Very long-term follow-up of patients with out-of-hospital cardiac arrest due to idiopathic ventricular fibrillation: a single-centre experience

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INTRODUCTION Out-of hospital cardiac arrest (OHCA) in the absence of evident structural heart disease is rare, with a broad differential diagnosis that includes subclinical cardiomyopathy, channelopathies, and idiopathic ventricular fibrillation (IVF). To date, no systematic study has been carried out to assess the clinical features and the very long-term follow-up of survivors of OHCA due to IVF.

The aim of this study was to investigate the clinical and ECG features of OHCA survivors presenting with IVF in the region of Ticino (Switzerland) over the last 14 years. The long-term follow-up and the evolution over the time of ECG and echocardiographic parameters were evaluated

METHODS All survivors of OHCA presenting with VF, and normal baseline ECG in the absence of structural and ischemic heart disease (normal echocardiography/MRI and cardiac catheterization) were considered eligible for this study.

RESULTS A total of 70 survivors of OHCA presenting with VF as first rhythm underwent an implantable cardioverter-defibrillator (ICD) implantation for secondary prevention from 2000 to 2014. Of those, 11 had a normal baseline ECG, MRI/echocardiography, and coronary angiography. However, over a follow-up time of 85.2±47.3 months, ECG was found abnormal in 3 cases (1 long QT, 1 Brugada type 2 pattern and 1 early repolarization pattern in inferior leads). In the remaining 8 patients (7 males; mean age: 52±15 years), no abnormality was detected. All of them were in sinus rhythm and had normal baseline ECG parameters (mean PR: 154±29 ms, QRS: 87±15 ms, QTc 413±17 ms). No AV conduction disturbances were detected. Mean EF was 59±3%. Family history of sudden death was present in 1 patient and 3 patients underwent programmed ventricular stimulation which did not induce any sustained ventricular arrhythmia. During the long-term follow-up, no patient died or experienced ICD interventions. One patient had paroxysmal atrial fibrillation. No patient developed AV conduction disturbances over the time and no new echocardiographic abnormal findings were revealed in any patient.

DISCUSSION IVF occurs in 11% of OHCA survivors presenting with VF as first rhythm. The initial diagnosis can change up to 27% of cases. Patients with IVF seem to have a good prognosis during a long-term follow-up. Larger studies are needed to confirm our results.