TCT-717
Prognostic impact, imaging and clinical predictors of mitral regurgitation improvement after TAVI in aortic stenosis patients: A multicentric study
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BACKGROUND Simultaneous mitral regurgitation (MR) is common in patients undergoing percutaneous aortic valve implantation (TAVI), but its impact is controversial. Albeit multidetector computed tomography (MDCT) is routinely performed to TAVI candidates in many centers, the potential usefulness of this tool to decide which patients with dual valveopathy may benefit from isolated TAVI is unknown. METHODS We analyzed 1110 patients from 6 centers treated with TAVI according to the baseline degree of their MR. All clinical and procedural variables were prospectively recorded. An off-line analysis of echocardiographic and MDCT images, including annulus and leaflets semi-quantitative analysis of calcification, was performed in order to determine predictors of MR improvement. Multivariate analysis was performed to determine predictors of MR improvement and of mortality.

RESULTS Mean age was 80.5 ±7 years, and mean STS-score 7.2±5.1%. Patients with moderate-to-severe MR (n=177, 15.9%) were more frequently males (57.6 vs. 38.9%, p<0.001), considered of functional etiology in 37.3% vs. 27.5%, p=0.009, and with lower degree of annulus and leaflets calcification as estimated by MDCT (p<0.001 for both). They required more frequently hemodynamic support during the procedure (9.5 vs. 2.9%, p=0.001) despite similar left ventricular ejection fraction, and presented higher rate of new-onset atrial fibrillation (NOAF) (17.9 vs. 9.8%, p=0.003). Functional NYHA class was similar in the follow-up but both in-hospital (9 vs. 4.6%) and 6-month mortality (35.9 vs. 9.4%) were higher (p=0.016 and p<0.001, respectively). Among them, the degree of MR improved in 103 patients (58.2%) with presence of calcification as estimated by MDCT (p<0.001 from isolated TAVI is unknown. RESULTS From 2011 until 2015, a total of 249 patients (corresponding to 53% of the entire registry population) with functional MR (53% ischemic, 47% nonischemic etiology) and a median left ventricular ejection fraction of 35% (range 26-47%) were included in the current analysis. Acute improvement (to the grade 1 or 2+) was achieved in 87%, and confirmed at 6 months in 75% of the patients with 74% still NYHA functional class I or II. These results did not differ substantially when comparing them to the entire registry population. 6 months survival (91.1%; 95%CI: 86.8-94.1%) trended to be lower compared to the entire registry population, particularly for patients with non-ischemic origin, which resulted a significant predictor of mortality (HR: 2.32; 95%CI 1.5-3.6). More details of the ongoing analysis and 12 months follow-up data will be available at the time of the meeting.

TCT-718
Percutaneous mitral valve repair in functional mitral regurgitation: preliminary results from the of the Swiss nationwide investigator-initiated prospective MitraClip® registry (MitraSwiss)
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BACKGROUND Paravalvular regurgitation is an uncommon yet serious complication associated with surgical prosthetic valve implantation. Studies show an incidence between 3% and 6% of para-valvular prosthetic leak with clinical manifestations. Surgical repair is the best treatment for these cases. However in high risk patients, paravalvular leak closure seems to be a promising and less invasive option. There are few studies in the literature comparing the two treatment options.

METHODS A retrospective, observational study of 35 patients with diagnosis of paravalvular prosthetic regurgitation with clinical
CONCLUSIONS The median age at the time of diagnosis was 54 ± 14 years, 71.4% of whom were men. The mitral valve had a higher incidence of paravalvular leak (60%) and was more common in biological valve prostheses (51.4%). We report 10 patients (28.6%) in the percutaneous leak closure group, and 25 patients (71.4%) in the surgical repair group. The percutaneous leak closure group had patients of higher risk, older patients (63 ± 13 vs. 54 ± 14, p = 0.011), higher prevalence of diabetes (30% vs. 0%, p = 0.018), increase number of previous surgeries (2.6 ± 1 vs. 1.72 ± 0.7, p = 0.04) and lower creatinine clearance (Cockcroft-Gault Equation) (72 ± 38 vs. 90 ± 38, p = 0.07). The clinical presentation was heart failure class III by New York Heart Association classification (40%) and hemolytic anemia (42%). During hospitalization we report 74.3% of complications in the both groups, the surgical repair group had more bleeding complications (48% vs. 30%, p = 0.45) and infection (36% vs. 10%, p = 0.21), however this complications did not have statistical significance when clinical outcomes were analyzed between the groups. At 1 year follow up, mortality (0% vs. 20%, p = 0.05) did not have statistical significance.

CONCLUSIONS Symptomatic paravalvular prosthetic regurgitation is an uncommon yet serious complication more associated with mitral valve and biological prostheses. Surgical repair is the best treatment option; however percutaneous leak closure is a promising treatment option; however percutaneous leak closure is a promising treatment with lower complication rates (42%) and infection (42%). During hospitalization we report 74.3% of complications in the both groups, the surgical repair group had more bleeding complications (48% vs. 30%, p = 0.45) and infection (36% vs. 10%, p = 0.21), however this complications did not have statistical significance when clinical outcomes were analyzed between the groups. At 1 year follow up, mortality (0% vs. 20%, p = 0.05) did not have statistical significance.

CATEGORIES STRUCTURAL: Valvular Disease: Mitral
KEYWORDS Leaks

TCT-721
Four-Dimensional Analysis Of Mitral Valve Geometry Before And After Percutaneous Edge-to-Edge Mitral Valve Repair
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BACKGROUND Percutaneous treatment of mitral regurgitation (MR) is an option for patients facing a high operative risk. The influence of percutaneous edge-to-edge mitral valve repair (PMVR) on the mitral valve (MV) geometry is not yet clearly understood. We herein present a novel four-dimensional echocardiography based computational model to assess morphologic MV changes during the complete cardiac cycle before and after edge-to-edge MV repair.

METHODS Twenty-eight consecutive patients (mean age 77 ± 8 years) underwent elective PMVR for mitral regurgitation with the MiraClip® device. Periprocedural RT3DTEE data were analyzed using a semi-automated MV modeling software (eSie Valves™) focusing on MV orifice area, commissural diameter, anterio-posterior diameter, anterolateral-posteromedial diameter, and MV annular circumference and annular height throughout the entire cardiac cycle in 10% steps.

RESULTS PMVR led to a reduction in MV orifice area (4.6 ± 1.9 and 1.5 ± 0.5 cm²; P < 0.001) and a postponed opening of the MV leaflets in diastole (20 and 35% of cardiac cycle). The anterior-posterior diameter was reduced significantly (34.5 ± 5.0 and 31.9 ± 3.8 mm; P < 0.001) whereas the anterolateral-posteromedial and commissural diameter increased in diastole (39.7 ± 5.0 and 42.3 ± 4.6 mm; P < 0.001 and 38.8 ± 4.9 and 41.0 ± 4.3 mm; P < 0.001), respectively. No significant changes were detected for annular area, annular circumference and annular height.

CONCLUSIONS Four-dimensional analysis after PMVR depicts significant changes in the MV geometry. Furthermore not yet detected changes of MV opening and closing are presented. To the best of our knowledge this is the first 4-dimensional analysis of MV before and after PMVR.

CATEGORIES STRUCTURAL: Valvular Disease: Mitral
KEYWORDS Echocardiography transthoracic, 3-dimensional, Mitraclip, Percutaneous mitral valve repair

TCT-720
Transfemoral Closure of Mitral paravalvular leak in the presence of metallic aortic valve
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BACKGROUND The Use of retrograde femoral access to close Mitral Paravalvular Leakage (MPVL) in patients with the combination of aortic and mitral metallic prostheses has considered contraindicated. The aim of this study was to assess the safety and feasibility of Percutaneous Closure of MPVL in patients with double aortic and metallic prostheses.

METHODS Consecutive patients with double prosthesis (DP) who underwent percutaneous MPVL closure in our institution were included. Anterograde and retrograde approach consisting of crossing the wire across the aortic prosthesis in order to access and cross the paravalvar mitral leaflet was used. Arterious venous loop (AVL) were also performed in all cases but one. The device used in all interventions were Amplatz Vascular Plug III. Immediate and midterm follow-up results were analyzed.

RESULTS From February 2009 to December 2014, 56 patients underwent MPVL in our institution. Twenty five patients (44.6%) had double prosthetic mitral and aortic valve (DP). Mean age was 69 ± 11.40% were male. The mean clinical follow up was 416.5 ± 323.1 days. The device was successfully implanted in 17 patients (68%). All procedures were hemodynamically well tolerated. Technical success rates were 88% (2 patients needed two procedures). One patient had device embolization that was percutaneously captured and a second device was successfully implanted in the same procedure and 1 patient needed emergency surgery due to disc interference. At follow-up 50% of the patients presented significant NYHA functional class improvement. Seven patients (28%) died during follow-up due to persistent cardiac failure.

CONCLUSIONS Percutaneous closure of MPVL in patients with double aortic and mitral prostheses can be done safely considering few tips are taking into consideration during the procedure.

CATEGORIES STRUCTURAL: Valvular Disease: Mitral
KEYWORDS Leaks