

Prognostic value of mitral regurgitation in patients with asymmetric hypertrophic cardiomyopathy

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Introduction: Since mitral regurgitation (MR) is a very common finding in patients with hypertrophic cardiomyopathy (HCM), the evaluation of the mitral valve anatomy and the degree of MR is of utmost importance in this population. However, data regarding the prognostic value of different degrees of MR in HCM remains scarce.

Purpose: The aim of this study was to determine whether the presence of a higher degree of MR affects: 1) long term prognosis; 2) clinical and echocardiographic presentation of HCM patients.

Material and Methods: We included prospectively 102 patients, diagnosed with primary asymmetric HCM. The degree of MR was determined echocardiographically according to current recommendations of the American Association of Echocardiography. According to the MR severity, patients were divided into 2 groups: Group 1 (n = 52) with no/trace or mild MR and Group 2 with moderate or moderate to severe MR. All patients had clinical and echocardiographic examination, 24-hour Holter ECG and NT pro BNP analysis performed. The primary outcome was a composite of: 1) HCM related death or sudden death; 2) hospitalization due to acute heart failure; 3) sustained ventricular tachycardia; 4) ischemic stroke.

Results: Patients with higher MR degree had more frequent chest pain ($p = 0.039$), syncope ($p = 0.041$) and NYHA II functional class ($p < 0.001$). Group 2 patients had mostly obstructive form of HCM ($p < 0.001$) with more frequent presence of previous atrial fibrillation (AF) ($p = 0.032$), as well as the new onset of AF ($p = 0.014$) compared to patients in Group 1. Patients with higher MR degree had significantly more SAM ($p < 0.001$) resulting in a more frequent eccentric MR jet ($p < 0.001$), along with calcified mitral annulus ($p = 0.007$), enlarged left atrial volume index ($p < 0.001$), and elevated right ventricular pressure ($p = 0.001$). As a result of higher MR grade, Group 2 had higher E/e' values ($p < 0.001$), elevated LV filling pressure (lateral E/e' > 10), as well as higher levels of NT pro BNP ($p = 0.001$). By Kaplan-Meier analysis we demonstrated that the event free survival rate during follow up of median 75 (IQR 48-103) months was significantly higher in Group 1 compared to the Group 2 (79% vs. 46%, $p < 0.001$), Figure 1. After adjustment for relevant confounders, moderate/moderate to severe MR remained as an independent predictor of adverse outcome (hazard ratio 2.58, 95% CI: 1.08-6.13, $p < 0.001$).

Conclusion: Presence of moderate, or moderate to severe MR was associated with poor long-term outcome of HCM patients. These results indicate the importance of an adequate MR assessment and detailed evaluation of the mitral valve anatomy in the prediction of complications and adequate treatment of patients with HCM.

Abstract Figure.

