TCT-736

Impact Of Pulmonary Hypertension Etiology According To Invasive Hemodynamic Definitions On Clinical Outcomes In Patients With Severe Symptomatic Aortic Valve Stenosis Undergoing Transcatheter Aortic Valve Implantation

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Background: Pulmonary hypertension (PH) frequently co-exists with severe aortic valve stenosis (AS) and PH severity has been shown to predict long-term outcomes after transcatheter aortic valve implantation (TAVI). The impact of PH etiology on clinical outcomes after TAVI is unknown.
Methods: Of 606 consecutive patients undergoing TAVI, 433 (71.4%) patients with severe AS and a pre-procedural right heart catheterization were assessed. Patients were dichotomized according to whether PH was present (mean pulmonary artery [PA] pressure ≥25mmHg) (n=325) or not (n=108). PH patients were further dichotomized by left-ventricular end-diastolic pressure (LVEDP) into post-capillary (LVEDP >15 mmHg; n=269) and pre-capillary groups (LVEDP ≤15 mmHg; n=56). Finally, post-capillary PH patients were divided into passive (n=133) and reactive (n=136) subgroups according to whether the transpulmonary gradient was normal (≤12mmHg) or elevated (>12mmHg). Primary-endpoint was all-cause mortality at one year.
Results: PH was present in 325/433 (75%) patients and was predominantly post-capillary (n=269/325; 82%). Compared with baseline, PA systolic pressures immediately improved after TAVI in post-capillary reactive (55.3±14.4 vs 48.4±15.5 mmHg, p< 0.001), but not pre-capillary (49.0±12.6 vs 51.6±14.3, p=0.36) patients. As compared with no PH, a higher rate of one-year mortality was observed in both pre-capillary (hazard ratio [HR] 2.30, 95% confidence interval [CI] 1.02-5.22, p=0.046) and reactive (HR 2.63, 95% CI 1.33-5.20, p=0.006) but not passive PH patients (p=0.43). Following adjustment, reactive PH remained an independent predictor of one year mortality after TAVI (HR 2.52, p=0.01).
Conclusions: Hemodynamic stratification of PH by etiology predicts acute response to treatment and long-term mortality after TAVI.

TCT-737

Transcatheter Aortic Valve-in-Valve Implantation for Failing Stentless Aortic Valve Replacement: Short- and Long-Term Outcome

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Background: Conventional redo aortic valve replacement (AVR) is associated with high mortality and morbidity, particularly in elderly patients. Transcatheter aortic valve implantation (TAVI) is a less invasive and potentially lower-risk therapeutic option. We sought to assess outcome of Valve-in-Valve (ViV) TAVI for failing stentless AVR performed at our institution.
Methods: All 22 patients undergoing 22 ViV TAVI for failing stentless AVR performed at our centre were included. Mean age 74±12 years, logistic EuroScore 38±10, all NYHA Class III/IV, 41% had chronic kidney disease, 36% had ascending aorta calcification, 32% had patent coronary bypass grafts, 27% had previous PCI, 14% had pulmonary disease (TLCO < 30%), and 14% had previous stroke. Original implant date ranged 1990 to 2006. All patients had severe aortic regurgitation (AR) due to failing homograft (17), Toronto (3), Freestyle (1), or native re-suspended aortic valve (1). Mean left ventricular ejection fraction was 57±19%.
Results: ViV TAVI was performed electively in 7, urgently in 13, and emergently in 2 cases. All received a CoreValve (23mm device in 2, 26mm in 13, 29mm in 6, 31mm in 1). Access route was transfemoral (19), subclavian (2), and direct aortic (1). The device was deployed too high in 1 case and too low in 2, necessitating TAVI-in-TAVI. In 2 cases, the device migrated high prior to full deployment, requiring lower re-deployment. In 1 case, the device embolized into ascending aorta and required surgical removal. 30-day mortality was 0%. Based on VARC-II definitions, rate of myocardial infarction, tamponade, stroke, bleeding, acute kidney injury, and major vascular complications were all 0%. New pacemaker implantation occurred in 14%. Paravalvular AR was absent in 4, mild in 15, mild-moderate in 3. Average length of hospital stay was 9±6 days, and all patients were discharged home. At long-term (1-55 month) follow-up, 19 patients remained alive (3 deaths; 65 days, 7 months, 9 months).
Conclusions: ViV TAVI may be performed in high-risk patients with failing stentless AVR. Lack of fluroscopic markers increases risk of valve migration and embolization. Despite this, 30-day mortality was 0%, with low morbidity, and resolution of AR.

TCT-738

Comparison of vascular and access site complications after transfemoral aortic valve implantation between the CoreValve-Revalving-system and the Edwards Sapien XT valve using serial ultra-sound studies

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Background: Transfemoral aortic valve implantation (TAVI) requires large bore catheters. Access site and vascular complications, therefore are of concern. Beside major vascular complications, post-TAVI pseudoaneurysm formation (PAF) is a frequent minor vascular complication. The aim of the study was to compare the incidence of post-TAVI PAF between the CoreValve (CV) using the St.Jude 18-F-sheath and the Edwards Sapien XT valve (ESV) using the 16-20 F Esheath.
Methods: Between April 2010 and December 2013, 448 pts (age 81.2 ± 0.4 years) with high surgical risk (Euroscore 24.3 ± 0.8%) underwent successfully TAVI in local anesthesia using either the CV (23,26,29,31mm) or the ESV (23, 26, 29mm). Closure of the access site was perfomed in all pts by using the ProStar XL 10 suture device. All TAVI pts (357 CV and 91 ESV) were examined serially the first 5 days (day 1-3 and 5 post-TAVI) after the procedure by ultrasound (US) for clinically silent vascular complications. In case of PAF, ultrasound-guided manual compression was done followed by compression bandage for another 24 h.
Results: In 26 pts (5.6%) we observed major vascular complication after TAVI (19 [5.3 %] after CV and 7 [7.7%] after ESV, p=0.261). Seven of these 26 pts (26.9%) had to be treated surgically. In 78 pts (17.4%) we observed post-TAVI PAF, which occurred significantly more frequently after implantation of the ESV than after implantation of the CV (19/91 [33.0%] versus 59/357 [16.6%], p=0.01). However in total only 5 /78 (6.4 %) patients with PAFs had to be treated surgically , the others were treated either by ultrasound guided manual compression or conservatively if smaller than 1 cm.
Conclusions: Clinically silent PAF detected by routine US is a frequent post-TAVI minor vascular complication which is more likely to occur after ESV using the Esheath than after CV. Although US-guided compression is highly effective, further miniaturisation of TAVI devices and modification of the Esheath design might help to eliminate post-TAVI PAF.

TCT-739

Improved One Year All Cause Mortality following Transcatheter Aortic Valve Implantation (TAVI) Beyond The Learning Curve Experience: Insights From Glenfield-Leicester UK TAVI Registry

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Background: The successful TAVI outcomes are partly driven by the operator skills, expertise & experience. The impact of "learning curve" on one year all-cause mortality is not well understood.
Methods: Registry records of 188 consecutive TAVI cases in a UK tertiary cardiac centre (2007-2013) were reviewed using patient-level data. One year all-cause mortality data was collated with demographic, risk profile and TAVI procedural information. Kaplan-Meier analysis was used to compare mortality among the first 60 patients(learning curve group,GP1) with age, gender matched sequential groups(GP2, n=64 & GP3, n=64)