results often show increased localized haziness at the treated segment that is attributable to multiple factors, including the tissue reaction to the drug-eluting balloon as well as other treatments. We analyzed the safety and effectiveness of drug-eluting balloons (DEB) in de-novo lesions after 6 to 12 months. DEB was used for the treatment of de-novo lesions in 85 patients (male n=61; age 67.1 ± 10.9 years) in 102 interventions. The mean time to follow-up was 17.8 months. In these studies, the Drug-eluting balloon only strategy - in four current studies with the Drug-eluting balloon only strategy - in four current studies with the Soehne et al., 2010.}

Methods: We performed a systematic review of 162 consecutive patients who underwent percutaneous coronary intervention procedure with the Drug-eluting balloon in 149 lesions. The primary endpoint was clinical failure due to the Drug-eluting balloon only strategy - in four current studies with the Drug-eluting balloon only strategy - in four current studies with the Drug-eluting balloon only strategy. In BMS, the relationship in lesion failure at FU over expansion and under-expansion groups were similar (8.7 ± 2.5 mm² vs 9.0 ± 4.6 mm², p = 0.58 in BMS; 8.1 ± 1.2 mm² vs 7.7 ± 1.8 mm², p = 0.12 in PWS).

Conclusions: The Drug-eluting balloon only strategy was successfully used in overexpanded lesions. There is less advantage of aggressive dilation at stent deployment to get larger lumen.

TCT-461 Isolated Left-Anterior-Descending Artery In-stent Restenosis: Comparison Between Treatment With PCI-DES And CABG With Left-Internal-Mammary Artery

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Background: The treatment of isolated in-stent restenosis (ISR) of the left- anterior descending artery (LAD) can be performed either with PCI with drug-eluting stents or with surgical bypass with left-internal-mammary artery(LIMA). So far, no data are available on the comparison between these two revascularization techniques in this particular clinical context.

Methods: We compared clinical outcomes (MACCE:Major adverse cardiac cerebrovascular events and procedure related complications) of PCI with DES/DES group to surgical group with LIMA/CABG group for isolated LAD-ISR. Continuous and categorical data were compared with t-Student and X² tests respectively. Kaplan-Meier method was used for comparisons during follow-up whereas Cox-regression analysis to assess predictors of new revascularizations.

Results: We enrolled 141 consecutive patients with isolated LAD-ISR:70 pts in PCI group and 71 pts in CABG group. The two groups were well-match for clinical characteristics. DES-ISR was present in 79% and BMS-ISR in 21% in cases in the PCI group;while DES-ISR was found in 21% and BMS-ISR in 79% in the CABG group. Significant target lesion revascularization (TLR) was observed in 8.5% of pts in the PCI group versus LIMA failure in 8.4% of the CABG group (P =0.9). Non-Target vessel revascularization occurred in 8.6% and 14.1% of patients in the PCI and CABG group,respectively (P =0.22). At multivariable Cox-regression analysis, predictors of any revascularization were chronic renal failure (HR 1.32; 95%CI 1.09-1.59), LDL-cholesterol levels (HR 1.29; 95%CI 1.09-1.51) and HbA1c levels (HR 1.59; 95%CI 1.0-1.90). When compared with PCI group, CABG group was characterized by higher rates of in-hospital complications/need for transfusion (1.4% vs 28.1%, p<0.0001) and length of hospitalization (2.1 vs 5.7 days, p<0.0001).

Conclusions: Isolated LAD-ISR may be effectively treated either PCI with DES and CABG with LIMA. However, CABG treatment is characterized by higher rates of in-hospital complications and requires longer hospitalization.

TCT-462 The difference in Temporal Change of Peri-stent Contrast Staining Between Drug-eluting Stent and Bare-metal Stent

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Background: It was reported that peri-stent contrast staining (PSS) was one of abnormal vessel reactions including incomplete stent apposition assessed with optical coherence tomography. Little is known about the differences in temporal change of PSS among various stents.

Methods: We Between October 2001 and February 2012, percutaneous coronary intervention was performed with bare-metal stent (BMS) in 2138 lesions and with drug-eluting stent (DES) in 11138 lesions. We routinely performed follow-up coronary angiography (CAG) at 6th and 18th month after BMS implantation and 9th and 20th month after DES implantation. A 3-year clinical follow-up was achieved in 90% of MACE were observed in 22.8% of pts in PCI group and 30.9% in CABG group (log-rank p =0.38). Target-lesion revascularization(TLR) was observed in 8.5% in the PCI group versus LIMA failure in 8.4% of the CABG group (P =0.9). Non-Target vessel revascularization occurred in 8.6% and 14.1% of patients in the PCI and CABG group,respectively (P =0.22). At multivariable Cox-regression analysis, predictors of any revascularization were chronic renal failure (HR 1.32; 95%CI 1.09-1.59), LDL-cholesterol levels (HR 1.29; 95%CI 1.09-1.51) and HbA1c levels (HR 1.59; 95%CI 1.0-1.90). When compared with PCI group, CABG group was characterized by higher rates of in-hospital complications/need for transfusion (1.4% vs 28.1%, p<0.0001) and length of hospitalization (2.1 vs 5.7 days, p<0.0001).

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Conclusions: Isolated LAD-ISR may be effectively treated either PCI with DES and CABG with LIMA. However, CABG treatment is characterized by higher rates of in-hospital complications and requires longer hospitalization.
Conclusions: Temporal change of PSS might be different between SES, non-SES, and BMS until the 20th month of stent implantation. After the 20th month of stent implantation, abnormal vessel reactions appeared to continue in some lesions after SES implantation.

TCT-463
Impact of Late Catch-up Phenomenon on Delayed Restenosis After Sirolimus-Eluting Stent and Bare-Metal Stent Implantation
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Background: There are limited data on whether delayed late catch-up exists in sirolimus-eluting stents (SES) and bare-metal stents (BMS). We sought to compare differences in time course of late loss (LL) between SES and BMS.

Methods: Serial (8-months, 2-years, and over 3-years) angiographic examination was performed in 598 lesions treated with SES (n=353) or BMS (n=245). Lesions with 8-months and 2-years instant-restenosis (>50% of angiographic diameter stenosis) were excluded. LL was categorized as early (between post-procedure and 8-months), delayed (between 8-months and 2-years), further delayed (between 2-years and over 3-years) or overall (between post-procedure and over 3-years).

Results: Whereas early LL was significantly smaller in SES than in BMS, delayed LL was significantly greater in SES than in BMS. On the other hand, further delayed LL was comparable between the 2 stents. Consequently, overall LL was significantly smaller in SES than in BMS. Moreover, the incidence of over 3-year instant-restenosis was similar between the 2 stents (1.13 and 0.82% in SES and BMS, p=0.70). In multivariate analysis, stent type predicted delayed LL but did not predict further delayed LL.

Conclusions: SES lumen diameter progressively narrowed in delayed phase compared with BMS. However, the narrowing rate was similar among SES and BMS over 2 years. This evidence may raise the possibility that the impact of late catch-up phenomenon on SES restenosis over 2 years is minimal.

TCT-464
Comparison of Cutting Balloon Angioplasty for the Treatment of Restenosis with Bare Metal Stent; Neointimal Hyperplasia Tissue vs Neoatherosclerosis tissue
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Background: The morphological characteristics of restenotic tissue with bare metal stent (BMS) in very late in-stent restenosis (VL-ISR) were different from those in early in-stent restenosis (ESIS) and bare-metal stents (DEBMS). We sought to compare differences in time course of late loss (LL) between SES and BMS. We sought to compare differences in time course of late loss (LL) between SES and BMS.

Methods: Serial (8-months, 2-years, and over 3-years) angiographic examination was performed in 598 lesions treated with SES (n=353) or BMS (n=245). Lesions with 8-months and 2-years instant-restenosis (>50% of angiographic diameter stenosis) were excluded. LL was categorized as early (between post-procedure and 8-months), delayed (between 8-months and 2-years), further delayed (between 2-years and over 3-years) or overall (between post-procedure and over 3-years).

Results: Whereas early LL was significantly smaller in SES than in BMS, delayed LL was significantly greater in SES than in BMS. On the other hand, further delayed LL was comparable between the 2 stents. Consequently, overall LL was significantly smaller in SES than in BMS. Moreover, the incidence of over 3-year instant-restenosis was similar between the 2 stents (1.13 and 0.82% in SES and BMS, p=0.70). In multivariate analysis, stent type predicted delayed LL but did not predict further delayed LL.

Conclusions: SES lumen diameter progressively narrowed in delayed phase compared with BMS. However, the narrowing rate was similar among SES and BMS over 2 years. This evidence may raise the possibility that the impact of late catch-up phenomenon on SES restenosis over 2 years is minimal.

TCT-465
Drug-Eluting Balloon in the Treatment of Instant Restenosis and Diffuse Coronary Artery Disease; Real World Experience from a Single Center Registry
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Background: Although stents form the backbone of PCI, they may not be ideal for all lesions, especially in-stent restenosis (ISR) and diffuse disease in small vessels. Drug-eluting balloons (DEB) are emerging as an alternative treatment in such situations and their use is escalating. DEBs have been studied in randomized trials and registry studies with favourable outcomes. Despite these studies, data from real-world population is lacking. We report a single-center experience of DEB in the treatment of ISR and de novo coronary artery disease from a large cohort of patient.

Methods: We retrospectively evaluated all patients treated with the drug-eluting balloon (In.Pact FalconTM, Medtronic Inc., Minneapolis, MN, USA) between January 2009 and December 2011. The measured endpoints were cardiac death, MI, target lesion revascularization (TLR), target vessel revascularization (TVR) and major adverse cardiac events (MACE) defined as combination of cardiac death, MI and TVR.

Results: A total of 7622-PCI procedures were carried out at our centre during the study period. Drug-eluting balloons were used in 275-lesions (184-patients) (3.6%). The predominant indication for DEB use was ISR (n=170, 62%), with de novo lesions accounting for the remainder (n=105, 38%). The mean age of patients treated with DEB was 66.2±9.6 years and 87% were male. Bailout stenting was required in 31.6% of lesions; 24% for angiographic optimization and 7.3% for dissection caused by ballooning. The median clinical follow-up was 14.6 months (IQR: 12 - 23) and a minimum of 6-months follow-up was achieved in all patients. The rates of cardiac death, MI, TLR, TVR and MACE were: 3.8%, 1.6%, 16.8%, 17.9% and 21.7% respectively. The overall rate of stent thrombosis was 0.5% (n=1). Further sub-analysis revealed that the benefits of DEB use were more pronounced in BMS-ISR compared to those for BMS E-ISR lesion with NIH tissue.

Conclusions: Our results suggest that DEB can be considered in lesions where the use of stents are not desirable especially restenotic lesions and diffuse small vessel disease. Further long-term follow-up of these patients, will provide us more insights on the long-term outcomes.

TCT-466
Paclitaxel-coated Balloon Versus Drug-eluting Stent for the Treatment of In-stent Restenosis in Patients with Renal Failure on Hemodialysis
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Background: It has not been reported about the efficacy of paclitaxel-coated balloon for in-stent restenosis in patients with renal failure on hemodialysis.

Methods: From January 2003 to August 2012, 359 in-stent restenosis lesions in patients with renal failure on hemodialysis underwent percutaneous coronary inter-vention. One hundred sixty one lesions (56 lesions treated with paclitaxel-coated balloon, 105 lesions treated with drug-eluting stent) underwent midterm follow-up coronary angiography by 8 months after treatment. We compared the quantitative coronary analysis data and the rates of restenosis and target lesion revascularization (TLR) at midterm f/u between paclitaxel-coated balloon group and drug-eluting stent group.

Results: There were no significant difference in the rates of restenosis and TLR. The minimal luminal diameter at midterm f/u showed no significant difference between two groups, but the late loss was significantly small in paclitaxel-coated balloon group. Data are shown in the table.

Conclusions: The treatment with paclitaxel-coated balloon has the equivalent efficacy of treatment with drug-eluting stent for in-stent restenosis in patients with renal failure on hemodialysis.