CONCLUSION Among patients with severe AS at high surgical risk, QoL improved significantly and to a similar degree with both LV and CV through 1 year, despite differing rates of specific complications. Longer term follow-up is needed to assess the durability of QoL improvement with LV vs. CV in this population.

CATEGORIES STRUCTURAL: Valvular Disease: Aortic

TCT-785
Low implantation depth during TAVR increases the pressure exerted on the atrioventricular conduction system: a biomechanical analysis

Giorgia Rocatello,1 Nahid El Faquir,2 Patrick Segers,3 Peter Mortier,4 Peter de Jaegere5
1Ghent University, Gent, Belgium; 2Department of Cardiology, Erasmus MC, Rotterdam, Netherlands; 3Ghent University, Gent, Belgium; 4Eops / Ghent University, Gent, Belgium

BACKGROUND Low implantation depth has been associated with the occurrence of new conduction abnormalities after transcatheter aortic valve implantation. However, the impact of implantation depth on the mechanical device-host interaction remains unclear. We used patient-specific computer simulations to investigate the pressure that the frame exerts on the surrounding tissues in vicinity of the atrioventricular (AV) conduction system, at different implantation depths.

METHODS Twenty patients who received an Evolut R (Medtronic, MN, USA) were included in this study. For each patient, a 3D aortic model was obtained from pre-operative CT images and a region of interest in vicinity of the AV conduction system was defined. Finite-element computer simulations were used to virtually implant the device at high, medium and low position. From each simulation the maximum contact pressure exerted by the frame on the region of interest and the relative area of contact were analyzed; differences were compared with the Friedman test.

RESULTS At high implantation depth (3.3±1.3 mm) maximum contact pressure and relative area of contact were 0.28 [0.06-0.38] MPa and 8 [2-13]% respectively, at medium implantation depth (7.2±1.3 mm) 0.48 [0.35-0.73] MPa and 29 [20-33]%, and at low implantation depth (10.9±1.3 mm) 0.62 [0.52-0.69] MPa and 50 [39-55]%. Differences between the 3 different implantation depths were significant (p<0.001) (Figure 1).


**TCT-787**

Comparison of U.S. Hospital Costs Between Transcatheter Aortic Valve Replacement (TAVR) and Surgical Aortic Valve Replacement (SAVR)

Christopher Meduri,1 Janice Chung,2 Jenny Gaffney,3 Simon Henley,2 Jennifer Williams,3 Hemal Gada3

1Piedmont Heart Institute, Atlanta, Georgia, United States; 2Medtronic, Minneapolis, Minnesota, United States; 3PinnacleHealth CardioVascular Institute, Wormleysburg, Pennsylvania, United States

**BACKGROUND**

Given TAVR’s broadening application, the budget constraints faced by hospitals, and the higher cost of the TAVR valve compared to SAVR, there is great interest in understanding how hospital costs compare between TAVR and SAVR.

**METHODS**

To evaluate in-hospital costs across U.S. hospitals, we conducted a retrospective analysis of patients undergoing TAVR or SAVR between January 1, 2014 - September 30, 2016 using the Premier Hospital Database. Patients were included in the study if they underwent a TAVR or SAVR procedure based on ICD-9 and -10 procedure codes and were 65 years or older at the time of the procedure. Patients were matched 1:1 using propensity score method based on patient age, Charlson comorbidity index grouping (4 indices), gender, race, and payor type. In-hospital costs were defined as the total hospitalization cost including operating room, supply, room and board, ICU, lab, etc. plus pharmacy cost, adjusted to 2016 dollars. We supplemented this aggregate-level cost analysis by examining the average in-hospital costs and reimbursement for TAVR and SAVR at two U.S. hospitals.

**RESULTS**

We matched 13,030 TAVR and SAVR patients in the Premier Database. The average, unadjusted, total in-patient hospital cost for TAVR was $60,063 (SD: $37,962) compared to $60,319 (SD: $42,144) for SAVR. The total average supply cost was higher for TAVR by $37,962) compared to $60,319 (SD: $42,144) for SAVR. The total average supply cost was higher for TAVR by $11,407 (TAVR: $14,910, SD: $42,144) for SAVR. The total average supply cost was higher for TAVR by $11,407 (TAVR: $14,910, SD: $42,144) compared to SAVR, there is great interest in understanding how constraints faced by hospitals, and the higher cost of the TAVR valve compared to SAVR. In-hospital costs were defined as the total hospitalization cost including operating room, supply, room and board, ICU, lab, etc. plus pharmacy cost, adjusted to 2016 dollars. We supplemented this aggregate-level cost analysis by examining the average in-hospital costs and reimbursement for TAVR and SAVR at two U.S. hospitals.

**CONCLUSION**

Average, in-hospital costs between TAVR and SAVR were comparable, with the lower cost of room and board, operating room, and lab offsetting the higher supply cost for TAVR.

**CATEGORIES STRUCTURAL:** Valvular Disease: Aortic

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**TCT-788**

Cerebral Microembolic Exposure during Transcatheter Aortic Valve Replacement

Stephanie Tom,1 Jaimin Trivedi,1 Michael Flaherty,1 Kendra Grubb1

1University of Louisville, Louisville, Kentucky, United States

**BACKGROUND**

TAVR is associated with a spectrum of brain injuries. Studies have correlated the likelihood of neurological events with increasing magnitude of microemboli. Recently, a Cerebral Protection System became FDA approved to reduce the risk of stroke during TAVR. Our study evaluated the generation of microemboli during the stages of TAVR.

**METHODS**

Single center, TAVR database queried 1/2013-12/2014, to identify patients who had neuromonitoring during TAVR. 52 patients had complete bilateral data. Neuromonitoring measured cerebral microembolic HITS and bilateral oxygen saturation. Data points were recorded cumulatively: pre-incision, pre-valvuloplasty, valvuloplasty, valve replacement (defined as the valve crossing the annulus), end of 1st pacing run, post-deployment, and closing. The increase between two successive time points was calculated by percent increase.

**RESULTS**

Figure 1 shows the pattern of HITS. 24 (38%) patients had pre-valvuloplasty HITS measured at 0. Pre-valvuloplasty to valvuloplasty median increase in HITS was 81% left, 112% right side. Valvuloplasty to crossing the annulus, median increase 63% bilaterally. From crossing to the end of 1st pacing, HITS increase 106% left and 97% right. From 1st pacing run to post-deployment, bilateral increase 33%. Post-deployment to closing increase was 11% left, 6% right.

**CONCLUSION**

The maximum increase in the microemboli during TAVR occurred between the valve crossing the annulus and the end of the 1st pacing run. Studies using the embolic protection devices are warranted to identify the efficacy in reducing microemboli at the time of valve deployment.

**CATEGORIES STRUCTURAL:** Valvular Disease: Aortic

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**TCT-789**

Safety and efficacy of cerebral protection devices during transcatheter aortic valve implantation. A systematic review and meta-analysis

Luca Testa,1 Francesco Bedogni1

1IRCCS Policlinico San Donato, San Donato Milanese, Milan, Italy; 2Policlinico San Donato, Milano, Milan, Italy

**BACKGROUND**

The use of embolic protection devices (EPD) may theoretically reduce the occurrence of cerebral embolic lesions during transcatheter aortic valve implantation (TAVI). Available evidences from single studies are quite inconclusive. The aim of the present meta-analysis was to assess the safety and efficacy profile of current EPD.

**METHODS**

EMBASE, PubMed, Web of Science Core Collection, and the Cochrane Library were searched up to May 2017 for studies that evaluated patients undergoing TAVI with or without EPD. Endpoint of...