Abstract: **P301**

**Preserved global longitudinal strain predicts left ventricular reverse remodeling one year after edge-to-edge mitral valve repair in functional mitral regurgitation**

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**Topic(s):**
Echocardiography: Valve Disease

**Citation:**
Background: Percutaneous edge-to-edge mitral valve repair (PMVR) has emerged as an effective treatment modality for high surgical risk patients with severe functional mitral regurgitation (FMR). Novel echocardiographic parameters, such as deformation imaging and their predictive significance have not been analyzed in this group of patients.

Purpose: The purpose of this study is to identify echocardiographic predictors of response in patients with FMR undergoing PMVR.

Methods: We retrospectively analyzed 44 consecutive patients with ischemic or dilated cardiomyopathy, reduced ejection fraction and severe functional MR (FMR), aged 71±9 years, 71% males, LVEF 30.9±8.7%, mitral valve effective regurgitant orifice area (EROA)>20mm², regurgitant volume (RV) >30ml and logistic EuroSCORE 22±14.7%. At baseline and 1-year after PMVR we assessed echocardiographic parameters such as LV longitudinal strain (LVGLS) and peak left atrial longitudinal strain (PALS) using speckle tracking echocardiography, LV end-systolic and end-diastolic volumes (LVESV, LVEDV), LA volume, MR severity by Doppler echocardiography along with BNP levels, NYHA class and 6 minute walking distance.

Results: One year after edge-to-edge repair there was a significant reduction of MR (74.2% had mild to moderate MR, 22.6% moderate-to-severe MR and 3.2% severe MR) and BNP levels (933±943pg/ml to 669±824pg/ml), improvement of NYHA class (3.11±0.55 to 2.0±0.6, P<0.05) and increase of the 6 minute walking distance (251±141 to 296±148m, P<0.05). LA volume was reduced (132.5±62.1ml to 115.2±57.7ml) and PALS was improved (6.89±3.47 to 7.94±5.27) (P<0.05 for all comparisons). Baseline LVGLS did not change significantly post intervention (-8.8±4.1 vs. -8.8±3.9, P=0.7) but the baseline value predicted the percentage difference in LVEDV (r=-0.61, P<0.01), LVESV (r=-0.47, P=0.03), BNP (r=0.45, P=0.04) and NYHA class (r=0.63, P<0.01). The best reverse LV remodeling was found in patients with GLS better than -10% and the trend was that the better the GLS the greater the LVEDV and LVESV reduction post-intervention. Additionally, patients with GLS between -10% and -5% had the largest improvement in BNP (P<0.05) and NYHA class (P=0.005).

Conclusions: Edge-to-edge repair is effective in reducing MR in patients with severe functional MR and has a positive impact in patients’ clinical status at one year follow up. A preserved LVGLS seems to be a good predictor of reverse modeling and clinical improvement post intervention.