Vs sAVP 31%; p=0.593) but moderate haemodynamic SVD as per EAPCI criteria was more common among sAVP cases (THV 11.5% Vs sAVP 20.7%; p=0.007). Six THV and 3 sAVP cases met the EAPCI criteria for severe haemodynamic SVD (p>0.999). EAPCI morphological SVD criteria were met in 7 THV and 3 sAVP cases (p=0.746). Using Kaplan-Meier estimates, the rate of SVD over time was not different between the two groups as per VARC-2 criteria but different when moderate haemodynamic SVD EAPCI criteria were applied (Log Rank, p=0.001) in favour of THV (Hazard ratio for sAVP 2.5, 95% CI 1.4–4.5, p=0.002). Moreover, the mean gradient rose steadily over time in both groups but more so post sAVP (β=0.52±0.24 in comparison to THV at every given time point; p=0.032).
Conclusion: The incidence of SVD at medium to long-term follow-up (up to 8 years) is similar with THV and sAVP patients using VARC-2 criteria. When the EAPCI moderate haemodynamic SVD definition was applied, the incidence was lower in THV patients than those with sAVP, likely due to the demonstrated higher gradients. The clinical implication of these findings is yet to be determined.

P4505
Lower level of pro-apoptotic microRNA-122 correlate with left ventricular function (LVEF) improvement in low LVEF patients after transcatheter aortic valve replacement

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Background: Transcatheter aortic valve replacement (TAVR) is an established treatment option for high and intermediate risk patients with severe symptomatic aortic stenosis (AS). Whereas the majority of patients develop a left ventricular ejection fraction (LVEF) improvement after TAVR in response to TAVR-associated afterload reduction, around 50% of patients with reduced LVEF fail to develop LVEF improvement after TAVR. MicroRNA (miRs) are novel biomarkers and effectors of myocardial (dys)function. We aimed to explore whether circulating miRs are differently regulated in response to TAVR in patients with or without postprocedural LV-function improvement.
Methods and results: 925 patients who underwent TAVR were screened for inclusion into the study. Among those, 829 patients were excluded due to severe commobidities, incomplete blood sample or follow-up. Finally, a total of 96 patients were included into the study. Patients with impaired LVEF (<45%) were divided into three group according to postprocerural LVEF development assessed 3 months after TAVR by transthoracic echocardiography: No LVEF improvement, LVEF-improvement of 0–15% and >15%. Plasma samples were obtained at 3 different time points: On the day before TAVR-procedure and at days 1 and 7 post-TAVR.Taqman miR array were perform in patients with No LVEF improvement group and >15% group (n=3 respectively). The results showed miR-122, miR-26a, miR-192, miR-483-5p, miR-720, miR-885-5p and miR-1274 were differently expressed in the >15% group when compared between day 1 and day 7. Based on literature, we also quantified four miRs related to LV function and fibrosis in our collective (miR-21,miR-145, miR-199, miR-30b).To validate whether circulating miR levels are associated with LVEF improvement after TAVR,14 miRs above were quantified by real-time PCR.
Of note,we found that pro-apoptotic miR-122 level was increased at day 7 compared with day before procedure in no LVEF-improvement group. Furthermore, the level of miR-122 was significantly higher in no LVEF-improvement goup than LVEF-improvement>15 group at day 7. Finally, the increase of miR-122 negatively correlated with LVEF improvement at 3 months. Within the 2-year follow-up, patients with lower level of miR-122 displayed a reduced cardiovascular mortality (p=0.049).

Summary: Lower level of pro-apoptotic microRNA-122 correlate with left ventricular function (LVEF) improvement in low LVEF patients after transcatheter aortic valve replacement

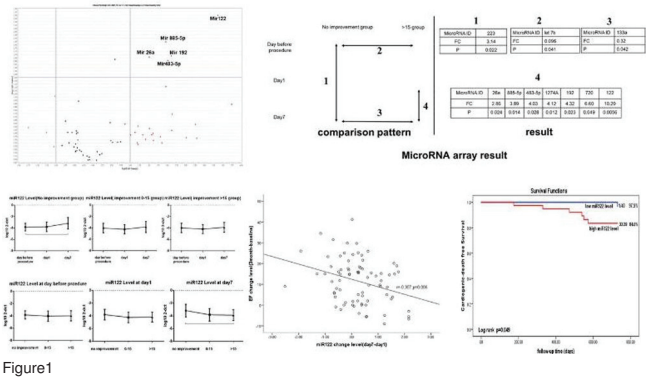

Figure1

Conclusion: Changes of circulating pro-apoptotic miR-122 levels significantly correlate with LVEF improvement after TAVR in low LVEF patients. Moreover, miR-122 might be suitable to predict the long term prognosis after TAVR in this set of patients.

P4506
Outcome of patients with heart failure and mid-range ejection fraction after transcatheter aortic valve implantation (TAVI)

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Background: The latest guidelines defined a new term for patients with heart failure (HF) and a left ventricular ejection fraction (EF) that ranges from 40 to 49% as "HF with mid-range EF (HFmrEF)" to stimulate research on this population. We aimed to compare the outcome of patients with aortic stenosis (AS) and concomitant 1) HFmrEF, 2) "HF with reduced EF (HFrEF, EF <40%)", or 3) "HF with preserved EF (HFpEF, EF ≥50%)" after treatment by TAVI. As HF may or may not be present in patients with symptomatic AS, we diagnosed HF in these patients when the stroke volume index (SVI) was ≤35 ml/m^2 body surface area.
Methods: From 2011 to 2017 a total of 2282 patients of one single centre with severe AS were treated by TAVI. Sufficient data, including information from a follow-up of at least 30 days, were available for 557 HFpEF, 103 HFmrEF, and 180 HFrEF patients. All patients were censored as alive at 365 days if they survived more than one year. In-hospital, 30-day, and one-year survival data were compared between HFpEF, HFmrEF, and HFrEF patients.
Results: Age (83±5 vs. 82±6 vs. 80±7 years for HFpEF, HFmrEF, and HFrEF, respectively; p<0.001), female sex (62 vs. 34 vs. 33%, p<0.001), the presence of coronary artery disease (59 vs. 81 vs. 74%, p<0.001), prior myocardial infarction (13 vs. 18 vs. 32%, p<0.001), or severe renal failure (1.8 vs. 1.9 vs. 6.1%, p=0.012) were significantly different between groups. These differences were reflected by a higher STS score in patients with HFmrEF or HFrEF (6.2±4.3 vs. 7.3±5.9 vs. 7.9±5.4%; p<0.001). EF (60±6 vs. 43±3 vs. 28±6%, p<0.001) and transvalvular mean gradients (42±16 vs. 34±16 vs. 28±6 mmHg, p<0.001) were highest in HFpEF patients and lowest in HFrEF patients. Interestingly, SVI also decreased from HFpEF to HFrEF patients (28.6±4.6 vs. 27.4±4.7 vs 24.5±5.4 ml/m^2, p<0.001). In-hospital mortality (4.7 vs. 8.7 vs. 7.8%, p=0.123) and 30-day mortality (6.1 vs. 9.7 vs. 10.6%, p=0.095) tended to be higher in HFmrEF and HFrEF patients than in HFpEF patients. Median follow-up time during the one-year observation period was 361 vs. 357 vs. 337 days (p=0.187). Kaplan-Meier curves were identical for patients with HFmrEF and HFrEF, but both patient populations had significantly worse outcome than patients with HFpEF (one-year mortality 17.1 vs. 27.2 vs. 27.2%, p=0.004).
Conclusions: We designed a model in which patients with severe AS undergoing TAVI were defined to have concomitant HF when SVI was low. Patients with HFmrEF were revealed to have distinct baseline characteristics but an overall cardiovascular risk that was similar to that of patients with HFrEF. Interestingly, the poor outcome (one-year survival) after TAVI of patients with HFmrEF was identical to that of HFrEF patients. In this clinical scenario, patients with HFmrEF could be considered to be high-risk patients, like those with HFrEF.

P4507
The impact of MS with annular calcification for worsening heart failure just after TAVR

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Background: Transcatheter aortic valve replacement (TAVR) could drastically release the left ventricle from pressure overload, and benefit patients with aortic stenosis (AS) and high surgical risk. Although almost all of clinical course after TAVR is satisfying, some patients occasionally could exacerbate heat failure leading to pulmonary edema in acute phase after TAVR.
Purpose: The purpose of this study is to investigate the predictor of HF exacerbation just after TAVR and one year outcome.
Methods: We enrolled 100 consecutive patients with severe AS who underwent successful TAVR between January 2016 and May 2017. Median age of the study population was 83 years (quartile range: 80–86), and 32 patients were male. The median Society of Thoracic Surgeon (STS) surgical mortality score was 7.2% (5.6–11.6), and serum brain natriuretic peptide (BNP) levels on admission in the entire cohort were 223 pg/mL (80–456). 79 patients underwent TAVR with transfemoral approach. All patients were routinely assessed whether they have mitral annular calcification (MAC) inducing mitral stenosis (MS) with echocardiography and multi-slice computed tomography in addition to AS severity. Furthermore, one year mortality were estimated using the Kaplan-Meier method, and the difference between the patients with and without MS was evaluated using the log-rank test.
Results: MAC was detected in 65 patients, and mitral stenosis (MS) defined as mean mitral valve pressure gradient≥5mmHg was diagnosed in 9 patients among them. Mean aortic valve pressure gradient with simultaneous catheter measurement significantly decreased from 48.2mmHg (quartile range, 35.9–66.1mmHg) to 8.9mmH (6.4 -13.8mmHg) (P<0.001). However, 8 patients have exacerbated HF on median 1 day after TAVR. In the univariate logistic analysis, STS score (unadjusted Odds Ratio: 1.17; 95% CI: 1.01 to 1.37; p=0.032), BNP levels on admission (unadjusted Odds Ratio: 1.00; 95% CI: 1.00 to 1.00; p=0.017), and MS