

Right ventricular hypertrophy as a determinant for clinical severity in hypertrophic cardiomyopathy: evidence from magnetic resonance imaging

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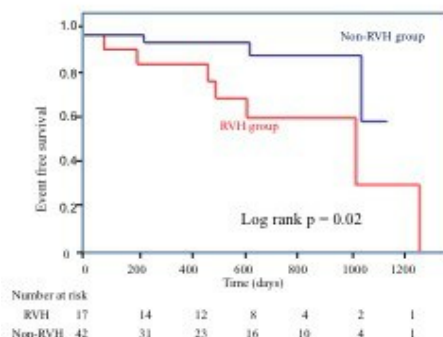
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Background: Although left ventricular (LV) morphology and function have been well studied in hypertrophic cardiomyopathy (HCM), few data exist regarding right ventricular (RV) ones. Therefore, we studied impact of RV morphology and function on cardiovascular events in HCM using cardiac magnetic resonance imaging (CMR).

Methods and results: We examined 59 HCM patients (36 men, age 60.5±15.0 years) who underwent CMR exhibiting maximal LV thickness >13 mm and asymmetrical septal hypertrophy. RV hypertrophy (RVH), defined as RV maximal wall thickness >5mm, was observed in 17 of 59 patients (RVH group). The RVH group showed higher prevalence of heart failure (64.7% vs. 11.9%, p<0.0001) associated with higher brain natriuretic peptide levels (387.7±287.4 vs. 226.1±217.3 pg/ml, p=0.02) than those in the non-RVH group. The RVH group showed reduced RV end diastolic volume index (48.7±16.0 ml/m² vs. 64.4±13.9 ml/m², p=0.001) in accordance with greater LV mass index (110.4±21.6 g/m² vs. 75.6±21.4 g/m², p<0.0001). Interestingly, the RVH group was highly associated with RV-late gadolinium enhancement in comparison with the non-RVH group (29.4% vs. 0%). During follow up period, the RVH group had higher incidence of cardiovascular events such as heart failure admission, ventricular tachyarrhythmia/fibrillation, stroke and sudden cardiac death than that in the non-RVH group (log-rank p=0.02). Under these conditions, multivariable analysis revealed that only RV maximal wall thickness was independent predictor of cardiovascular events (p=0.03).

Conclusion: These results demonstrate that HCM with RVH determined by CMR can be associated with the higher incidence of cardiovascular events than non-RVH patients.



RVH and cardiovascular events in HCM.