Coronary Intervention

GW25-e0272
Three Year Results of the DESSOLVE I first-in-human trial and the DESSOLVE II randomized trial of a sirolimus-eluting stent with fully absorbable polymer
John Ornston1, Charlotte Knape1
1Mercy Angiography Unit, Auckland, New Zealand, 2Micell Technologies, Durham, NC, USA

Objectives: Long-term clinical follow-up of new drug-eluting stents is essential to ensure continued safety in patients treated with these DES in clinical practice. Two clinical trials of the MiStent SES are currently in long-term follow-up; the DESSOLVE I clinical trial, a first-in-human study of 30 patients conducted at 5 sites evaluating the MiStent SES, and the DESSOLVE II clinical trial, a 2:1 randomized study of 184 patients conducted at 26 sites evaluating the MiStent SES as compared to the control stent, the Endeavor Sprint.

Methods: The MiStent SES uses a unique combination of a crystalline formulation of sirolimus, eluted slowly, fully absorbable polymer on a thin-strut, cobalt chromium stent platform. The polymer coating is eliminated from the stent in 45-60 days with complete tissue absorption within 90 days; however, uniquely, the crystalline sirolimus continues to maintain therapeutic tissue levels of sirolimus up to 9 months. In the trials, patients with discrete de novo lesions up to 27 mm in length in native coronary arteries were enrolled. The primary endpoint of in-stent late lumen loss (LLL) was evaluated in both trials. Patients were also followed for clinical events at predefined intervals. MACE was defined as death, Q and non-Q wave myocardial infarction and all target vessel revascularization.

Results: The DESSOLVE I trial demonstrated minimal progression of late lumen loss between 8 and 18 months follow-up (0.09±0.10 and 0.09±0.15 respectively, with no target lesion MACE events through 3 years. In the DESSOLVE II trial, the MiStent SES was superior to the Endeavor LLL (0.27±0.46 versus 0.58±0.41). MACE for MiStent SES and Endeavor was 4.3% versus 6.7% (P=0.49) respectively at 9 months, 5.1% versus 8.3% (P=0.51) at 12 months, and 6.7% versus 13.3% (P=0.167) at 2 years. Evaluation of imaging (angiographic, IVUS, OCT) at various time points and clinical outcomes of the MiStent SES for DESSOLVE I and DESSOLVE II will be presented for 3 years.

Conclusions: The MiStent SES is a unique DES combining short-term polymer exposure of 3 months with a long-term sirolimus elution profile of 9 months. These studies verify the efficacy of the MiStent SES with a sustained safety profile.

GW25-e0093
Preventive effects of cordyceps sinensis against contrast induced nephropathy in type 2 diabetes with renal insufficiency undergoing coronary angiography
Zhao Kai, Gao Sheng, Li Yongjian, Zhang Boya, Lin Yu, Jin Zhe, Zhao Kai
Department of Cardiology, Tianjin Nankai Hospital

Objectives: To study the preventive effects of cordyceps sinensis (CS) against contrast induced nephropathy (CIN) in type 2 diabetes with renal insufficiency undergoing coronary angiography.

Methods: A total of 210 patients with type 2 diabetes and estimated glomerular filtration rate (eGFR) of 60ml/min/1.73m2 or less, were randomly divided into three groups, basic treatment group (n=71), standard CS therapy group (n=69, corbin capsule 2g, 3 times/d), and intensive CS therapy group (n=70, corbin capsule 3g, 3 times/d + urine before and after angiography), and intensive CS therapy group (n=70, corbin capsule 3g, 3 times/d + urine before and after angiography), and intensive CS therapy group (n=70, corbin capsule 3g, 3 times/d + urine before and after angiography). Serum creatinine (Scr) and eGFR were assessed at the time of angiography. In the patients of three groups. The primary end point was the prevalence of neutrophil-gelatinase-associate-lipocalin (NGAL), kidney injury molecule-1 (KIM-1), IL-18 in patients in the intensive CS therapy group and non-CS therapy group were lower than those in the basic treatment group and standard therapy group (P<0.05).

Results: Compared with the intensive CS therapy group, and the standard CS therapy group, a lower proportion of patients in the CS treatment groups had an eGFR decrease of 25% or greater accounted for even lower proportion in the intensive CS therapy group and a statistical significance was reached (P<0.01). Within 1 day after the procedure, urine levels of KIM-1, NGAL, and IL-18 in patients in the intensive CS therapy groups were lower than those in the basic treatment group and standard therapy group (P<0.05). Multiple Logistic Regression showed that advanced age, lower eGFR levels, and higher dose of contrast volume were independent risk factors of CIN.

Conclusions: CS is a protective factor against CIN in type 2 diabetes with renal insufficiency undergoing coronary angiography and intensive CS therapy could be more effective.

GW25-e0278
Coronary Flow Reserve in the Remote Myocardium Predict Left Ventricular Remodeling Following Acute Myocardial Infarction
Cheng Rongchao1, Wei Gaoqian1, Yu Longhao1, Wei LI1, Tian Jianwei1, Li Xueqi1
1the Forth Affiliated Hospital of Harbin Medical University, 2the second Affiliated Hospital of Harbin Medical University

Objectives: The objective of the present study was to assess whether a relationship exists between CFR in the non-infarcted myocardium and left ventricular remodeling following AMI.

Methods: We enrolled 42 consecutive patients undergoing PCI. All patients were subjected to two-dimensional echocardiography (2-DE) and real-time myocardial contrast echocardiography (RT-MCE) to assess left ventricular function and CFR one week following PCI. RT-MCE was performed both at rest and during dobutamine infusion with an eGFR decrease of greater than 15 ml/min/1.73 m2. After 45-60 days with complete tissue absorption within 90 days, the crystalline sirolimus continues to maintain therapeutic tissue levels of sirolimus up to 9 months; however, uniquely, the crystalline sirolimus continues to maintain therapeutic tissue levels of sirolimus up to 9 months. In the trials, patients with discrete de novo lesions up to 27 mm in length in native coronary arteries were enrolled. The primary endpoint of in-stent late lumen loss (LLL) was evaluated in both trials. Patients were also followed for clinical events at predefined intervals. MACE was defined as death, Q and non-Q wave myocardial infarction and all target vessel revascularization.

Results: Compared with the infarcted myocardium and non-infarcted myocardium, both at baseline and following low dose dobutamine administration, myocardial blood flow (MBF) in the non-infarcted myocardium was significantly higher than in the infarcted myocardium, and mean CFR of the non-infarcted myocardium was also significantly higher than observed in the infarcted myocardium (2.65±0.31 vs. 2.13±0.05, P<0.01). There was no difference observed in MBF between the non-infarcted myocardium and normal myocardium at baseline, while at peak stress, MBF in the normal myocardium was significantly increased than that in the non-infarcted myocardium (11.2±1.11 vs. 8.98±2.53 dB/S, P<0.05). Mean CFR was also higher compared to the non-infarcted myocardium (3.08±1.29 vs. 2.65±0.31, P<0.01). According to CFR cut-off value of 2.39 in the non-infarcted myocardium as providing the maximal accuracy to distinguish between patients with impaired CFR and preserved CFR, all patients were divided into two subgroups: Group I (CFR<2.39) and Group II (CFR≥2.39). The levels of cTnI were higher in Group I compared to Group II on admission (36.40 vs.21.38ig/ml, P<0.05). Furthermore, at six months following coronary angioplasty, LVEDV and LVEF in Group I were increased (132±2.4 vs. 137±2 ml, and 69 vs. 76 ml, respectively), and ILVFF was decreased (47% vs. 45%). In Group II, LVEDV and LVEF was decreased (131 vs. 128 ml, and 68 vs. 59 ml, respectively), while LVEF was increased (48% vs. 53%). There are nine patients with remodeling in Group I while only two in Group II. Furthermore, we analyzed the correlation between CFR in the non-infarcted myocardium and parameters of LV function. There was a significant negative correlation between CFR and LVEDV in the non-infarcted myocardium (r=-0.623, P<0.001, r=-0.696, P<0.001, respectively). LVEF and CFR in the non-infarcted myocardium were also correlated with each other (r=-0.658, P<0.001).

Conclusions: Microvascular dysfunction is commonly observed in the non-infarcted myocardium. The CFR value in the non-infarcted myocardium accurately predicts adverse left ventricular remodeling following AMI.

GW25-e1117
Rotational Atherectomy Combined with Cutting Balloon for the Treatment of Severely Calcified Coronary Lesions: An Intravascular Ultrasound Study
Tang Zhe, Bai Jing, Wang Yu
Chinese PLA General Hospital

Objectives: The intravascular ultrasound (IVUS) study was designed to evaluate the immediate efficacy and safety of rotational atherectomy combined with cutting balloon for severely calcified coronary lesions.

Methods: Eighty consecutive patients with severely calcified coronary lesions which were defined by coronary angiography and IVUS (calcium area≥180, calcium length ratio>0.5) and deposed by rotational atherectomy were divided into 2 groups. There were 34 in rotational atherectomy (RA) group and 46 in rotational atherectomy combined with cutting balloon (RC) group. In all lesions, we used RA to first depose the stenosis. In RC group, after RA, we used cutting balloon for the future plaque modification. The size of RA bur and cutting balloon are recorded.IVUS was performed before percutaneous coronary intervention (PCI) to measured lumen cross-sectional area (CSA), external elastic membrane (EEM), Plaque and media CSA of every 1 mm of culprit lesion segment was measured and average lumen CSA was calculated. For calcium, we measured maximum calcium arc, calcium length, and calcium ratio (calcium length/length after). After stent implantation, IVUS was rechecked to measure minimum stent CSA, minimum and maximum stent diameter, and the reference lumen CSA. Stent symmetry was defined as minimum stent CSA/reference lumen CSA. Complete stent apposition was defined as insufficient close contact between some struts and the underlying wall. What’s