

Relationship Between ECG-pattern of Depolarization Abnormalities and an Mildly Reduced Ejection Fraction

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Introduction. The greatest difficulty for the early detection of heart failure is to identify patients with a mildly reduced ejection fraction (mrEF). The key examination is echocardiography, however, it is not a screening method, especially in individuals with mrEF. Nevertheless, ECG method is used in almost all patients with suspected cardiovascular disease and as part of a preventive examination. The traditional ECG-patterns associated with a decrease in EF have a low diagnostic value.

The aim of study was investigation of ECG-pattern of depolarization abnormalities (fQRS and ERP) in patients with a mrEF.

Materials and methods. The study included 148 patients with ischemic and non-ischemic cardiomyopathy. According to the level of EF, patients were divided into three groups: low EF (IEF) (<40%): 31 (25 men, mean age 52.0 +/-15.6); mrEF (49%-40%): 29 (23 men, mean age 54.7 +/- 12.4); preserved EF (pEF) (>50%): 88 (57 men, mean age 58.2 +/-12.0) - control group. We used the criteria by Das M. et al, 2006 to identify fQRS and the criteria by Macfarlane P.W. et al., 2015 to identify ERP.

Results. In the 1st group (IEF), fQRS was registered in 16 (51.6%), in the 2nd group (mrEF) - in 13 (44.8%), in the 3d (pEF) in 2 (13.6%), $p < 0.001$. ERP in the 1st group (IEF) was registered in 2 (6.5%), in the 2nd group (mrEF) - in 2 (6.9%), in the 3d group (pEF) - in 11 (12.5%), $p = 0,5$. As a result of the ROC analysis, a relationship was found between fQRS and an mr EF (40-49%).

Conclusions. FQRS has shown its predictive value in identifying patients with mrEF. This ECG-pattern must be analyzed to assess the risk of mrEF.

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