**TCT-663**

Anatomic and Procedural Predictors of Paravalvular Leak following Transcatheter Aortic Valve Replacement with a Self-expanding Prosthesis at a High Volume Center Including a Novel Variable of Inflow Expansion

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**BACKGROUND** Transcatheter Aortic Valve Replacement (TAVR) is frequently used to treat patients with symptomatic, severe aortic stenosis in whom surgery is considered to be high-risk or contraindicated. Post-procedural paravalvular leak (PVL) remains a significant issue with a complex etiology. Our objective was to investigate anatomic and procedural predictors of post-TAVR PVL in patients undergoing implantation of the self-expandable Corevalve transcatheter heart valve (THV).

**METHODS** 82 patients undergoing TAVR with Corevalve THV who underwent pre-procedural multi-detector row computed tomography (MDCT) and intra-procedural transesophageal echocardiography (TEE) were included. PVL severity was graded using modified VARC-2 criteria. Annulus dimensions, annulus angulation from the axial plane, and calcium volume scores were measured by MDCT. Pre-implant peak transaortic velocity, aortic valve effective orifice area (EOA), left-ventricle stroke volume (LV SV), left-ventricle ejection fraction (LVEF), and post-implant THV dimensions, implant depth, and PVL were assessed by TEE. An independent t-test was used to compare groups.

**RESULTS** Mean age was 83.0 years and 54% of patients were female. 89 patients (49%) underwent balloon post-dilatation. Age and gender did not significantly differ between patients with > mild and ≤ mild PVL. Out of the 82 patients studied, 57 had < mild, 14 had mild, 4 had mild-moderate, and 7 had moderate PVL at the end of the case. No patient had > moderate PVL. Calcium volume score, annulus angle, baseline transaortic peak velocity, and device size were significantly higher in the > mild PVL group (Table 1). MDCT-derived % perimeter oversizing, LVEF, and a novel variable of THV inflow expansion (3-dimensional TEE-derived THV inflow area/ native annulus area) were significantly lower in the > mild PVL group. Native annulus eccentricity, LV SV, baseline aortic valve EOA, and echo-derived implant depth were not significantly different between the 2 groups.

**CONCLUSIONS** Among patients undergoing TAVR with a self-expanding Corevalve THV, PVL severity was related to higher annulus angle and device size, baseline transaortic peak velocity, THV size, lower LVEF, %oversizing, and a novel variable of inflow expansion.

**CATEGORIES STRUCTURAL** Valvular Disease: Aortic

**KEYWORDS** Paravalvular leak, Structural heart, TAVR

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**TCT-664**

Prognostic Impact of Pacemaker Implantation after Transfemoral/Trancutaneous Aortic Valve Implantation – Lessons from a Large Single Centre Registry

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**BACKGROUND** Transfemoral/Trancutaneous aortic valve implantation (TAVI) is an alternative to surgical aortic valve replacement (SAVR) in high risk patients with severe symptomatic aortic stenosis due to its excellent hemodynamic results and high rates of significant conduction disturbances with the need for post-interventional pacemaker implantation (PMI) have been reported. Therefore, the aim of analysis was to determine the frequency of conduction disturbances and the need for PMI after TAVI and the impact on procedural and mid-term outcome.

**METHODS** Patient receiving TAVI at our center between 2006 and 2014 have been enrolled in a prospective single centre registry. The occurrence of conduction abnormalities and the need for PMI has been recorded in 1700 consecutive patients treated predominantly with the transfemoral approach under local anesthesia. The database was analyzed with regards to significant conduction disturbances, the need for PMI and the impact on survival.

**RESULTS** Patients with a mean age of 80.6 ± 6 years, a mean STS Score of 8.5 ± 6.2% and a logEuroSCORE of 19.8 ± 13.6% were treated predominantly with the self-expandable Medtronic Core Valve System (80.5%). The balloon-expandable Edwards SAPIEN valves, other devices and valve-in-valve procedures have been performed less frequently (29%, 7%, 4%). The overall pacemaker rate was 28.1% at 30-days and significantly higher in patients treated with the MCV (31.1%) and other valve types (24.3%) as compared with patients treated with the Edwards SAPIEN (17.9%; p < 0.05). The predominant conduction disturbances were high grade AV-Block or significant bradycardia in 84% of cases. The length of hospital stay and mortality after 30-days did not significantly differ (14±7 vs. 13±8 days, p>0.05; 7.0% vs. 7.3%, p>0.05) whereas patients with a pre-existing PMI could be discharged earlier (10±3 days, p<0.05). The one-year mortality of patients with PMI after TAVI was not significantly different either (20.8% vs. 23.3%, p>0.05).

**CONCLUSIONS** These real-life registry data show that significant conduction disturbances with the necessity of pacemaker implantation occur frequently. The need of PMI alone does not affect mortality significantly. But further analysis is necessary to evaluate possible side effects of PMI after TAVI.

**CATEGORIES STRUCTURAL** Valvular Disease: Aortic

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**TCT-665**

Safety and Efficacy of Second Generation Self Expanding Portico Valve System for the Treatment of Failed Aortic Bioprostheses: Results from an International MultiCenter Valve-In-Valve Registry

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**CATEGORIES STRUCTURAL** Valvular Disease: Aortic
BACKGROUND: Portico valve is a second-generation self-expanding repositionable system with a nitinol stent frame and bovine pericardial leaflets, which is increasingly utilized for transcatheter aortic valve replacement (TAVR) in patients with severe native aortic stenosis at high risk of conventional surgery. In this report, we describe the procedural and early clinical results from an international multicenter registry of Portico implantation in patients with degenerated aortic bioprosthesis (Portico TV). METHODS: Baseline demographics, procedural and clinical outcomes were collected on standard case report forms and by the Valve-in-Valve International Data network from 14 centers across three continents. Procedural endpoints included implantation success and coronary obstruction. Clinical endpoints included death, myocardial infarction (MI), stroke, major bleeding at 30 days as defined by Valve Academic Research consortium II (VARCII). RESULTS: 45 patients undergoing Portico TV were included in analysis. The mean age was 79 ± 7 years with STS (mortality) score of 7±4. These procedures had mainly utilized peripheral arterial access (93%), with transseptal echocardiogram guidance (60%) for treatment of surgical valve size <21, <21–25, and ≥25mm in 36, 38 and 27% respectively. Four (9%) of the failed surgical bioprostheses were stentless. Successful implantation was achieved in 44 (98%) cases with no malposition events or clinically-evident coronary obstruction. Post implantation valve area was 1.3 ± 0.4 cm², mean gradient of 17.1 ± 7.7 mmHg and ≥ moderate aortic insufficiency was observed in 3 (7%). One death (2%) related to ischemic stroke occurred within 30 days. Major bleeding and vascular complication in 5 (11%) and 1 (2%) respectively. One patient required permanent pacemaker implantation (2%). CONCLUSIONS: Results from this international multicenter registry show that Portico offers a safe and effective treatment of failed surgical bioprosthesis with an added advantage of device retrievability, resulting in low incidence of malpositioning and coronary obstruction. The registry and comparison with other transcatheter devices should further determine the hemodynamic and clinical performance of this device for selection of optimal treatment of high risk patients with failed surgical bioprostheses. CATEGORIES STRUCTURAL: Valvular Disease: Aortic

TCT-667
Aortic Valve Intervention In Octogenarians In The “TAVI-Era”: Analysis Of The UK National Adult Cardiac Surgery Audit Registry And The UK Transcatheter Aortic Valve Implantation (TAVI) Registry Between 2006 and 2012
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BACKGROUND: Transcatheter aortic valve implantation (TAVI) is a treatment for patients with aortic stenosis deemed high risk for aortic valve replacement (AVR). Advancing age independently predicts mortality after AVR, so that most patients undergoing TAVI are elderly. This study presents UK trends in activity and outcomes for TAVI and AVR in patients aged 80 or over in the “TAVI era”. METHODS: Data for all AVR and TAVI procedures between January-2006 and December-2012 were sourced from (i) the UK Cardiac Surgery Registry and (ii) the UK-TAVI Registry. Patient demographics, 30-day mortality, postoperative length of stay (PLOS), 1-year and 5-year survival were analyzed for four groups: TAVI, AVR, AVR-coronary artery bypass graft surgery (CABG), and AVR-other concomitant surgery. RESULTS: Total aortic valve interventions increased between 2006 and 2012 from 1206 to 2668 (by 121%). Between 2006 and 2012, the number of isolated AVR procedures increased from 485 to 808 (by 67%), while between 2007 and 2012, TAVI increased from 47 to 798 (by 160%). TAVI patients were older, more likely to be female, in NYHA class IV, with prior cardiac surgery, renal, pulmonary, and ventricular dysfunction, extra-cardiac arteriopathy, and neurological disease than AVR patients (logistic EuroSCORE 23.5 ± 13.7 vs. 13.6 ± 9.5, p < 0.001). 30-day mortality was 10.55% (AVR-other), 5.61% (AVR+CABG), 5.54% (TAVI), and 3.45% (AVR). Mean PLOS (days) were 17.8 (AVR-other), 14.4 (AVR+CABG), 12.6 (AVR), and 9.1 (TAVI). 1-year survival was 89.6% (AVR), 85.1% (AVR+CABG), 81.9% (TAVI), and 78.8% (AVR-other surgery). 5-year survival was 64.2% (AVR), 59.7% (AVR+CABG), 56.5% (AVR-other surgery), and 43.4% (TAVI).

CONCLUSIONS: In 2012, TAVI made up only 2% of all aortic valve interventions in patients ≥80 years. This had increased ten-fold to almost 30% of all aortic valve interventions by 2012. Despite increased age and risk scores, length of hospital stay was shorter, and 30- and 1-year mortality rates were comparable with other aortic valve interventional groups.

CATEGORIES STRUCTURAL: Valvular Disease: Aortic