Conclusions: Chord-TAVs with chordal reinforcement provided structural support that greatly reduced leaflet stress and strain. Such reduction will improve valve performance and overall valve durability.

TCT-758
Age Alone Should Not Preclude Surgery: Contemporary Outcomes after Aortic Valve Replacement in Nonagenarians
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Background: A strong component of predicted mortality in scoring systems is advanced age, however, outcomes data in nonagenarians (age >90 years) is lacking. We evaluated surgical outcomes after aortic valve replacement (AVR) in nonagenarians at our institution over an 11-year period.

Methods: Demographics, procedural details, and in-hospital outcomes were retrospectively analyzed on 119 patients with severe aortic stenosis (AS) who underwent AVR or AVR-concomitant surgery between 2001 and 2012. Mean duration of follow-up was 915±382 days.

Results: The average age was 91.7±1.9 years (range 90-97) and mean STS score was 8.9±5.7. Over 98% of patients met echocardiographic criteria for severe AS (mean gradient 45.0±16.1 mmHg, aortic valve area 0.66±0.02 cm2), had an ejection fraction of 49.8±11.8%, and 47% underwent an isolated AVR. Though average length of stay was longer than expected, rates of prolonged ventilation (16.8%), new atrial fibrillation (43.7%), stroke (0.8%), and renal failure (5.9%) were acceptable. Three patients (2.5%) required reoperation for bleeding. Overall 30 day or in-hospital mortality was 9.8%, and multivariate predictors of mortality at 1 years included prior myocardial infarction (2.5%) required reoperation for bleeding. Overall 30 day or in-hospital mortality was longer than expected, rates of prolonged ventilation (16.8%), new atrial fibrillation (43.7%), stroke (0.8%), and renal failure (5.9%) were acceptable. Three patients (2.5%) required reoperation for bleeding. Overall 30 day or in-hospital mortality was 9.8%, and multivariate predictors of mortality at 1 years included prior myocardial infarction (2.5%) required reoperation for bleeding. Overall 30 day or in-hospital mortality was 9.8%, and multivariate predictors of mortality at 1 years included prior myocardial infarction (2.5%) required reoperation for bleeding.

Table 1. Demographics and Procedural Outcomes

<table>
<thead>
<tr>
<th>Procedure status, n (%)</th>
<th>Isolated AVR</th>
<th>AVR + CABG</th>
<th>AVR + MVR</th>
<th>AVR + Other</th>
<th>AVR + surgery</th>
<th>Re-operation for bleeding, n (%)</th>
<th>30-day or in-hospital mortality, n (%)</th>
<th>Cumulative mortality at 1 year, n (%)</th>
<th>Isolated AVR</th>
<th>AVR+ any surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concomitant surgery status, n (%)</td>
<td>56 (47.1%)</td>
<td>47 (39.5%)</td>
<td>10 (8.4%)</td>
<td>6 (5.0%)</td>
<td>18.7±13.2</td>
<td>3 (2.5%)</td>
<td>9 (7.6%)</td>
<td>16.1%</td>
<td>25.4%</td>
<td></td>
</tr>
</tbody>
</table>

Valve Replacement in Nonagenarians

Conclusions: Chord-TAVs with chordal reinforcement provided structural support that greatly reduced leaflet stress and strain. Such reduction will improve valve performance and overall valve durability.

TCT-759
Correlates for Device Malposition during Aortic Valve-in-Valve Implantation: Insights from the Global Valve-in-Valve Registry
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Background: The incidence of transcatheter heart valve (THV) device malposition is higher during aortic valve-in-valve implantation (VinV). We aimed to evaluate for correlates for this complication.

Methods: Aortic VinV procedures included in the Global Valve-in-Valve Registry were investigated (459 procedures, 246 Edwards SAPIEN and 213 CoreValve).

Results: THV device malposition occurred in 50 cases (10.9%) resulting in attempted device retrieval (10.3%) or re-implantation (7.5%). CoreValve vs. 4.1% Edwards SAPIEN, p=0.052). Device malposition was more common during CoreValve VinV procedures (16.4% vs. 6.1%, Edwards SAPIEN, p=0.0004). In Edwards SAPIEN VinV procedures there was no difference in malposition rate between transfemoral and transapical procedures (4.1% vs. 7%, p=0.39). Device malposition was more common in procedures performed early in the learning-curve (14.4% vs. 9% after the seventh case per center, p=0.046), with regurgitant bioprostheses (13.3% vs. 7.2% in bioprostheses with isolated stenosis, p=0.04) and with stentless and Mosaic stented valves (16.1% vs. 14.0% vs. 9.0% in non-Mosaic stented valves, p=0.04).

Conclusions: Device malposition is common during aortic VinV procedures and may result implantation of a second THV device. Malposition was more common when performed early in the learning curve, with CoreValve VinV procedures and with regurgitant, stentless and Mosaic bioprostheses.

TCT-760
All-Cause Mortality after Surgical or Trans-Catheter Aortic Valve Replacement in Patients with Low-Flow Low-Gradient Aortic Stenosis
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Background: Low-Flow Low-Gradient (LF-LG) or “Paradoxical Aortic Stenosis” is a rarely encountered clinical entity with limited data on clinical outcomes after surgical (SAVR) or trans-catheter aortic valve (TAVI) replacement. We conducted a meta-analysis of all the studies comparing all-cause mortality after aortic valve replacement in LF-LG AS in comparison to medical therapy alone.

Methods: A thorough PubMed (time-unlimited till 06/01/2013) search revealed 5 studies comparing TAVI/SAVR outcomes in LF-LG aortic stenosis (mean gradient <40mmHg; stroke volume index <35ml/m2). Primary clinical endpoint was all-cause mortality at 2 year follow-up. Odds ratio (OR) and confidence interval (CI) were estimated using the random effects model.

Results: A total of 607 patients (SAVR/TAVI 263; medical therapy 344) were included in the analysis. Baseline characteristics of these patients in valve replacement and medical therapy arms were comparable. At 2-year follow-up, SAVR/TAVI was associated with lower all-cause mortality (24.3% vs. 55.8%; OR 0.36, 95% CI 0.15 – 0.83). This corresponds to an absolute risk reduction of 31.5% and a Number Needed to Treat 3.55 to save one life.

Conclusions: Excellent procedural and long-term outcomes can be achieved in nonagenarians, and age alone should not be a contraindication for valve replacement in select populations. This sample cohort validates the feasibility of a primary operative strategy in elderly patients with AS and acceptable risk profiles.
Conclusions: Patients with LF-LG aortic stenosis experience very high 2-year mortality, and the rate of valve replacement with surgical or trans-catheter approach results in improved 2-year survival and saves 1 life for every 3.6 patients treated with SAVR/TAVI. Data on outcomes of TAVI in these complex patients continues to evolve and mandates heart team approach in clinical decision making.

TCT-761

Usefulness of Activated Clotting Time Guided Heparin Administration in Reducing Bleeding Events during Trans-femoral Transcatheter Aortic Valve Implantation

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Background: Bleeding after TAVI still remains a frequent and potentially serious complication. A common cause of bleeding in this population might be represented by excessive intraprocedural anticoagulation with heparin. Adjusted heparin dose administration using baseline ACT guidance may reduce the risk of overdosing in this frail population. The aim of our study is to evaluate the impact of the Activated Clotting Time (ACT)-guided heparin administration on bleeding occurrence during trans-femoral (TF) Transcatheter Aortic Valve Implantation (TAVI).

Methods: Among 362 patients undergoing TF-TAVI, heparin was administered according to two strategies: baseline ACT (ACT-guided, n=174) or patient’s own body weight (non-ACT-guided, n=188) patients. The primary study objective was 30-day major bleeding occurrence as defined by the Valve Academic Research Consortium (VARC) criteria. Secondary objectives were any life-threatening and minor bleeding, vascular complications, acute kidney failure, myocardial infarction, stroke, all-cause and cardiovascular mortality at 30 days according to VARC.

Results: Bleeding occurred in 167 (46.1%) patients; of these 76 (21.0%) had major bleeding. Of note, the ACT-guided group had a significant lower occurrence of major bleeding (9.8% vs. 23.8%, p<0.001), life-threatening (12.1% vs. 20.2%, p=0.04) and any bleeding (25.9% vs.64.9%, p<0.001). Conversely, no differences were noted in the other secondary study objectives. Importantly, irrespective of the time the procedure was performed (experience phase) and of the operator preference in heparin administration, the ACT-guided strategy was associated with a significant lower occurrence of major bleeding at 30 days. Moreover, after multivariate adjustment for potential confounders ACT-guided propriety, the absence of ACT guidance was an independent predictor of major bleeding at 30 days [OR 6.4, 95%CI (2.3-17.9), p<0.001].

Conclusions: In our experience, ACT guidance in TF-TAVI was correlated with a significant lower occurrence of major, life-threatening and any bleeding. This strategy might be an useful tool in reducing bleeding in this high-risk population.

TCT-762

Is a high pacing rate post TAVI associated with appropriate pacemaker utilisation? A multi-centre registry retrospective analysis of pacemaker utilisation in patients paced following TAVI

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Background: Permanent pacemaker (PPM) recognition is a required complication of Transcatheter Aortic Valve Implantation (TAVI) (published rate of 16-40%) and surgical aortic valve replacement(AVR)(8% of cases). PPM requirement post CoreValve TAVI is influenced by 3 main factors: 1) electrocardiograph predictors, 2) depth of CoreValve below annulus,3) timing of pacing rate decision. Early pacing may allow earlier discharge but this may contribute to higher pacing rates.PPM utilisation and how this relates to pacing rates in TAVI patients has not previously been studied.

Methods: Data from a total of 821 consecutive patients treated between 2008 and July 2012 with CoreValve in the four UK TAVI centres (A, B, C and D) was examined. A retrospective analysis of all patients who received a pacemaker was performed.

Methods: Pre-TAVI electrocardiograph revealed a similar distribution of conduction abnormalities in patients who required a PPM. Centre B had a significantly lower percentage of 20.9 ± 25.6% and Centre D had a significantly higher percentage of 44.8 ± 23% (p<0.001).

Conclusions: In our experience, ACT guidance in TF-TAVI was correlated with a significant lower occurrence of major, life-threatening and any bleeding. This strategy might be an useful tool in reducing bleeding in this high-risk population.

TCT-763

A Risk Prediction Algorithm for 1-Year Mortality after Transcatheter Aortic Valve Implantation

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1University Heart Center Hamburg, Hamburg, Germany, 2University Hospital Bonn, Bonn, Germany, 3University Hospital of Cologne, Cologne, Germany

Background: Transcatheter aortic valve implantation (TAVI) is an increasingly common procedure in elderly and multimorbid patients with aortic stenosis. A pre-procedural risk evaluation scheme beyond current surgical risk scores has not been widely implemented.

Methods: We developed a risk algorithm for 1-year mortality in two cohorts consisting of 845 patients undergoing routine transapical or transfemoral TAVI procedures by commercially available devices, mean age 80 ± 6.5, 51% women. Clinically available variables and surgical risk scores were determined at baseline. Multivariable Cox regression related clinical data to mortality (n=207 deaths).

Results: Age, sex, body mass index, estimated glomerular filtration rate, hemoglobin, pulmonary hypertension, and mean transvalvular gradient and left ventricular ejection fraction at baseline were most strongly associated with mortality (C-statistic 0.66, 95% confidence interval [CI] 0.61 to 0.70, calibration Chi2 statistic=5.61; p=0.09). Type b natiretic peptide and troponin I were significantly related to outcome after multivariable-adjustment, but did not improve the C-statistic. Frailty increased the C-statistic to 0.71 (95% CI 0.65 to 0.76).

Conclusions: We present a specific risk evaluation tool derived and validated in routine TAVI cohorts that predicts 1-year mortality better than the conventional scoring systems. Biomarkers only marginally improved risk prediction. Our risk algorithm may help to guide decision-making when TAVI is planned.

TUESDAY, OCTOBER 29, 2013, 3:30 PM–5:30 PM

POSTERS

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