Myocardial remodelling in mitral regurgitation and mitral annular calcification

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Chronic, primary mitral regurgitation (MR) is a „pure" volume overload, resulting in eccentric hypertrophy and LV dilation. Increased preload and low to- normal afterload, augments left ventricular ejection fraction , which is typically supranormal. Dilatation of left ventricle (LV), increased wall stress, myocardial dysfunction may occur due to the longstanding LV volume overload[1]. Because ejection fraction is a load-dependent measure of LV function, it can be preserved even as myocardial contractile function becomes abnormal[1]. Functional MR occurs as a consequence of LV dysfunction, either with coronary disease with myocardial infarction or either with primary dilated or hypertrophic cardiomyopathy or left atrial dilation in combination with mitral annular dilatation, papillary muscle displacement and reduced closing force[2]. The central problem that drives outcome is LV dysfunction, not MR[2]. Mitral annular calcification (MAC) is a chronic process involving the fibrous annulus of the mitral valve. It is common asymptomatic, an incidental finding. But, more prominent MAC is conected with aging, atherosclerosis, altered mineral metabolism, or increased mechanical stress[3]. In advanced cases, MAC may be significant, causing obstruction of left ventricular inflow and symptomatic mitral stenosis. Cohort studies have demonstrated an association of MAC with atherosclerotic disease, renal failure, adverse cardiovascular events, including stroke and increased mortality, arrhythmias, atrial fibrillation and conduction system disease. No surgical treatment is indicated for MAC unless correction of concomitant mitral regurgitation or mitral stenosis is needed. But, severe MAC makes valve surgery more difficult. Risks and benefits of surgery must be carefully assessed in patients with significant MAC, as increased surgical mortality has been observed in these patients. For patients with documented calcific emboli or repeated thromboembolism despite anticoagulation, valve replacement may be considered, but some complications are observed such as left ventricular rupture, acute posterior myocardial infarction, ventricular aneurysm, or hemorrhage from the left ventricle[4].

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LITERATURE

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