Early Repolarization Is a Risk Marker of Ventricular Fibrillation and Prognosis in Anterior Acute Myocardial Infarction

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Background: In patients without structural heart disease, the presence of early repolarization on ECG is associated with ventricular fibrillation (VF). However, it is unclear the correlation between early repolarization and VF in patients with acute myocardial infarction (AMI). Methods: We studied 162 patients with first-anterior-acute-ST-elevation MI received percutaneous coronary intervention, and evaluated ECG after successful reperfusion. Early repolarization was defined as an elevation of the QRS-ST junction of >0.1mV from baseline in the inferior or lateral lead. VF was defined as that not terminated spontaneously and required electrical cardioversion. Patients were classified into two groups (VF group and non-VF group). Results: VF occurred in 22 patients (13.6%). Early repolarization was present in 47 of the 162 patients (29%). The prevalence of early repolarization was significantly higher (54.5% vs. 25%; p<0.01), and the prognosis including in hospital death, hypoxic encephalopathy or dialysis initiation, was significantly worse (54.5% vs. 4.3%; p<0.01) in the VF group than in the non-VF group. After adjustment for age, gender, coronary risk factors, initial TIMI flow, Killip class and early repolarization, independent predictors of VF were age (β-coefficient -0.01 (95%CI; -0.01 to -0.001), p<0.05), Killip class >2 (β-coefficient 0.31 (95%CI; 0.179 to 0.448), p<0.01) and early repolarization (β-coefficient 0.18 (95%CI; 0.074 to 0.289), p<0.01). Conclusions: Despite degree of initial TIMI flow grade, the presence of infero-lateral early repolarization may be a potential risk factor for VF leading to poor prognosis in anterior AMI patients.

Keyword: early repolarization