TCT-336
Patient-Specific Rehearsal Prior To Endovascular Aneurysm Repair: A Pilot Study
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Background: Patient-specific rehearsal (PSR) of an endovascular aortic aneurysm repair (EVAR) enables the interventionalist to practice the case prior to treat the real patient. To evaluate how this technology may influence clinical outcome, we performed a pilot study to evaluate if PSR for EVAR is feasible, influences technical performance, to evaluate face validity and the subjective sense of utility.

Methods: Patients with an AAA suitable for EVAR with using the Gore C3 Excluder (W.L. Gore & Assoc, Sunnyvale, California, USA) were enrolled in three centres. A 3D model of the patient’s anatomy was generated using the PROcedure rehearsal software within the Angiomentor (Simbionix, Ohio, Cleveland). Less than 24 hours before the real case, reconstructive image-guided diagnosis and therapy of cardiovascular diseases. Such a design enables corollary studies into novel workflows for taking full advantage of the integrated design.

Results: Nine patients were enrolled. EVAR procedures were performed by 7 different teams. 6/8 lead interventionalists were highly experienced in EVAR (>50 cases). In 7/8 patients, the rehearsal significantly changed the optimal position of the C-arm to maximally cover the proximal and contralateral landing zones. In 6/8 and 5/8 patients respectively, an identical oblique or crano-caudal fluoroscopy angle was chosen in real life. All team members found the rehearsal useful for selecting the optimal fluoroscopy angle (median 4, IQR 4.5). The realism of the EVAR procedure simulation was rated highly (median 4, IQR 4.5). All team members found the PSR useful to optimally prepare the entire team (median 4, IQR 4.5). The choice of the tool kit (median 2, IQR 1.5-3) nor the diameter of the device (median 2, IQR 2-3) was likely to be altered by the rehearsal.

Conclusions: PSR for EVAR is feasible and permits creation of realistic case studies. Subjective evaluation indicates that it may influence optimal C-arm angles, be useful for preparative case review and valuable to prepare the entire team. However, a CTR is required to evaluate how this technology may influence technical and team performance ultimately leading to improved patient outcomes and increased safety.

TCT-337
Clinical Outcome of Diabetic and Non-Diabetic Patients Treated With Second-Generation Zotarolimus-Eluting and Everolimus-Eluting DES
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Background: Diabetes is associated with a higher risk of adverse events following PCI with drug eluting stents (DES). Within the TWENTE trial, a randomized trial comparing zotarolimus-eluting Resolute and everolimus-eluting Xience V stents, a significant interaction was seen between diabetes and DES type with regard to target vessel failure (TVF). In diabetics, safety and efficacy data of these DES are scarce.

Methods: In this post-hoc analysis of TWENTE clinical outcome of both DES in diabetic (n=301; 36.2% insulin-treated) and non-diabetic patients (n=1090) was compared. Clinical endpoints were adjudicated by an independent, external events committee. Multivariate logistic regression analyses were performed to adjust for differences in baseline variables.

Results: Groups stratified by DES were similar except for a higher prevalence of hypercholesterolemia in non-diabetic patients of the Xience V arm (p=0.04) and calcified target lesions in diabetic patients of the Resolute arm (p=0.04). In both diabetics and non-diabetic patients, multivariate analysis indicated no significant difference in clinical outcome between DES. Within non-insulin-treated diabetics, there was also no significant between-stent difference in clinical outcome. However, in insulin-treated diabetics, the Resolute arm showed higher rates of target vessel failure (TVF) (28.3% vs 7.3%, p=0.015), target-lesion failure (26.4% vs 5.5%, p=0.016), and patient oriented composite endpoint (32.1% vs 10.9%, p=0.02). A significant interaction was observed between insulin treatment and DES type for TVF (p=0.029). In Resolute treated patients, insulin-treatment patients had a higher rate of TVF compared to non-diabetics and non-insulin-treated diabetics (p<0.001). In the Xience V arm, rates of TVF were similar across all subgroups.

Conclusions: In non-diabetic patients and non-insulin-treated diabetics, Resolute and Xience showed no significant difference in safety and efficacy up to 12 months. In the limited number of insulin-treated diabetics, Resolute was associated with inferior clinical outcome. This hypothesis-generating finding requires confirmation in large randomized trials.

TCT-338
Meta-analysis of Percutaneous Coronary Intervention Versus Coronary Artery Bypass Graft Surgery in Patients with Diabetes and Left Main and/or Multivessel Coronary Artery Disease
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Background: The optimal coronary revascularization strategy for patients with diabetes and left main and/or multivessel disease is undetermined. The aim of our study was to evaluate percutaneous coronary intervention (PCI) versus coronary artery bypass graft (CABG) in those patients.

Methods: We identified 13 articles, published before Oct 2011, enrolling 6992 patients, follow-up period ranged from 1 to 5 years.

Results: Patients with PCI had a significant reduction in cerebral vascular attack (CVA) (OR 0.29, 95% CI 0.16 to 0.51, p=0.0001, I^2 = 0%). As compared with CABG, whereas there was a four-fold increased risk of repeat revascularization associated with PCI even using drug-eluting stent (OR 4.44, 95% CI 3.42 to 5.78, p<0.0001, I^2 = 0%). The overall mortality (OR 0.97, 95% CI 0.81 to 1.15, p=0.70, I^2 = 0%) was comparable between the PCI and CABG. However, in subgroup analysis, the composite outcome (death/myocardial infarction/CVA) was significantly reduced in