Conclusion: Higher TSL per patient and per lesion were associated with increased 5-year TLR and stent thrombosis rates.

TCT-218
New Application of a Long Existing Index Score
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Background: The Charlson Comorbidity Index (CCI) is a useful tool for assessing the importance of major comorbidities for clinical management and outcome of patients in different medical fields. We aimed to evaluate the impact of CCI on early and late clinical outcomes in a large population of patients treated with one type of drug eluting stent (DES) in daily PCI practice.

Methods: We enrolled 3067 consecutive patients in 125 centers worldwide. All patients were treated with Nobori DES. Follow-up was scheduled at 1 and 6 months and yearly up to five years. The information pertinent to the CCI score was obtained before the procedure. Data were captured electronically and their quality was extensively monitored. An independent clinical event committee adjudicates all adverse events.

The primary endpoint was target lesion failure (TLF), a composite of cardiac death, target vessel related MI and stent thrombosis.

Results: For the 3067 enrolled patients, CCI scores were: CCI0=787; CCI1=1382; CCI2=595 and CCI3=303. Patients with a CCI2 were significantly older, more often female, had a higher incidence of diabetes, renal failure, chronic lung disease, prior cerebrovascular disease or cancer and were more frequently admitted with ACS as compared to patients with a CCI=2. QCA analysis of target lesions revealed significantly smaller RVD pre- and post-procedure in CCI2 compared to CCI=2. TLF rates at 2 years were 2.9%, 3.7%, 7.1% and 12.9% in CCI0, 1, 2 and 3 groups. Those differences were driven by cardiac death (0.6%, 0.7%, 3.0% and 5.3%; p<0.001) and TLR (1.5%, 2.6%, 3.5% and 7.3%; p<0.001). Target vessel related MI (1.1%, 1.4%, 1.5% and 3.3%) and stent thrombosis rates (0.3%, 0.9%, 1.2% and 1.3%) were not significantly different.

Conclusion: The CCI was strongly correlated with the occurrence of major adverse events at two year follow-up. This was particularly obvious for cardiac death and TLR but less for target vessel related MI and stent thrombosis. CCI score may be of use to better account for confounding factors in PCI registries, as well as to help optimize treatment in selected high risk patients.

TCT-219
Prospective Evaluation Of the Xience V everolimus-eluting stent in Saphenous Vein Graft Atherosclerosis: the Xience V-SVG Angiographic Study
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Background: There is limited information on the use of second generation drug-eluting stents in saphenous vein graft (SVG) lesions. In the present study we examined the angiographic and clinical outcomes of the implantation of the Xience V everolimus-eluting stent (Abbott Vascular, Santa Clara, California) in SVG lesions.

Methods: The SOS-Xience study is a single-arm prospective study that enrolled 40 consecutive patients undergoing stenting of de novo SVG lesions. Patients were asked to return for clinical and angiographic follow-up at 12 months. The primary endpoint was binary in-segment restenosis (defined as >50% minimum lumen diameter stenosis at the target SVG segment).

Results: Mean patient age was 67±7 years and 95% were men. The indications for stenting included acute coronary syndrome (n=19, 48%) and stable angina (n=15, 38%). The mean SVG age was 11±7 years. An everolimus-eluting stent was successfully implanted in all cases. Mean stent diameter and length were 3.0±0.46 and 18±6 mm, respectively. An embolic protection device was used in all cases (53% Filterwire, 8% Spider, 40% Proxis). Follow-up angiography was performed in 27 patients (68%), of whom 4 patients (15%) had in-stent restenosis and required repeat revascularization. In-stent restenosis was focal in all 4 lesions (3 of 4 were ostial lesions). The median late loss was 0.52 mm (interquartile range 0.36, 0.92). The 12-month incidence of major adverse cardiac events was 44% (n=17), mortality was 18% (n=8), the incidence of acute myocardial infarction was 8% (n=3), and the incidence of repeat revascularization was 30% (10 patients: 4 required target lesion revascularization, 2 required revascularization of a different lesion in the target SVG and 4 required revascularization of another vessel).

Conclusion: Use of the Xience V everolimus-eluting stent in de novo SVG lesions is associated with low rates of angiographic restenosis and target lesion revascularization. Patients undergoing SVG stenting have high risk for adverse clinical events during the first year post stenting.
myocardial infarction, stent thrombosis, TVR).

**Results:** The DES and BMS groups were well matched except that DES patients received dual antiplatelet therapy for a longer duration and had smaller final vessel diameter. In survival analysis, at a mean follow-up of 1333 ± 659 days after PCI, the DES group had similar incidence of death/myocardial infarction (24 vs 27%, log rank p=0.23) and stent thrombosis (4.0 vs 2.6%, p=0.18) as the BMS group. The DES patients had lower incidence of TVR (8.1 vs 17%, p=0.0018) but similar MACE (26 vs 37%, p=0.31). In multivariable analysis, DES vs BMS implantation showed no significant impact on death/myocardial infarction [adjusted hazards ratio (HR) 1.0, 95% confidence intervals (CI) 0.7-1.4], stent thrombosis (HR 1.7; CI 0.7-4.0), or MACE (HR 0.8; CI 0.6-1.1). However, TVR was lower in the DES group (HR 0.4; CI 0.3-0.7).

**Conclusion:** In patients presenting with NSTEMI, DES implantation appears to be as safe as BMS implantation at long-term follow up.

**TCT-222**

**Everolimus-eluting stents show no stent thrombosis with similar one year outcomes compared with 1st and 2nd generation drug-eluting stents for the treatment of ST-segment elevation myocardial infarction**

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**Background:** There were no published data regarding the clinical efficacy and safety of second generation drug-eluting stent (everolimus-eluting stent, EES) following primary percutaneous coronary intervention (PCI) in ST-elevation myocardial infarction (STEMI). We evaluated the one-year outcome of everolimus-eluting stent versus to 1st generation (sirolimus-eluting stent, SES and paclitaxel-eluting stent, PES) and 2nd generation (zotarolimus-eluting stent) drug-eluting stents (DES) for the treatment of STEMI.

**Methods:** A prospective, open-label, multi-center cohort has been performed at 4 centers in Korea. All patients will be clinically followed-up for two years. The primary endpoint was major adverse cardiac event (MACE): the composite of cardiac death (CD), recurrent MI and ischemia-driven target vessel revascularization (TVR) at 1 year. Stent thrombosis (ST) by ARC definition were analyzed.

**Results:** Total 797 patients (EES=197, ZES=203, SES=203, PES=194) who were completed more than one year were analyzed. One-year MACE were 2.0%, 5.9%, 3.4% and 5.7% in EES, ZES, SES- and PES-group, respectively (p=ns). Cardiac death was 1.0%, 2.5%, 1.5% and 1.0% in EES-, ZES-, SES- and PES-group, respectively (p=ns). ST was 0%, 2.9%, 2.0% and 2.0% in EES-, ZES-, SES- and PES-group, respectively (p=ns).

**Clinical events at 12 months and stent thrombosis**

- **EES:** everolimus-eluting stent, ZES: zotarolimus-eluting stent, SES: sirolimus-eluting stent, PES: paclitaxel-eluting stent, MACE: major adverse cardiac event, MI: myocardial infarction, TLR: target lesion revascularization

**Conclusion:** Compared to 1st and 2nd generation DES (SES and PES), EES showed similar one-year clinical outcomes in terms of MACE in patients with STEMI following primary PCI and no stent thrombosis.

**TCT-223**

**Complete Revascularization and Clinical Outcomes of Patients with Multivessel Disease**

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**Background:** Despite higher number of stents implanted in the complete-PCI group, TVF was comparable with the incomplete-PCI group at 2 years. Therefore selective revascularization strategy of the most critical lesions (followed by deferred revascularization of some non-critical lesions) in high risk patients is safe and results in a favorable outcome.

**TCT-224**

**Coating irregularities of drug-eluting stents as assessed by scanning electron microscopy**

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**Background:** Implantation of drug eluting stents (DES) tends to be implanted in complex lesion compared with bare metal stents era. Preservation of integrity of polymer coating in these complex lesions is an important.

**Methods:** Taxus LibertéTM, Endeavor SprintTM, Xience VTM, Cypher SelectTM and NoboriTM DES (five samples of each) were explored by scanning electron microscopy (SEM) following expansion at nominal pressure. In addition to simple expansion, a part of samples were tasked through the 5 or 6 French catheter with a parallel wire in order to stimulate the injury. We classified DES coating damage into four groups which were irregularities (Type I), cracks (Type II), craters with metal exposure (Type III) and webbings (Type IV). Each DES showed specific feature of abnormalities in polymer coating such as webbing in Taxus LibertéTM, craters in Endeavor SprintTM and minor cracks in NoboriTM.

**Results:** After the injuries, craters with metal exposure were slightly increased in NoboriTM, Xience VTM, while it was largely increased in Endeavor SprintTM. The damage of polymer coating by the creation of injury was minimal Taxus LibertéTM. The craters with metal exposure were seen in all types of DES. Among them, the incidence of areas with bare metal exposure was particularly low in NoboriTM, Xience VTM and Cypher SelectTM. Endeavor SprintTM showed the largest metal exposure with scratch. Webbings of the coating were found in Taxus LibertéTM, while they were not seen in Endeavor SprintTM.

**The incidence of coating abnormality in all population**

- **Type I**: 100% 80% 85% 47%
- **Type II**: 0% 10% 0% 40%
- **Type III**: 62% 80% 64% 52%
- **Type IV**: 100% 100% 100% 100%

**Conclusion:** The incidence of various coating irregularities in different types of DES varied widely. These data give us insight into the choice of DES especially in complex lesions.

**TCT-225**

**Safety and Efficacy of the Xience Everolimus Eluting Stent Compared to First-Generation Drug-Eluting Stents in Contemporary Clinical Practice**

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**Background:** Randomized clinical trials showed safety and efficacy of everolimus-eluting stents in selected patient populations. However, since the approval of second-generation stents in the US, limited data are available with regard to their safety and efficacy in unselected, consecutive patients.

**Methods:** Consecutive patients at Washington Hospital Center who underwent coronary artery stent implantation with Xience, Taxus or Cypher stents were analyzed. Patients who received other stent types were excluded. Analyzed clinical end points were death, TLR, definite stent thrombosis (ST), and MACE (death, QMI, or TLR) at 1 year.

**Results:** Among 9589 patients received DES. Xience patients had higher rates of hypertension (89% vs 86% vs 85% respectively; p=0.003) and diabetes (40% vs 35% vs 35%; p=0.03) but lower rates of family history of CAD (47% vs 53% vs 52%; p=0.008) as compared with Cypher and Taxus. Nearly half of the patients had PCI for unstable angina (51% vs 43% vs 45%; p<0.001) and treated lesions were more likely to be Type C among Xience patients (47% vs 21% vs 23%; p<0.001). Unadjusted 1-year MACE (8.1% vs 9.6% vs 11.2%) and all-cause mortality (3.4% vs 4.8% vs 6.9%) were significantly lower for Xience patients compared with Taxus but not Cypher patients. (Figure) After adjusting for confounders the incidence of TVR was non-significantly lower for Xience patients as compared with Cypher or Taxus patients. (Figure)