Significance of Delayed Gadolinium Enhancement Cardiac Magnetic Resonance in Patients with Brugada Syndrome

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Introduction: Gadolinium-enhanced Cardiac magnetic resonance (CMR) is a useful diagnostic tool for evaluating myocardial abnormality. However, the prevalence of delyed Gadolinium enhancement (DGE) in CMR has not been yet reported in patients with Brugada syndrome (BrS).

Methods and Results: Seventy consecutive patients with BrS who underwent Gadolinium-enhanced CMR were evaluated in this study. DGE was found in five patients (7.1%). All patients with DGE were symptomatic. Early repolarization (ER) in inferolateral leads was significantly highly detected in patients with DGE than without DGE (80.0% vs 16.9%, P<0.01). Late potentials examined with SAECG were present in all patients with DGE and in 42 of 65 patients without DGE (64.6%). The value of RMS40 evaluated with SAECG was significantly smaller in patients with DGE than in patients without DGE (p<0.0001). In electrophysiologic study, VF was induced with programmed ventricular stimulation in four of five patients with DGE (80.0%) and in 21 of 41 patients without DGE (51.2%). Mutation analysis revealed that DGE was present in one patient with SCN5A mutation and in 2 patients without SCN5A mutation.

Conclusions: Depolarization abnormality is prominent in BrS patients with DGE. CMR with DGE might be a useful tool for evaluating high risk patient with BrS.

Keywords: Brugada syndrome, cardiac magnetic resonance, delyed Gadolinium enhancement