

VALVULOPATHIES

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470 MYOCARDIAL FIBROSIS IN ASYMPTOMATIC PATIENTS UNDERGOING SURGERY FOR MITRAL AND AORTIC VALVE REGURGITATION

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Background: Chronic heart valve regurgitation induces left ventricular (LV) volume overload, leading to the development of hypertrophy and progressive dilatation of the ventricle to maintain physiological cardiac output. In order to prevent potential irreversible LV structural changes, the identification of the best timing for treatment is pivotal.

Objective: To assess the presence and extent of fibrosis in myocardial tissue in asymptomatic patients with valvular heart disease (VHD) and preserved LV dimensions and function undergoing cardiac surgery.

Methods: Thirty-nine patients were enrolled. Sixteen patients were affected by aortic or mitral regurgitation: they were all asymptomatic, undergoing valve surgery according to VHD European Society of Cardiology guidelines. Twentythree patients with end-stage nonischemic dilated cardiomyopathy (DCM) and severe LV dysfunction undergoing cardiac surgery for implantation of a durable left ventricular assist device (LVAD) served as controls. During surgery, VHD patients underwent three myocardial biopsies at the level of the septum, the lateral wall and LV apex, while in LVAD patients the coring of the apex of the LV was used. For both groups, the tissue samples were analyzed on one section corresponding to the apical area. All slides were stained with hematoxylin and eosin and Masson's trichrome staining and further digitalized. The degree of fibrosis was then calculated as a percentage of the total area.

Results: Of 39 patients, 23 met the inclusion criteria: 12 had mitral or aortic insufficiency with a preserved ejection fraction and 11 had idiopathic dilated cardiomyopathy. Quantitative analysis of apical sections revealed a myocardial fibrosis amount of 10±6% in VHD patients, while in LVAD patients the mean apical myocardial fibrosis rate was 38±9%. In VHD patients, fibrosis was also present in the lateral wall (9±4%) and in the septum (9±6%).

Conclusion: Our case series study highlights the presence of tissue remodeling with fibrosis in asymptomatic patients with VHD and preserved LV function. According to our results, myocardial fibrosis is present at an early stage of the disease, well before developing detectable LV dysfunction and symptoms. Since the relationship between the progressive magnitude of myocardial fibrosis and potential prognostic implications are not yet defined, further studies on this topic are warranted.