Prognostic Significance of J Wave in Patients Who Underwent Device Therapy for Ventricular Defibrillation

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Background: J wave has been reported to be associated with higher incidences of life-threatening events in patients with either structural or nonstructural heart disease. The risk of J wave in patients who implanted a defibrillator with/without cardiac-resynchronization therapy device is unclear.

Methods: The relationship between J-wave appearance and defibrillator interventions was evaluated by analyzing electrograms stored in devices retrospectively with proportional hazards models.

Results: A total of 150 patients were enrolled and followed for a mean period of 38.8±25.0 months. Underlying heart diseases for device implantation were: myocardial infarction in 40; dilated cardiomyopathy in 30; hypertrophic cardiomyopathy in 16; ARVC in 3; Brugada syndrome in 22; idiopathic VF in 13; and others in 26 patients. Of these, 30 patients (20.0%) showed J wave at the time of implant. Patients with J wave had higher incidences of device intervention for VT/VF than those without (56.7% vs. 35.8%; P=0.0390). Multivariate analysis revealed that J-wave appearance and documented VT were independently associated with life-threatening events in patients with device implantation, even after the adjustment of age, gender, and left ventricular ejection fraction (HR, 2.20; 95% CI, 1.14-4.06; P=0.0193 and HR, 4.13; 95% CI, 2.15-8.46; P<0.0001, respectively).

Conclusion: J wave at the time of device implantation identifies the risk of future device interventions.

Keywords: J wave, life threatening event, implantable cardioverter defibrillator