TCT-257
Long-Term Follow-up of the Platinum Chromium TAXUS Element (ION) Stent: PERSEUS Two-Year Results
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Background: The TAXUS Element (ION) platinum chromium paclitaxel-eluting stent (PES) incorporates a novel thin-strut design to increase radiopacity and deliverability compared to prior TAXUS stents. Although the ION stent was non-inferior to the TAXUS Express PES in workhorse lesions and superior to the bare metal Express stent in small vessel lesions at 1 year in the PERSEUS studies, longer term outcomes have not been reported.

Methods: PERSEUS Workhorse (WH) is a prospective, Bayesian, 3:1 randomized (ION versus TAXUS Express; Boston Scientific) trial in subjects with lesion length ≤20mm and vessel diameter ≤2.75 mm. PERSEUS Small Vessel (SV) is a prospective, single-arm trial in subjects with lesion length ≤20mm and vessel diameter ≥2.25 to <2.75mm comparing ION to a matched historical BMS Express control (TAXUS V) which demonstrated superiority for the 9-month primary endpoint (angiographic in-stent lumen loss).

Results: Clinical events to 2 years are shown (Table). No differences in safety/efficacy measures were observed between stents in PERSEUS WH. Late revascularization rates were reduced by ION in PERSEUS SV.

TCT-258
Application of the National Institute for Clinical Excellence criteria to patients treated with the Genous EPC capturing stent: A sub-study of the e-HEALING worldwide registry
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Background: The National Institute for Clinical Excellence (NICE) guidelines recommend the use of bare-metal stents (BMS) in lesions with a low risk of restenosis (diameter≤3.0mm, length≤15mm) and the use of drug-eluting stents (DES) in lesions with a high risk of restenosis (diameter<3.0mm, length>15mm). While the guidelines were created for DES and BMS, we performed an analysis of patients treated with endothelial cell capturing stents (ECS). ECS are coated with CD34+ antibodies attracting circulating endothelial progenitor cells, thereby accelerating the endothelialization of the stented area.

Methods: We analyzed all 4241 patients enrolled in the worldwide e-HEALING registry that met the NICE criteria for either low-risk or high-risk lesions and were treated with a ≤1 ECS. The main study outcome was target vessel failure (TVF) at 12-months, defined as the composite of cardiac death or MI and target vessel revascularization (TVR).

Results: A total of 4241 patients were assessed and at 12-months, TVF occurred in 7.0% of the low-risk patients and in 8.8% of the high-risk patients (p=0.045). When evaluating the diabetic patients versus the non-diabetic patients per risk group, no significant differences were found in TVF, MI or TVR.

TCT-259
Response of Endothelial Progenitor Cells To Antiproliferative Drugs Currently Used in Drug Eluting Stents
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Background: Late stent thrombosis (ST), in drug-eluting stent (DES) recipients, often occurs in the setting of stent struts covered by cells derived from CD34+ endothelial progenitor cells (EPC). We asked the question whether EPC proliferation and function are altered by antiproliferative drugs (APD) present on current DES.

Methods: We studied in vitro the effects of four APD: paclitaxel, sirolimus, everolimus, and zotarolimus on EPC, isolated from peripheral blood of healthy volunteers. Formation of EPC colony forming units (CFU), cell proliferation, antibothrombotic and prothrombotic gene expression, release of nitric oxide (NO) and prostacyclin (PGI2), adhesion under flow conditions and cell migration were examined.

Results: Our study indicates that first generation APD (paclitaxel and sirolimus) reduce early EPC CFU formation compared to second generation (everolimus and zotarolimus, A, B). All APD, especially the first generation, also increase late EPC proliferation (C). EPC migration (D), release of NO and PGI2, and adhesion are all inhibited by APD, again most notably by paclitaxel and sirolimus. Paclitaxel causes the greatest down-regulation of antibothrombotic gene (E) and up-regulation of prothrombotic genes (F).