Clinical Outcome Of Patients With Low-Flow, Low-Gradient Aortic Stenosis
TCT-845

Transcatheter Aortic Valve Implantation with Edwards SAPIEN XT™ versus Medtronic CoreValve Revailing System® with AccuCure™: The SAPERE Pilot Study
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Background: To our knowledge no data exists comparing new generation commercially available devices for transfemoral (TF) transcatheter aortic valve implantation (TAVI).

Methods: All consecutive patients from our single-center prospective registry with AS treated with TF-TAVI with Edwards SAPIEN XT™ (SXT) or Medtronic CoreValve (MCV) with AccuTrak™ delivery system vs MCVAT when the devices became commercially available were included. The study endpoints were described by the Valve Academic Research Consortium (VARC) definitions.

Results: In total, 235 patients treated in our center by TF TAVI for severe AS were included: 142 (60.4%) underwent SXT vs. 93 (39.6%) MCVAT. More females (60.6% vs. 43.0%; p = 0.008) and smaller annulus size (23.2±1.9 vs. 24.3±2.0; p<0.001) were present in the SXT group. There were no differences between valves in 30-day combined safety endpoint (SXT 26.1% vs. MCVAT 29.2%; p=0.558), all-cause mortality (3.1% vs. 6.5%; p=0.364), cardiac arrest mortality (2.3% vs. 5.4%; p=0.214), myocardial infarction (1.4% vs. 2.2%; p=0.683) or stroke (0.7% vs. 1.1%; p=0.774). Additionally, no differences were observed in life-threatening bleeding (12.4% vs. 20.4%; p=0.100) or major vascular complications (12.0% vs. 9.7%; p=0.583). Conversely, with SXT there was a lower occurrence of conduction disorders/arrhythmia (16.5% vs. 2.0%; p=0.001) and pacemaker implantation (5.8% vs. 33.3%; p<0.001). Of note, a higher device success (96.5% vs. 88.2%; p=0.013) was observed with SXT. At median follow-up of 328 (IQR 83-401) days, there was no difference in combined efficacy endpoint (14.8% vs. 9.8%; p=0.265) or mortality (8.0% vs. 6.5%; p=0.654).

Conclusions: In our single center experience, there was a lower incidence of arrhythmia and pacemaker, with higher device success with SXT. Differences in the characteristics of the patients treated with each valve may explain some of these findings.

TCT-844

Clinical Outcome Of Patients With Low-Flow, Low-Gradient Aortic Stenosis After Transcatheter Aortic Valve Implantation
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Background: Previous studies showed that patients with impaired left ventricular (LV) function and low-flow, low-gradient (LFLG) aortic stenosis (AS) are associated with high operative risk and poor long-term outcome after surgical aortic valve replacement. The aim of this study was to investigate the clinical outcome of LFLG AS after transcatheter aortic valve implantation (TAVI).

Methods: 450 consecutive patients in high operative risk underwent TAVI with the Medtronic CoreValve (Medtronic, Minneapolis, MN, USA) or Edwards Sapien (Edwards Lifescience, Irvine, CA, USA) prostheses at our institution between June 2008 and February 2012. Full data of 341 patients was collected. Of these, 190 patients presented with normal-flow, high gradient (NHFG) AS (aortic surface area (ASA) <1.0 cm², mean gradient (ΔPmean) >30 mmHg, left ventricular ejection fraction (LVEF) >50%) and 25 patients with LFLG AS (ASA <0.3 cm², LVEF >50%, stroke volume index (SVI) <35 ml/m²).

Results: Patients with LFLG AS had a similar all-cause mortality at 12 month after TAVI compared to patients with NHFG AS (85% vs. 85.6%; p=0.771). The LVEF decreased slightly but significant after 4 weeks (60.1±1.9% vs. 4 weeks 57.5±5.5%; p=0.049), but remained stable after 6 month (57.6±5.1%) and 1 year (56.9±5.7%). Furthermore, patients with LFLG AS showed slightly high values of NT-pro-BNP at baseline but a similar reduction over time (PLFLG: before 2385 ±2966 ng/ml vs. 1 year 2260 ±1814 ng/ml; p=0.079) in comparison to reduced symptoms of heart failure. NYHA functional capacity improved similar between both groups (PLFLG vs. NHFG: Δ4 weeks: -1.2 ± 0.7 vs. -1.2 ± 0.8; p=n.s.; Δ6 month: -0.9 ± 0.7 vs. -1.3 ± 0.8; p=n.s.; Δ12 month: -1.3 ± 1 vs. -1.2 ± 0.8; p=n.s.).

Conclusions: This study shows that patients with LFLG AS have a similar benefit after TAVI as patients with NHFG AS and should no longer be withheld from TAVI procedures.

TCT-846

Acute assessment of transcatheter aortic valve performance after implantation into degenerated aortic surgical bioprostheses
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Background: Transcatheter aortic valve implantation into failing aortic xenografts is increasingly accepted as a new treatment option for patients in need of re-do open heart surgery. Aim of the study was to compare the acute transvalvular hemodynamics between the Medtronic CoreValve (MCV) prosthesis and the Edwards SAPIEN valve (ESV) after valve-in-valve implantation (ViVi).

Methods: A total of 24 pts (70.8% male, aged 72.6±7.8 years, mean logES 32.2±19.4%) underwent a transfemoral transcatheeter ViVi for a failing aortic xenograft at our institution. Due to the high frequency of small surgical valves (outer diameter - OD - 21mm: n=11; 23mm n=8; 25mm n=2; ≥27mm n=3) ViVi was predominantly done with the MCV (17pts; 71%) compared to ESV (7pts: 29%; Edwards Sapien n=2, Sapien XT n=5).

Results: Procedural success rate was 87.5%, with 1 pt. displaying moderate aortic regurgitation (deep implanted MCV) and 2 pts. in need of a second MCV due to valve embolisation into the ascending aorta (after a temporary implantation within small surgical xenografts, both with an OD of 21mm). Thirty-day-mortality was 0%. The average mean aortic valve gradient (ΔPmean) decreased significantly after ViVi (30.6±14.9 mHg at baseline vs. 12.4±3.9 mHg after ViVi; p<0.001). Acute hemodynamic data was significantly superior with MCV implanted into xenografts with an OD ≤ 23mm (MCV n=13; ΔPmean 12.0±3.9 mHg; ESV n=3; ΔPmean 25.6±2.51 mmHg, p=0.02) and severe patient prosthesis mismatch was more likely with ESV (indexed effective orifice area: 0.64±0.19 vs. 0.86±0.16, p<0.004). The significantly higher gradient with ESV vs. MCV after ViVi into xenografts with an OD of ≤23mm was confirmed by comparison of pooled and recently published data of n=64 ESV (Pmean 17.8±8.4 mHg; p=0.009).

Conclusions: The low 30d mortality suggests that percutaneous transcatheter ViVi- procedures for failing bioprosthetic aortic valves is an effective treatment option for high-risk surgical patients. The MCV should be considered as the first choice in small surgical xenografts (OD ≤ 23mm) due to lower remaining transvalvular gradients. Nevertheless, the more demanding implantation with MCV indicates that a smaller MCV-prosthesis (i.e. 23mm) is urgently needed to increase the safety of ViVi.

TCT-847

Adequate choice of the post dilatation balloon size in patients undergoing TAVI based on the CT scan analysis
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Background: Scarcity of data is available regarding adequate choice of the postdilatation balloon size in TAVI. Hereby, we demonstrate the value of CT scan to choose accurately the post dilation balloon size.