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Reply

Mitral valve prolapse and left ventricular systolic function

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We thank Dr Yiğiner et al[1] for their interest in our study regarding the left ventricular function in young adults with mitral valve prolapse without significant mitral regurgitation.[2] Their commentary emphasised the importance of the aetiological distinction of mitral valve prolapse for medium- and long-term prognosis and reconstructive surgery timing decision.

Indeed, myxomatous Barlow's disease – syn.: classic mitral valve prolapse – and fibroelastic deficiency are the two dominant forms of degenerative mitral valve disease, and have unique differentiating characteristics on clinical and echocardiographic assessment.[3] In our study, myxomatous changes in mitral leaflets were identified only by transthoracic echocardiography and have not been confirmed by histological examinations. At present, despite the introduction of three-dimensional trans-oesophageal echocardiography in routine practice, transthoracic echocardiography is the optimal non-invasive technique to determine the morphology and to identify aetiologies of mitral valve prolapse compared with surgical and pathological findings.[4]

Some previous pathology studies in myxomatous mitral valve prolapse provided evidences for intramyocardial extracellular matrix changes as a specific reflection of a general myxomatous alteration in cardiac connective tissue.[5,6] These changes may cause both left ventricular enlargement and systolic dysfunction in classical mitral valve prolapse.

The low longitudinal deformation in septal segments revealed in our study is only the first sign of future deterioration of the left ventricular systolic function by mitral valve prolapse progression. The significantly worse contractile function of the septum compared with other left ventricular regions was demonstrated by MRI-based strain analysis in patients with mitral valve prolapse and moderate-to-severe chronic mitral regurgitation.[7] In patients with severe chronic mitral regurgitation, we found significant decrease of the global longitudinal systolic strain in myxomatous Barlow's disease compared with fibroelastic deficiency.[4] Importantly, the subclinical regional and global left ventricular systolic dysfunction in mitral valve prolapse were not revealed by conventional echocardiography and required a novel echocardiography-based or MRI-based strain technique.

Myxomatous Barlow's disease leads to the anterior or bileaflet prolapse, requires a more complex type of repair, and greater surgical expertise. Lower pre-operative left ventricular systolic function in myxomatous mitral valve prolapse may demand the earlier repair procedure for severe mitral regurgitation and affect the post-operative medium- and long-term survival.

Thus, left ventricular dysfunction is an integral part of myxomatous mitral valve disease, and may affect even young patients without significant mitral regurgitation and influence their long-term prognosis.

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