

P290**Differences in cardiac dimensions in mitral valve prolapse with or without Barlow phenotype**

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Background:

Mitral valve prolapse (MVP) is a common cause of chronic mitral regurgitation (MR). Barlow's disease (BD) and fibro-elastic deficiency (FED) are two major entities of MVP affecting the connective tissue of the mitral valve, but both have a different underlying pathophysiology and phenotype. In some connective tissue diseases (CTD), it has been suggested that ventricular dysfunction occurs despite absence of MR, suggesting that CTD directly involve the myocardium. We therefore investigated whether patients with BD have different cardiac dimensions compared to FED, after correcting for MR severity grade.

Methods:

134 patients with MVP and chronic MR were prospectively included. MR was graded carefully by echocardiography using a multi-parametric approach. The morphology of the mitral valve prolapse was specified as definite Barlow (n = 45) or non-Barlow (n = 89; FED, flail leaflet or unspecified etiology) by two experienced echocardiographers.

Results:

In our cohort, MR was significantly more severe in the non-Barlow group compared to typical BD group (regurgitant volume (RV) 51 vs 33 ml, $p = 0.021$; right ventricular systolic pressure, 40 vs 34 mmHg, $p = 0.05$, left atrial volume index, 51 vs 42 ml/m², $p = 0.07$, respectively).

However, there was a trend towards higher left ventricular end-diastolic diameter index (LVEDDi, 27.7 vs 29 mm, $p = 0.07$) and a significantly higher end-diastolic volume index (LVEDVi, 62 vs 71 ml/m², $p = 0.02$) in the Barlow group, despite similar ejection fractions and much less MR in the Barlow group. This resulted in a significantly higher RV/LVEDV ratio in the non-Barlow group compared to the Barlow group (42% vs 23%, $p = 0.001$). Similarly, the LA volume/LVEDV ratio was significantly lower in the Barlow cohort (63 vs 79%, $p = 0.026$). There were no significant differences in aortic dimensions between groups.

Conclusions:

We describe for the first time that compared to non-Barlow (mostly FED), patients with MVP due to typical Barlow disease have larger ventricular dimensions and volumes, which are disproportionate to the degree of MR. We therefore hypothesize that the connective tissue alterations in these patients may also involve the myocardium resulting in LV dilation independent of MR. Further investigation and clinical implications of these findings is mandatory.