FUNCTIONAL MITRAL REGURGITATION PERSISTENCE FOLLOWING ISOLATED AORTIC VALVE REPLACEMENT: THE ROLE OF PROSTHESIS-PATIENT MISMATCH

ACC Poster Contributions
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Background: Functional mitral regurgitation (FMR) due to severe aortic valve stenosis (AS) is thought to improve after isolated aortic valve replacement (AVR). Factors such as prosthesis-patient mismatch (PPM), associated with a lesser degree of left ventricular (LV) remodelling following AVR may compromise postoperative FMR regression. We sought to investigate the relationship between FMR and PPM following AVR for AS.

Methods: Consecutive patients with AS who underwent AVR at two Institutions and presenting mild to moderate FMR (Regurgitant Volume, RV, of 30-45 ml/beat) not considered for surgical correction were studied. Clinical and echocardiographic follow-up were completed at a median follow-up time of 37 (maximum 84) months. PPM was defined as an indexed effective orifice area (EOAi) ≤0.85cm²/m². Variables significantly associated with postoperative change in MR at univariate analysis were entered in a stepwise multivariable regression model.

Results: The study population consisted of 419 patients who received a biological AVR. PPM was found in 170/419 patients (40.6%). There were no significant differences in baseline and operative characteristics between patients with or without PPM. Patients with PPM had less regression of MR following AVR compared to those with no PPM (change in RV: -11±4 vs. -17±5 mL, respectively; p<0.0001). At univariate analysis, smaller left atrial (LA) diameter (p=0.0001), higher LV ejection fraction (p=0.01) and larger EOAi (p=0.01) were significantly associated with greater reduction in RV late after AVR. On multivariable analysis only EOAi (p<0.0001) and LA diameter (p=0.006) were found to be independently associated with postoperative MR improvement. Combined PPM and residual MR had a shorter 6-minute walk test distance when compared to isolated PPM and (p<0.0001).

Conclusions: PPM is associated with lesser downgrading of FMR following AVR. This unfavourable effect was associated with worse functional capacity. These findings lend support to the prevention of PPM in patients with aortic stenosis and concomitant MR.