TCT-899
Risk of Respiratory Failure After Minimally Invasive Transapical Aortic Valve Implantation
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Background: Impaired respiratory function is believed to be a risk factor for transapical aortic valve implantation (TA-AVI). The purpose of this study was to investigate the incidence, predictors and impact of acute and chronic respiratory failure (ARF and CRF) on procedural success and outcome.

Methods: 350 consecutive ‘high-risk’ patients, age 81.8 ± 6.4 years, 66.3% female, were included during a 4-year period. Preoperative estimated FEV1 was 91.9 ± 33.6%. Mean logistic EuroSCORE was 31.0 ± 15.9% and mean STS-Score 12.0 ± 7.7%. An uni- and multivariate logistic regression analysis was performed.

Results: Regarding the postoperative respiratory outcome, ARF occurred in 14.9% and interstitial lung disease (OR = 23.40, p = 0.011), transfusion > 4 RBC units (OR = 15.35, p < 0.001), brief reactive psychosis (OR = 8.39, p = 0.001), age ≥ 80 yrs (OR = 3.66, p = 0.035) and vital capacity ≤ 60% (OR = 3.23, p = 0.025) were independent risk factors for this event. Postoperative re-intubation was required in 17.1%. Vital capacity ≤ 60% (OR = 2.94, p = 0.046) and transfusion > 4 RBC units (OR = 16.00, p < 0.001) were independent risk factors for CRF. Short-term and long-term survival was explicitly lower in the ARF, CRF and re-intubation groups (p < 0.001 each).

Conclusions: Interstitial lung disease, age ≥ 80 yrs and vital capacity ≤ 60% are preoperative risk factors for impaired respiratory outcome. Further studies will define if the same risk factors can be expected using a transfemoral approach.

TCT-900
High-degree Atrophicventricular Block and Need for Permanent Pacemaker Implantation after Transcatheter and Surgical Aortic Valve Replacement.
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Background: To evaluate the incidence and predictors of high degree atrophicventricular block (HDABV) and permanent pacemaker implantation (PPM) following surgical aortic valve replacement (SAVR) and transcatheter aortic valve implantation (TAVI).

Methods: We analyzed clinical, electrocardiographic, echocardiographic and peri-procedural data from 336 patients (pts) without prior pacemaker who underwent TAVI with either CoreValve (n=130) or Edwards-Sapien (n=206) prostheses between 2007 and 2011 and from 210 elderly pts (>75 years) undergoing SAVR between 2005 and 2010 in our centre.

Results: Mean age was similar in TAVI:79.4±7.3 vs. SAVR:79.07±2.86 years (p=0.45). TAVI exhibited a higher risk profile (Log Euroscore 22.9±15.8% in TAVI vs. 13.1±11.8% in SAVR, p=0.0001). HDABV occurred in 10% SAVR vs. 13.9% TAVI pts (p=0.2) with an higher resolution in SAVR (90.5%) and 2 pts (0.9%) implanted PPM. PPM implantation was higher in TAVI (n=51, 15.2%, p=0.001) mostly due to HDABV (86.3%) and was lower in Edwards (6.7%) vs. CoreValve (23.1%) group (p=0.001). The main causes of PPM implantation were: 3rd AVB (40pts, 78.5%), 2nd AVB Mobszt 2 (4pts, 4%), symptomatic LBBB and 1st AVB (2pts, 4%), atrial fibrillation with a ventricular rate <40/min (3pts, 6%), QRS widening (1pt, 1.9%), LBBB with sinus bradycardia (2pts, 4%) and brady-tachy syndrome (1pt, 1.9%). The median time from TAVI to PPM was 2 days (IQR=0–12) and from SAVR was 13.5 days (IQR=12–15). On multivariable analysis, the predictors of HDABV were HDAVB (OR 5.195 CI 1.9-16.5; p=0.005) and LAH (OR 3.995 CI 1.3-11.1; p=0.011) in SAVR, whereas ejection fraction below 35% (p=0.052), CoreValve prosthesis (p=0.001), post-dilatation (p=0.001) and RIBBB at baseline (p=0.001) predicted HDABV in TAVI. On only univariate analysis, the depth of valve implantation (p=0.001) and ratio between valve and annulus size (p=0.001) predicted HDABV after TAVI.

Conclusions: The need for PPM following TAVI was higher than SAVR (13.3 vs. 9.5%). Pre-existing RIBBB and LAH were risk factors for HDAVB after SAVR. The predictive factors for complete AVB and PPM in TAVI patients were pre-existing RIBBB, lower ejection fraction, CoreValve prosthesis and valve postdilatation.

TCT-901
Improved Mitral Valve Performance After Transcatheter Aortic Valve Implantation
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Background: Concomitant mitral regurgitation (MR) is frequently present prior to transcatheter aortic valve implantation (TA-AVI). The aim was to study the impact of MR on outcome and the effect of TA-AVI on MR using the Edwards SAPIENTM prosthesis.

Methods: A total of 439 patients, age 81.5 ± 6.4 years, 64.0% female, underwent TA-AVI between Feb/2006 and Aug/2011. Mean logistic EuroSCORE was 29.7 ± 15.7% and mean STS-Score 11.4 ± 7.6%. Outcome was assessed in patients with absent (9.8%), mild (58.5%), moderate (29.7%) and severe (2.0%) MR by pre- and postoperative echocardiology.

Results: Patients with moderate/severe MR versus mild MR had an increased inhospital mortality (HR = 2.60, 95% CI 1.43-5.06, p=0.002), but a comparable 4-year survival (HR = 0.73, 95% CI 0.27-1.93, p = 0.520). During postoperative echocardiographic examination, there was an overall improvement in mitral incompetence (absent in 23.7%, mild in 58.6%, moderate in 17.7%, and severe in none). Independent multivariate predictor(s) of improved MR were a maximum trans-aortic gradient ≤ 50 mmHg (OR = 14.35, p = 0.002), preoperative vena contracta width of the mitral width ≥ 5.0 mm (OR = 8.39, p = 0.004), left-ventricular posterior wall dimension ≥ 1.6 cm (OR = 7.19, p = 0.001) and LVEF ≥ 60% (OR = 4.92, p = 0.007).

Conclusions: Moderate/severe MR prior to TA-AVI is associated with an increased early, but a comparable late mortality. We observed an overall improved mitral valve performance possibly by reducing closure forces acting on the mitral valve.

TCT-902
Report from the Swedish TAVI register: Comparison of two valve types.
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Background: Registry data and recent a randomized trial have established the safety and efficacy of TAVR in high risk operable and non-operable patients. Due to differences between the two common valve types procedural results and outcome may differ. The web-based on-line Swedish TAVI register have since the beginning 2008 captured all implant procedures, 1 month and 1 year FU as well as it tracks mortality in 100% of patients. A total of 568 TAVI procedures were performed. The use of the two devices was similar until 2011 with an increase in CoreValve procedures 122 vs. 87 Sapien. Approximately an equal number of men and women have been treated with a mean age of 82. An increase in transfemoral procedures compared to other access routes is observed. In 2011 the logistic Euroscore was higher for the CoreValve (27.5) compared to the Sapien (25.0). Procedural results are presented in table 1.

Results: From 2008-2010; 568 TAVI procedures were performed. The use of the two devices was similar until 2011 with an increase in CoreValve procedures 122 vs. 87 Sapien. Approximately an equal number of men and women have been treated with a mean age of 82. An increase in transfemoral procedures compared to other access routes is observed. In 2011 the logistic Euroscore was higher for the CoreValve (27.5) compared to the Sapien (25.0). Procedural results are presented in table 1.

Conclusions: From 2008 till 2011 the number of TAVI procedures shows a moderate increase. Logistic Euroscore remains unchanged. Stroke rates are comparable and have decreased from 3 to 1.5 %. The 30 days and 1 year all-cause mortality rate is 6.4% and 14%. Besides the higher number of pacemaker implants in the CoreValve group no major differences were seen between the two devices. The final analysis of the data will be presented at the meeting.