Usefulness of Cardiac Magnetic Resonance to Predict Sudden Cardiac Arrest in patients with Mitral Valve Prolapse

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Introduction: Generally, Mitral valve prolapse (MVP) is regarded as a benign condition, but the association of MVP with ventricular arrhythmias (VA) and sudden cardiac arrest (SCA) has been recognized. The objective of the present study was to elucidate the predictors of SCA in patients with MVP.

Methods: We retrospectively reviewed medical records of patients with MVP who underwent cardiac magnetic resonance (CMR). Patients with other structural heart disease were excluded. ECG (PR interval, QRS duration, QTc interval, bundle branch block, and atrial fibrillation), echocardiography (ejection fraction, mitral regurgitation grade, right ventricular systolic pressure, prolapsing mitral leaflet), CMR (left and right ventricular end-diastolic and diastolic volume, left atrial volume, mitral regurgitation volume, delayed enhancement, native T1 value) data were analyzed.

Result: Seventy-six patients (age, 54.07 ± 16.3 years; 42 men) were included and among them, 11 patients (age, 45.8 ± 17.6 years; 9 men) experienced SCA or VA. In patients with SCA, delayed enhancement on CMR was significantly frequent than in patients without SCA (72.7% and 23.1%, respectively, \( p = 0.003 \)). There were no significant differences in demographic, ECG, echocardiographic, and other CMR parameters between patients with and without SCA. Patients with delayed enhancement on CMR had significant risk of SCA (odds ratio, 6.28; 95% confidence interval, 1.46–33.93; \( p = 0.019 \)).

Conclusion: Delayed enhancement on CMR is risk factor of SCD in patients with MVP.