

Outcome of arrhythmias in children with suspected myocarditis

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Aim: The aim of this study was to analyze the clinical characteristics and outcome of arrhythmias in children with suspected myocarditis.

Materials and methods: 52 patients with arrhythmias and suspected myocarditis were included, who were examined in our center in the period from 2011 to 2018. Mean age $5,7\pm 5,5$ years (from 12 months to 17 years).

The criteria for inclusion: the presence of arrhythmia, suspected myocarditis, at least two examinations in the dynamics. 21 patients had ventricular arrhythmias, 19 - supraventricular arrhythmias, 10 - high degree atrioventricular block (AVB) and sinus node dysfunction-2.

Patients underwent a complete history, physical examination, laboratory studies (including thyroid function, CK, CK-MB, LDG, Troponin I, proBNP, serology studies), chest X-rays, echocardiography, ECG, Treadmill test and Holter monitoring (HM). Cardiac MRI and Endomyocardial Biopsy (EMB) were performed according to indications and physician's decision.

The diagnosis of the myocarditis was made in the presence of association between first appear arrhythmias and viral infection and in combination with: elevated markers of myocardial damage and/or cardiomegaly by chest radiography and/or increased left ventricular end diastolic and systolic dimensions with/without decreased ejection fraction.

Results: duration of follow-up was $22,05\pm 18,7$ months (6-82) months.

All patients received myocarditis therapy, antiarrhythmic therapy received 38 patients (20 with VA; 18 with SVA).

In the group of patients with ventricular arrhythmias, normalization of rhythm was observed in 10/20 patients; reduction of the frequency and duration of episodes of arrhythmia and rhythm control is on the background of antiarrhythmic therapy – 5/20; lack of antiarrhythmic effect – 5/20, RFA was performed in 4 patients of 5.

In the group of supraventricular arrhythmias normalization of rhythm – 11/18 children, reduction of the frequency and duration of episodes of arrhythmia and rhythm control is on the background of antiarrhythmic therapy – 7/18; RFA was performed in 3 patients of 8.

In the group of patients with AV and sinus node dysfunction - the changes were irreversible in all children. A permanent pacemaker was implanted in 10 patients.

Conclusion: in our study in children with suspected myocarditis, tachyarrhythmias in most cases were reversible in contrast to bradyarrhythmias.