MEDICAL UNIVERSITY OF VIENNA

Impact of transcatheter edge-to-edge mitral valve repair on echocardiographic parameters

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Background

Previous studies examining echocardiographic changes in patients undergoing transcatheter edge-to-edge mitral valve repair (TMVR) show discrepant results regarding the efficacy of the intervention. We aimed to investigate changes in echocardiographic parameters, routine biomarkers, and clinical presentation after TMVR.

Methods

We prospectively enrolled consecutive patients with severe symptomatic mitral regurgitation scheduled for TMVR. Transthoracic echocardiography and assessment of clinical and laboratory parameters were performed prior intervention and at follow-up.

Results

112 patients (75.6±8.2y/o, 55% female, EuroSCORE II: 9.4±8.6%, mean follow-up time: 10.1±7.5months) were prospectively included. Following TMVR, left ventricular (LV) function remained unchanged (LV ejection fraction: 47.4 vs. 48.2%, p=0.608). Right ventricular (RV) function significantly improved (TAPSE: 17.1 vs. 18.2mm, p<0.001), alongside with a reduction in estimated pulmonary artery systolic pressure (PASP: 57.1 vs. 48.8mmHg, p<0.001). Tricuspid regurgitation (TR) severity decreased after TMVR (TR ≥ grade II: 52 vs. 39%, p=0.023). Furthermore, both left atrial (67.7 vs. 64.0mm, p=0.024) and right atrial size (63.7 vs. 62.0mm, p=0.021) declined. At baseline, patients presented with worse renal function (eGFR: 52.0 vs. 54.1ml/min/1.73m2, p=0.701) and higher NT-proBNP serum levels (5875 vs. 4769pg/mL, p=0.219), when compared to follow-up. NYHA functional status significantly improved (NYHA ≥ III: 84 vs. 26%; p=0.006) after TMVR.

Conclusion

RV function significantly improved after TMVR, alongside with a reduction in estimated PASP and TR severity. In addition, a significant improvement in the clinical presentation was observed at 10 months follow-up.

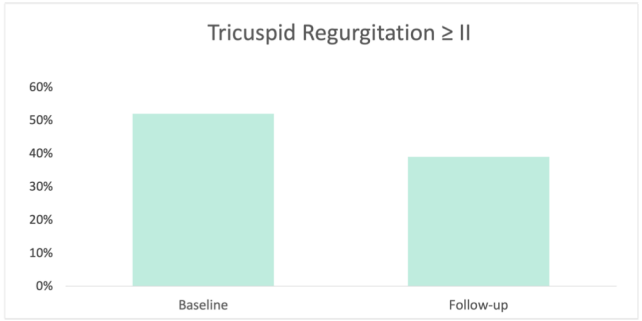

Fig. 1: TR at Baseline and follow-up

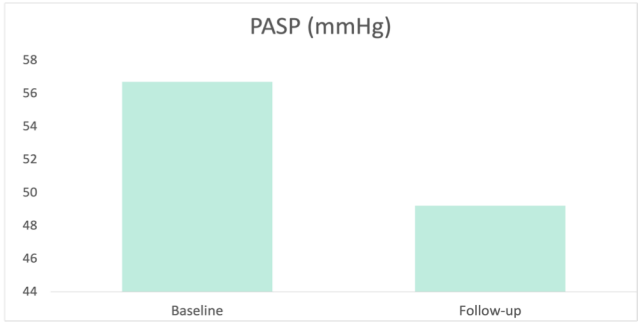

Fig. 2: PASP at Baseline and follow-up