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-occurs 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=255; n=325 (75%), patients and was predominantly post-capillary (n=269) and pre-capillary groups (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 (≤12 mmHg) or elevated (>12 mmHg). Pre-procedural all-cause mortality rate was 31.8%.

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 1.35-5.20, 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-736

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: Among 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, 8% had previous endocarditis and 3% 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%. Follow-up was 1-7 months. Mean length of hospital stay was 9±6 days, and all patients were discharged home. At long-term (1-55 months) 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 fluoroscopic markers increases risk of valve migration and embolization. Despite this, 30-day mortality was 0%, with low morbidity, and resolution of AR.
**TCT-740**

**Transfemoral Aortic Valve Implantation of Edwards Sapien XT without Pre-dilatation is Feasible**

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**Background:** Transcatheter aortic valve implantation (TAVI) has become the standard intervention for elderly patients with aortic stenosis. Implantation of the valve without pre-dilatation might have some advantages by reducing procedural steps and thereby also the complication rate. This has been demonstrated for the antegrade transapical access with the balloon-expandable Edwards SAPIEN XT valve. However, the feasibility of TAVI with a balloon expandable device without predilatation using the retrograde transfemoral route has not been evaluated yet.

**Methods:** Twenty-six consecutive patients with stenosis of the native aortic valve undergoing transfemoral TAVI with the Edwards Sapien XT prosthesis were enrolled in this study.

**Results:** The procedure was successfully performed in all 26 patients - irrespective of the aortic valve area and the extent of aortic valve calcification. At baseline mean aortic valve area, mean AV gradient and median LVEF were 0.7 ± 0.2 cm², 36.0 ± 17.3 mmHg and 55.0% [IQR 35.0 – 60.0]; prior to discharge these values changed as follows: 1.7 ± 0.3 (p < 0.001), 9.8 ± 6.1 mmHg (p < 0.001) and 57.5% [IQR 38.7 – 60.0], respectively. Postdilatation due aortic regurgitation > 2+ was required in 3 cases, leading to aortic regurgitation < 2+ in all patients. Of note, no peri-procedural neurological adverse events occurred.

**Conclusions:** Transfemoral aortic valve implantation without pre-dilatation using the Edwards Sapien XT is feasible and safe.

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**TCT-741**

**Risk Stratification and Clinical Pathways Optimize Length of Stay after Transfemoral Transcatheter Aortic Valve Replacement**

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**Background:** The Vancouver Program initiated multidisciplinary and multimodality risk stratification to determine patients’ suitability for a transfemoral (TF) minimalistic peri-procedural approach, and implemented risk-stratified clinical pathways to facilitate discharge and reduce length of stay.

**Methods:** Standardized screening was implemented to conduct multimodality assessments. Following multidisciplinary eligibility decision for TF TAVR by the Heart Team, additional risk stratification was discussed to determine individuals’ appropriateness for the peri-procedural “General Anaesthesia and Transesophageal Echocardiography” (“GA/TEE”) and “Awake” (e.g., local anaesthesia) protocols, and the planning requirements for standard (post-procedure day 3) and early (post-procedure day 1) discharge protocols. Risk-stratified clinical pathways were developed to support the patient cohorts.

**Results:** 144 consecutive patients were accepted for TF TAVR and assigned to risk-stratified protocols. The mean age was 82±7 years, with the proportion of women reaching 37.9%, 32% and 60% in the Awake cohort and 2 (IQR 1-2) in the Early Discharge cohort; 95.8% of patients were discharged home. The 30-day all-cause hospital readmission rate was 11.1%, ranging from 7% and 8% in the Awake and Early Discharge cohorts respectively, to 13% in the GA/TEE and Regular Discharge cohorts; no new deaths occurred between discharge and 30 days.

**Conclusions:** Early experience with TAVR risk stratification, individualized procedural planning and tailored clinical pathways supported by multimodality screening and multidisciplinary case selection and care results in excellent outcomes and optimized length of stay.

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**TCT-742**

**Prognostic Value Of Renal Function Recovery In Patients Undergoing Transcatheter Aortic Valve Implantation (TAVI)**

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**Background:** Chronic kidney injury (CKD) seems to affect survival after TAVI, but inconsistency in data exists. On the contrary, acute kidney injury (AKI) after TAVI is prevalent and more clearly associated with mortality. However, an improvement in serum creatinine is also prevalent after TAVI, possibly due to an improved renal blood flow. We analyzed the effects of an improved serum creatinine on prognosis in patients with and without CKD undergoing TAVI.

**Methods:** All patients undergoing TAVI in our center for whom multiple serum creatinine measurements after TAVI were available were prospectively enrolled from April 2007 to December 2013. DEFINITIVE: Definition of Creatinine Clearance rate < 60ml/min. Serum creatinine was measured before and after TAVI. The ratio of the highest creatinine value after TAVI to before TAVI (CRR) was calculated. A CRR < 1.0 was defined as an improvement, and a CRR ≥1.5 as AKI, further divided according to the AKIN classification.

**Results:** In total, TAVI was performed on 196 (mean age 82±1.6:4, male 42%, logistic EuroSCORE 26±9.16±6.6%) and 218 (mean age 79±9.7:5, male 45%, logistic EuroSCORE 23.8±15.1%) patients with and without CKD, respectively. In the CKD group, CRR was < 1.0, 1.0-1.5, and ≥1.5 in 98 (50.0%), 70 (35.7%) and 28 (14.3%) of patients, respectively. In the group with normal renal function, CRR was < 1.0, 1.0-1.5, and ≥1.5 in 85 (38.9%), 108 (49.5%) and 25 (11.5%) of patients, respectively. AKI was an independent predictor for early and late mortality. An improvement of renal function was a negative independent predictive (2-year mortality in patients with CKD (HR 0.28, 95% CI 0.15 to 0.51; p < 0.001) but not for patients without CKD (HR 0.70, 95% CI 0.41 to 1.20, p=0.19).

**Conclusions:** The occurrence of AKI is an independent predictor for mortality after TAVI in patients with and without CKD. However, an improved renal function after TAVI predicts long-term survival only for patients with prior CKD.

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**TCT-743**

**To Predilate or To Not Predilate? In Transcatheter Aortic Valve Implantation (TAVI)**

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**Background:** The aim of this study was to compare the outcomes of transcatheter aortic valve implantation (TAVI) with the Medtronic CoreValve Revalving System® (MCV) with or without preparatory balloon aortic valvuloplasty (PBAV).

**Methods:** From November 2007 to September 2013 all patients treated with MCV were included in this analysis. Patients were divided in 2 groups: those where PBAV was performed and those where MCV was directly implanted. PBAV was performed according to operator descretion, after consideration of patient anatomical characteristics. Outcomes were assessed according to valvular academic research consortium (VARC-2) criteria at 30 days and 1 year.

**Results:** Of 538 patients that underwent TAVI in our center, 206 were treated with a MCV via one of the available access routes. Of those, 133 underwent PBAV, while 73 direct valve implantation. Baseline characteristics between the 2 groups were similar. At 30 days there were no significant differences in all-cause and cardiovascular mortality (3% vs. 5.5%, p = 0.380; and 1.5% vs. 5.5%, p = 0.105; respectively). A higher rate of new permanent pacemaker (2.8% vs. 0.78%) and a significantly higher rate of at least moderate peri-prosthetic aortic regurgitation (PPAR) requiring valvular balloon post-dilation (VBDP; 35.6% vs. 49.3%, p = 0.056) was noted amongst patients where PBAV was not performed. Conversely patients who underwent PBAV had more AKI (32.3% vs. 19.4%; p = 0.049).

**No significant**