

Idiopathic ventricular arrhythmias in children: factors determining the state of intracardiac hemodynamics

*Chernyshev A., Kovalev I., Zavadovsky K., Popov S.
Research Institute for Cardiology, Tomsk, Russia*

Aim: To disclose factors which determine the state of intracardiac hemodynamics in children with idiopathic ventricular arrhythmias.

Methods and materials: 139 children at the age of $11,8 \pm 4,21$ years old with idiopathic ventricular arrhythmias were included into the study. The control group involved 18 children with previously registered no arrhythmia and cardiac conduction disturbances, and also without structural heart anomalies and myocardium disease. Doppler-echocardiography and quantitative bloodpool SPECT were performed to assess the state of intracardiac hemodynamics.

Results: Increase of both left and right ventricles were disclosed in patients with ectopic activity more than 20%. Ejection fraction also decreased in comparison with the control group. Significant increase of both ventricles, and also decrease of their ejection fraction in comparison with the control group and with the group of single premature beats were defined in patients with group premature beats, and also with runs of nonsustained ventricular tachycardia. Enlarge of end systolic volume of right and left ventricle was discovered in patients with specific arrhythmia symptoms. In this case the ejection fraction was lowered. Increase of right and left ventricle volumes in comparison with the control group was disclosed in patients with negative arrhythmia dynamics for exercise test. Decrease of left ventricle ejection fraction was marked in patients with arrhythmia localization in left ventricle. With right ventricle localization increase of its end diastolic and systolic volume was discovered.

Conclusion: Thus, degree of ectopic activity, presence of group premature beats in a patient, symptoms and type of arrhythmia reaction for exercise test are master factors of intracardiac hemodynamics state. Disclosed in the study factors which influence upon intracardiac hemodynamics in patients with idiopathic ventricular arrhythmias may be the basis of algorithm of treatment indications for the given patient group.