-onset DM, IGT, and IFG.

Results: Mean follow-up duration was 534 ± 604 days in all group, and 608 ± 607 days in propensity score matching group. Base line characteristics was similar between the two groups except hyperlipidemia (11.1% vs. 3.5%, p < 0.001). In Kaplan-Meier curve, there was no difference between the two groups (p = 0.501, figure A). Also, in cox-regression analysis performed in all pts, statin therapy was not associated with the increased incidence of primary end-point (figure B).

Conclusions: In our study, there was no clear association with statin therapy and IGT and new-onset DM in a series of cardiovascular pts in Asian population.

Impact of Diabetes Mellitus on Clinical Outcomes After Percutaneous Coronary Intervention With Drug-Eluting Stents for Unprotected Left Main Coronary Artery Disease

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Background: Introduction Few data is available on the comparison between diabetic and non-diabetic patients after percutaneous coronary intervention (PCI) with drug eluting stents for unprotected left main coronary artery disease. Hypothesis We assessed the hypothesis that diabetes mellitus is a predictor of worse clinical outcome after PCI with drug eluting stents for unprotected left main disease.

Methods: This is a multicenter registry enrolling consecutive patients undergoing PCI with paclitaxel or everolimus-eluting stents for unprotected left main disease. Death, cardiac death, myocardial infarction (MI), clinically-driven-target lesion revascularization (TLR), total cardiac death, MI, and definite/probable stent thrombosis were assessed at 2-year follow-up. A multiple cox regression analysis performed to determine the impact of statin therapy on the incidence of new-onset DM, IGT, and impaired fasting glucose (IFG). It is still controversial whether the chronic statin therapy is a risk factor of IGT and new-onset DM, in Asian population.

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TCT-345

Effect of Body Mass Index and Diabetes Mellitus on Angiographic Outcomes in Patients Undergoing Primary Percutaneous Coronary Intervention Using Different Drug-eluting Stents

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**Background:** The purpose of this study was to assess the impact of body mass index (BMI) and diabetes mellitus (DM) on angiographic outcomes in patients treated with different drug-eluting stents.

**Methods:** From November 2002 to March 2011, 8567 de novo coronary lesions were treated with drug-eluting stent. Dialysis patients were excluded. Of 8567 lesions, 1934 lesions were treated with everolimus-eluting stent (EES), 1215 with sirolimus-eluting stent (SES). Angiographic follow-up was routinely performed at 8 months after successful procedure. The follow-up rate was 81%. The patients were classified as underweight (BMI <20), normal weight (BMI ≥20 and <25), and overweight (BMI ≥25). The patients were divided into three groups according to implanted stent type: EES, PES, and SES. Of all patients, 42% were with DM, of whom 11% were insulin-dependent. The rates of DM and insulin treatment were similar in all groups. Angiographic outcomes were compared between each group.

**Results:** Independent predictors of binary restenosis differed in each group. In the SES group, they were BMI (depression of 5 kg/m²), DM, bifurcation, chronic total obstruction (CTO), stent size 2.5 mm, and lesion length ≥20 mm. In the PES group, they were BMI (depression of 5 kg/m²), DM, and stent size 2.5 mm. In the EES group, they were CTO, stent size 2.5 mm, and lesion length ≥20 mm. The figure shows odds ratio of BMI (depression of 5 kg/m²) and DM between each group.

**Predictors of Binary Restenosis**

<table>
<thead>
<tr>
<th>Stent Type</th>
<th>Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sirolimus-eluting stent</strong></td>
<td></td>
</tr>
<tr>
<td>BMI (depression of 5 kg/m²)</td>
<td>(1.27 [1.07-1.51])</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>(2.04 [1.64-2.54])</td>
</tr>
<tr>
<td>Pacitaxel-eluting stent</td>
<td>(1.34 [1.01-1.77])</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>(1.89 [1.32-2.7])</td>
</tr>
<tr>
<td>Everolimus-eluting stent</td>
<td>(1.89 [1.53-2.33])</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>(1.13 [0.73-1.75])</td>
</tr>
</tbody>
</table>

**Conclusions:** BMI and DM affect angiographic outcomes in patients treated with SES and PES but not those in patients treated with EES.

TCT-346

Clinical Impact of Five-month Follow-up Glycosylated Hemoglobin on Cardiovascular Outcomes in Diabetic Patients with ST-Segment Elevation Myocardial Infarction Undergoing Primary Percutaneous Coronary Intervention

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**Background:** Diabetes mellitus is known as a strong predictive factor of adverse cardiovascular event after ST-segment elevation myocardial infarction (STEMI). Recently, glycosylated hemoglobin (HbA1c) reflecting serum glucose control within 8 to 12 weeks, is studied to investigate relationship with major adverse cardiac events (MACE) after acute myocardial infarction. This study is conducted to determine the association between follow-up HbA1c and MACE in diabetic patients with STEMI undergoing primary percutaneous coronary intervention (PCI).

**Methods:** Using data from Korea Working Group on Myocardial Infarction, 303 diabetic patients with STEMI undergoing primary PCI were enrolled. Patients were divided into three groups based on follow-up HbA1c (FU-HbA1c): optimal, FU-HbA1c >7%; suboptimal, 7%≤FU-HbA1c<9%; poor controlled group, 9%≤FU-HbA1c. We analyzed 12-month cumulative MACE, defined as a composite of mortality, nonfatal myocardial infarction, re-PCI or coronary artery bypass graft in each group. Also, we investigated the value of FU-HbA1c to predict MACE using multivariate logistic regression analysis.

**Results:** The mean duration of HbA1c and clinical event follow-up was 5 and 12 months, respectively. The incidence rate of 12-month cumulative MACE were significantly different in each group: 7.3% vs 13.0% vs 23.9%, respectively (p<0.005), which was related to increased repeated PCI. In multivariate logistic analysis, the factor of FU-HbA1c more than 9.0% was shown to be independently associated with 12-month cumulative MACE, and compared with FU-HbA1c>7.0%; OR 11.437, 95% confidence interval 7.09-76.522, p=0.012.

**Conclusions:** This study suggests that FU-HbA1c in early phase was associated with higher incidence of 12-month cumulative MACE, mainly contributing to increased repeated PCI in diabetic patients with STEMI undergoing primary PCI. And more than 9% of FU-HbA1c was identified to be an independent predictor of adverse outcome. These imply continuous tight monitoring of serum glucose in early phase after myocardial ischemic insult is important to reduce the possibility of repeated PCI following restenosis, but more research is needed to understand these findings with long-term clinical data.

TCT-347

Clinical Outcome Of Biolimus-Eluting Versus Sirolimus-Eluting Coronary Stent Implantation In Patients With And Without Diabetes Mellitus: A SORT OUT V Substudy

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**Background:** Diabetes is associated with an increased risk of major adverse cardiac events (MACE) following percutaneous coronary intervention. Methods: We compared clinical outcomes in patients with and without diabetes mellitus treated with the third-generation biolimus-eluting Nobori stent (BES) or the first-generation sirolimus-eluting Cypher Select + stent (SES) in the SORT OUT V trial. We randomized 2468 patients to treatment with BES (n=1,229, diabetes: n=185) or SES (n=1,239, diabetics: n=189) and followed them for 12 months. Randomization was stratified by presence/absence of diabetes. The primary endpoint was MACE, defined as a composite of cardiac death, myocardial infarction (MI), or target vessel revascularization (TVR). Secondary endpoints were each of these individual endpoints plus all-cause mortality, target lesion revascularization (TLR), and definite stent thrombosis.

**Results:** In diabetic patients, use of BES compared with SES was neither associated with an increased risk of MACE (6.6% vs. 8.0%; hazard ratio (HR) = 0.83, 95% confidence interval (CI): 0.39-1.77), MI (1.4% vs. 1.2%, HR = 1.02, 95% CI: 0.21-0.89), TVR (5.9% vs. 4.8%, HR = 1.27, 95% CI: 0.52-3.05), nor TLR (5.4% vs. 3.2%, HR = 1.72, 95% CI: 0.63-4.74). Similarly, in patients without diabetes, MACE (5.1% vs. 3.7%; hazard ratio (HR) = 1.38, 95% CI: 0.91-2.08), MI (1.4% vs. 0.8%, HR = 1.89, 95% CI: 0.80-4.47), TVR (3.8% vs. 2.8%, HR = 1.40, 95% CI: 0.87-2.25), and TLR (2.8% vs. 1.8%, HR = 1.55, 95% CI: 0.87-2.76) showed no difference between the two stents. With regard to definite stent thrombosis, BES was neither associated with fewer events in patients with diabetes (2.2% vs. 1.2%, HR = 2.05, 95% CI: 0.38-11.2) nor in patients without diabetes (0.66% vs. 0.2%, HR = 3.03, 95% CI: 0.61-15.0).