Increased Spatial Dispersion of the Ventricular Recovery Time in Patients with Idiopathic Ventricular Fibrillation

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Background: Diagnosis of idiopathic ventricular fibrillation (IVF) before its occurrence is challenging, because cardiac arrest could represent the first or the only sign of the disease. Heterogeneity of ventricular repolarization has been consistently reported to be linked to ventricular tachycardias. The purpose of this study was to test the hypothesis that IVF also might be associated with ventricular repolarization abnormalities.

Methods and Results: Spatial dispersion of recovery time as an index of heterogeneity of ventricular repolarization was assessed by means of a 187-channel signal-averaged vector-projected high-resolution electrocardiograph (187-ch SAVP-ECG) in a group of 6 consecutive patients (6 male, 43±20 year-old) who were diagnosed with IVF and who received ICDs for secondary prevention after an episode of resuscitated sudden cardiac death. A control group consisting of 17 healthy persons (17 male, 29±5 year-old) was set for comparison. Recordings took a maximum of 10 minutes. Spatial dispersion of corrected recovery time (defined as the time between the R wave peak and the first positive maximum derivative of T wave corrected by Bazett’s formula) was significantly higher in the IVF group compared with controls (98±19 milliseconds versus 59±18 milliseconds p<0.001).

Conclusions: 187-ch SAVP-ECG is a simple and reliable method for the evaluation of ventricular repolarization. It may be useful to reveal patients with latent IVF.

Keyword: idiopathic ventricular fibrillation