HEALING AFTER DES IMPLANTATION

Abstract nos: 93 - 95, 571

TCT-93
Stent based tissue drug and binding target protein distributions: durable versus deployable coatings

ABSTRACT We developed immuno-fluorescence (IF) methods to track drug and target protein distribution in stented arteries, to aid the development and assessment of novel stent designs.

METHODS Xience Pro (74 μg Everolimus/3.0×15 mm, durable coating) and MiStent (135 μg Sirolimus/3.0×15 mm, deployable erodable coating) were implanted into porcine coronary arteries (stent-to-artery ratio ~1.10:1) for 28, 60 or 90 days (n=9/time point). Arteries were explanted and evaluated for drug content (n=3/time point) by LC-MS/MS and for drug and mTOR distribution by IF (n=6/time point).

RESULTS Both stents released the majority of drug load by 28d, but with different efficiencies (91.4±4.9% MiStent versus 21.5±1.9% XIENCE, P<0.001). Release from MiStent persisted at a constant rate to near depletion at 90d, while 15% of the everolimus load remained trapped within the Xience coating between 60-90d. IF showed peristrat drug localization for both coatings, with similar peak intensities, but comparable interstrat intensities only at coating deployment sites. Tracking of mTOR-IF with drug-IF for both stents provided evidence of persistent though differential drug effects up to 90d.

CONCLUSION Measurements of bulk drug release and tissue content do not reveal the complete pharmacologic impact of local drug delivery. We now have the tools to identify and track local drug distribution and response over time. Tissue deployment of zero-order dissolving crystalline drug particles is shown to temporaly and spatially deliver more drug to interstrat zones that would otherwise be under-dosed without overdosing peristrat sites.

CATEGORIES CORONARY: Stents: Drug-Eluting

TCT-94
Safety and Efficacy of the Combo Bio-Engineered Stent in an All-Comer PCI Cohort: Results from the MASCOT Post-Marketing Registry

ABSTRACT The Combo stent (OrbusNeich Medical, FL, Lauderdale, Florida) is a novel generation bio-engineered drug eluting stent which combines an abluminal coating of a bioabsorbable polymer matrix for sustained release of sirolimus, with a luminal anti-CD34 coating for endothelial progenitor cell capture to promote rapid endothelialization. The Multinational Abluminal Sirolimus Coated Bio-Engineered StentT (MASCOT) post-marketing registry evaluated the 1-year efficacy and safety outcomes of the Combo stent in an all-comers population undergoing percutaneous coronary intervention (PCI).

METHODS MASCOT was a multicenter, prospective all-comers postmarketing study conducted from June 2014-May 2017 across 61 centers in Europe, Middle East, Asia and South America. Patients were eligible if Combo stent implantation was attempted. Follow up was conducted by trained research staff at 1, 6 and 12 months by phone or clinic visit to capture clinical events as well as adherence profile. Patients received dual antiplatelet therapy (DAPT) as per local guidelines. The primary endpoint was target lesion failure, defined as a composite of cardiac death, non-fatal myocardial infarction not attributable to a non-target vessel, or ischemia-driven target lesion revascularization by PCI or coronary artery bypass surgery.

RESULTS A total of 2615 patients were enrolled over the study period with 96.7% completion of 1-year follow-up. The mean age of enrolled patients was 62.9 ± 11.2 years and 22.9% were female. History of diabetes mellitus was present in 33.5%, prior PCI in 25.5% and atrial fibrillation or flutter in 6.9%. A total of 56.2% patients underwent PCI for ACS. Multivessel disease was present in 51.0% patients and 9.8% had significant left main disease. Of the 3191 treated lesions, 56.0% were American Heart Association type B2 or C lesions. The 1-year clinical outcomes will be available at the time of presentation.

CONCLUSION The MASCOT Post marketing registry will provide comprehensive safety, efficacy, and adherence to DAPT outcomes following contemporary PCI using the novel Combo stent in an all-comer population (Clinicaltrials.gov identifier NCT02183454).

CATEGORIES CORONARY: Stents: Drug-Eluting

TCT-95
Different Vascular Healing between Bioabsorbable Polymer-coated Everolimus-Eluting Stents versus Biodegradable Vascular Scaffolds via Optical Coherence Tomography and Coronary Angiography (The ENHANCE study: ENdothermal Healing Assessment With Novel Coronary Technology)

ABSTRACT We now have the tools to identify and track local drug distribution and response over time. Tissue deployment of zero-order dissolving crystalline drug particles is shown to temporaly and spatially deliver more drug to interstrat zones that would otherwise be under-dosed without overdosing peristrat sites.

CONCLUSION Measurements of bulk drug release and tissue content do not reveal the complete pharmacologic impact of local drug delivery. We now have the tools to identify and track local drug distribution and response over time. Tissue deployment of zero-order dissolving crystalline drug particles is shown to temporaly and spatially deliver more drug to interstrat zones that would otherwise be under-dosed without overdosing peristrat sites.

CATEGORIES CORONARY: Stents: Drug-Eluting

TCT-96
Bioresorbable Vascular Scaffolds via Optical Coherence Tomography and Coronary Angiography (The ENHANCE study: ENdothermal Healing Assessment With Novel Coronary Technology)

ABSTRACT We now have the tools to identify and track local drug distribution and response over time. Tissue deployment of zero-order dissolving crystalline drug particles is shown to temporaly and spatially deliver more drug to interstrat zones that would otherwise be under-dosed without overdosing peristrat sites.

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CATEGORIES CORONARY: Stents: Drug-Eluting

TCT-97
Bioresorbable Vascular Scaffolds via Optical Coherence Tomography and Coronary Angiography (The ENHANCE study: ENdothermal Healing Assessment With Novel Coronary Technology)

ABSTRACT We now have the tools to identify and track local drug distribution and response over time. Tissue deployment of zero-order dissolving crystalline drug particles is shown to temporaly and spatially deliver more drug to interstrat zones that would otherwise be under-dosed without overdosing peristrat sites.

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CATEGORIES CORONARY: Stents: Drug-Eluting

TCT-98
Bioresorbable Vascular Scaffolds via Optical Coherence Tomography and Coronary Angiography (The ENHANCE study: ENdothermal Healing Assessment With Novel Coronary Technology)

ABSTRACT We now have the tools to identify and track local drug distribution and response over time. Tissue deployment of zero-order dissolving crystalline drug particles is shown to temporaly and spatially deliver more drug to interstrat zones that would otherwise be under-dosed without overdosing peristrat sites.

CONCLUSION Measurements of bulk drug release and tissue content do not reveal the complete pharmacologic impact of local drug delivery. We now have the tools to identify and track local drug distribution and response over time. Tissue deployment of zero-order dissolving crystalline drug particles is shown to temporaly and spatially deliver more drug to interstrat zones that would otherwise be under-dosed without overdosing peristrat sites.

CATEGORIES CORONARY: Stents: Drug-Eluting

TCT-99
Bioresorbable Vascular Scaffolds via Optical Coherence Tomography and Coronary Angiography (The ENHANCE study: ENdothermal Healing Assessment With Novel Coronary Technology)

ABSTRACT We now have the tools to identify and track local drug distribution and response over time. Tissue deployment of zero-order dissolving crystalline drug particles is shown to temporaly and spatially deliver more drug to interstrat zones that would otherwise be under-dosed without overdosing peristrat sites.

CONCLUSION Measurements of bulk drug release and tissue content do not reveal the complete pharmacologic impact of local drug delivery. We now have the tools to identify and track local drug distribution and response over time. Tissue deployment of zero-order dissolving crystalline drug particles is shown to temporaly and spatially deliver more drug to interstrat zones that would otherwise be under-dosed without overdosing peristrat sites.

CATEGORIES CORONARY: Stents: Drug-Eluting
METHODS This is a prospective, non-randomized, single-center clinical trial. 13 eligible subjects with multi-vessel-disease were enrolled and deployed in the same patient and on the same time, but in different coronary vessels. Vascular healing was assessed via optical coherence tomography (OCT) and coronary angiography to estimate the intra-coronary condition at 4-month and 12-month.

RESULTS Imaging-follow-up was completed in 11 patients at 12 month. The condition of neointimal coverage was similar between the two groups by OCT at 4-month and 12-month. Intra-stent thrombus was significantly higher in the BVS groups, but thrombus volume was very small at 4 month, which were similar tendency at 12 month follow-up. Angiography showed red-thrombus and yellow-plate more frequently in BVS than in BP-EES group (Thrombus: BP-EES: 33.3% vs. BVS: 81.8%, p = 0.02) at 4 month. At 12-month follow-up, the rate of red thrombus in BVS decreased to 50.0%. However, thrombus was not detected in BP-EES. These findings indicate BVS still had instability up to 12 month compared to BP-EES.

CONCLUSION Calculated plaque, nodular calcification and thrombus were more frequently observed in patient with HD. These tissue character may lead to the adverse lesion outcome after repeat revascularization to ISR in HD.

CATEGORIES IMAGING: Imaging: Intravascular

HEMODYNAMIC SUPPORT

Abstract nos: 97 - 100

TCT-97 Culpit lesion versus multi-vessel intervention in patients with cardiogenic shock complicating myocardial infarction: Incidence and outcomes from The London Heart Attack Group

Krishnaraj Rathod,1 Sudheer Koganti,1 Ajay Jain,1 Charles Knight,1 Anthony Mathur,1 Alexander Siriker,1 Constantinios O'Mahony,1 Andrew Wragg,1 Daniel Jones1 1Barts Heart Centre, St. Bartholomew's Hospital, Barts Health NHS Trust, London, United Kingdom

BACKGROUND Despite advances in technology patients with Cardiogenic Shock (CS) presenting with ST-segment myocardial infarction (STEMI) have a poor prognosis with high mortality rates. A large proportion of these patients have multi-vessel coronary artery disease, the treatment of which is still unclear. We aimed to assess the current trends in management of CS patients with multi-vessel disease (MVD), particularly looking at the incidence and outcomes of multi-vessel (MV) intervention compared to culprit vessel (CV) only intervention in a large contemporary cohort of patients undergoing percutaneous coronary intervention (PCI) for STEMI.

METHODS We undertook an observational cohort study of 21,210 STEMI patients treated between 2005 and 2015 at the 8 Heart Attack Centres in London, UK. Patients' details were recorded at the time of the procedure into local databases using the British Cardiac Intervention Society (BCIS) PCI dataset. 1058 patients presented with CS and MVD. Primary outcome was all-cause mortality at a median follow-up of 4.1 years (IQR range: 2.2-5.8 years).

RESULTS 497 patients underwent multi-vessel intervention during primary PCI for CS with stable rates over time. Those patients undergoing MV intervention were more likely to be male, hypertensive and more likely to have poor LV function compared to the CV intervention group. Although crude, in hospital MACE rates were similar (40.8% vs 36.0%, p=0.558) between the two groups. Kaplan-Meier analysis demonstrated no significant differences in mortality rates between the two groups (43.8% multi-vessel intervention vs 46.8% culprit vessel intervention, P=0.252) during the follow-up period. After multivariate Cox analysis (HR: 0.70 95% CI: 0.54-0.90) and the use of propensity matching (HR: 0.85 95% CI: 0.64-0.99) multi-vessel intervention was associated with reduced mortality.