Two zotarolimus-eluting stent generations: a meta-analysis of 12 randomized trials versus other lium-eluting stents and an adjusted indirect comparison.

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Background: The performance of zotarolimus-eluting stents (Medtronic Inc., Santa Clara, CA, USA) versus other lium-eluting stents (LES) and the possible improvements of Resolute zotarolimus-eluting stents (R-ZES) versus Endeavor zotarolimus-eluting stents (E-ZES) still remain to be defined. We sought to evaluate efficacy and safety of two zotarolimus-eluting stent generations versus other LES and to compare R-ZES versus E-ZES.

Methods: We undertook a meta-analysis of trials in which patients were randomly assigned to percutaneous coronary interventions (PCI) with R-ZES versus LES or with E-ZES versus LES as well as an indirect comparison of R-ZES versus E-ZES, with LES as common comparator. The primary efficacy endpoint was ischemia-driven target vessel revascularization (ID-TVR), the primary safety endpoints were cardiac death and cumulative definite/probable stent thrombosis (ST).

Results: Overall, 13,709 patients were assigned to PCI with R-ZES versus LES (n = 7,185) or with E-ZES versus LES (n = 6,524). The risk of ID-TVR (odds ratio [95% confidence interval] = 1.06 [0.90-1.25], p = 0.47) and cardiac death (odds ratio [95% confidence interval] = 0.99 [0.96-1.02], p = 0.96) and ST (OR = 1.08 [0.68-2.03], p = 0.56) did not differ between R-ZES and LES. Patients randomized to E-ZES were more likely to undergo ID-TVR as compared to those receiving LES (OR = 1.95 [1.40-2.73], p < 0.0001). Cardiac death (OR = 1.02 [0.54-1.91], p = 0.96) and ST (OR = 1.10 [0.50-2.44], p = 0.81) were similar between E-ZES and LES. At indirect comparison, PCI with R-ZES versus E-ZES reduced the risk of ID-TVR (OR = 0.54 [0.37-0.78], p < 0.0001), without increasing cardiac death (OR = 0.46 [0.20-1.0], p = 0.09) and ST (OR = 1.07 [0.40-2.80], p = 0.88).

Conclusions: The antirestenotic efficacy of Resolute zotarolimus-eluting stents is superior to Endeavor zotarolimus-eluting stents and similar to other lium-eluting stents. Endeavor zotarolimus-eluting stents increase the risk of reinterventions as compared to other lium-eluting stents. First and second zotarolimus-eluting stent generations have similar thrombogenicity compared to other lium-eluting stents.

TCT-643
Abumbnail-Only Coating Everolimus Eluting Coronary Stent Provides an Anti-Inflammatory Vascular Effect Compared to Bare Metal Stents in the Familial Hypercholesterolemic Swin
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Background: Vascular inflammation plays a fundamental role in the process of neointimal formation following coronary stent implantation. Drug-eluting stents (DES) improve the efficacy of percutaneous coronary intervention by modulating vascular inflammation. We aimed to evaluate the vascular inflammation profile following coronary implantation of a novel stent comprising an abluminal biodegradable Everolimus-eluting coating on the Element stent platform (SYNERGY) compared to an identical bare metal stent control (BMS = Element stent).

Methods: BMS (Element, n=6) and SYNERGY (n=6) stents were implanted in nine 8-month-old FH swine. Each coronary target site was predilated with an angioplasty balloon prior to stent placement. At 30 days stents were analyzed with optical coherence tomography (OCT) and then harvested for histological analysis and immunohistochemistry (IHC).

Results: Both OCT (neointimal area; SYNERGY, 3.68±0.8 mm2 vs. BMS, 5.93±0.8 mm2, 35% reduction) and histology (neointimal area; SYNERGY = 3.18±0.73 mm2 vs. BMS = 5.93±0.78 mm2, 46% reduction) demonstrated a significant reduction in neointimal proliferation in the SYNERGY group. The SYNERGY stent exhibited a significant reduction in PSL (0.33±0.69) compared to BMS (2.39±0.7, p<0.001). The neointimal area occupied by foam cells was significantly greater in BMS (0.57±0.53 mm2) compared to SYNERGY group (0.28±0.35 mm2). Consistently, FMI score was also decreased in SYNERGY (0.83±0.79) compared to BMS (2.44±2.06, p<0.001). The AI score did not show significant differences between the studied groups (SYNERGY 1.33±1.46, BMS 1.94±1.55, p=0.15).

Conclusions: The abluminal-only Everolimus eluting SYNERGY stent demonstrated suppression of neointimal formation and vascular inflammatory response compared to an identical bare metal stent platform. The absence of polymer beyond the drug delivery period creates the potential to reduce DAPT duration while maintaining best-in-class DES efficacy.

TCT-644
Drug eluting stents in the elderly: very long-term clinical outcomes (up to 10 years) of octogenarians in the DESIRE Registry.
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Background: Elderly patients (P) after bare metal stents (BMS) traditionally experience higher rates of procedural complication and worse long-term outcomes compared to younger P. This study sought to evaluate the long-term clinical follow-up (FU) after drug eluting stents (DES) in octogenarians compared to P<60 y and P 60-79 y old.

Methods: 4229 P were included in the DESIRE (Drug Elution Stents In The Real World) Registry for an elective DES implantation between 05/2002 and 02/2012. They were divided into 3 groups (g) according to their age: GI: <=60 y (n=1,516 pts), GII:60-79 y (n=2,397 pts), GIII:80 y (n=316 pts). The baseline and procedural characteristics as well as the outcomes are in the table.

Results: see table * indicates significance for the comparison

TCT-645
Comparison of Angiographic and Clinical Outcomes Among Patients with Sirolimus-, Paclitaxel-, Zotarolimus-, and Everolimus-Eluting Stent Implantation in Small Coronary Target Vessels and Long Lesions
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Background: Stenting in small coronary artery and long lesions has been known for high rates of in-stent restenosis at 9-month follow-up were compared, and major adverse cardiovascular events (MACEs) such as all-cause death, non-fatal myocardial infarction, stroke, and target lesion revascularization (TLR) were compared during the 3-year follow-up.

Results: Late loss was significantly lower in the EES group when compared with the PES and ZES groups (0.34±0.14mm, 0.60±0.15mm 0.65±0.16mm respectively, p<0.05). Rates of MACE during the 3-year follow-up were significantly lower in the EES (Figure)