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FEATURES OF CONDITION OF CARDIOVASCULAR SYSTEM IN NEWBORNS WITH DIABETIC FETOPATHY

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Actuality. If a pregnant woman with diabetes has inadequate glycemic control the fetus has already in the first trimester of pregnancy signs of diastolic function disorders of the left ventricle (LV) and also there is a high incidence of adverse neonatal period in newborns.

The aim of the study: to assess the condition of the cardiovascular system in newborns from mothers with diabetes, to establish the frequency of cardiac arrhythmias, to determine the criteria of verification of diabetic cardiomyopathy (DC).

Materials and methods: the study involved 48 infants: the 1st group - 33 children from mothers with diabetes, the 2nd group - 15 healthy newborns. Our study is based on physical examination, obstetric history and instrumental methods such as ECG, Holter ECG-monitoring, Doppler echocardiography.

Results: first type diabetes was found in 84.8% of mothers, gestational diabetes - in 15.2%. All women had complications during pregnancy. The structure of the clinical manifestations consists of: macrosomia - in 21.2% of newborns, edema - in 27.3%, petechiasis - in 18.2%, hypertrichosis - in 9.1%, systolic murmur at the apex of the heart - in 54.5%, hypoglycemia – in 33.3%, respiratory distress syndrome - in 18.2%. Diabetic fetopathy (DF) was diagnosed in 90.1% of children. According to ECG disorders of repolarization processes were detected in 33.3% of newborns.

According to the results of Holter ECG-monitoring in infants with DF such features were found: episodes of sinus tachycardia up to 200 BPM (77.8%), atrial extrasystoles (44.5%), blocked atrial extrasystoles (22.3%), elongation of the QT interval (22.3%) and disorders of repolarization (66.7%). According to Doppler: moderate dilatation of the right heart chambers and the reverse current on the tricuspid valve I-II were found in 72.7% of children with DF, regurgitation on the valve of the pulmonary artery - in 18.2%, small anomalies of the heart development - in 33.3%, atrial septal aneurismal deformation - in 30.3%, transient pulmonary hypertension - in 18.2%. In infants with DF identified: changes of the end-diastolic dimension of LV

more than 2 sigma-deviations according to Z-score scale ($p<0.01$), thickness increasing of the back wall of LV ($T>4.0\pm0.5$ mm, $p<0.05$) and interventricular septum ($T>4.7\pm0.65$ mm, $p<0.01$); increasing of the pressure gradient in the outflow tracts of LV more than 10 mm Hg ($p<0.01$), contraction dyssynergia of the myocardium - in 18.2%, diastolic dysfunction of LV as slow relaxation type - in 75.8%.

Conclusions: in 87.9% of infants with DF structural and functional changes in the cardiovascular system were found. They are hypertrophy of the ventricles, cardiac arrhythmias and diastolic dysfunction of LV as slow relaxation type. The criteria for the diagnosis of DC are hypertrophy of the interventricular septum and back wall of LV and increasing of the pressure gradient in the outflow tracts of LV.

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FEATURES OF CARDIOVASCULAR RISK IN CHILDREN WITH BRONCHIAL ASTHMA

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Actuality. Bronchial asthma (BA) takes leading place among chronic diseases of respiratory system. Chronic hypoxemia is the most common consequence of BA, especially in severe stages of the disease, and becomes the major factor of cardiac dysfunction and pulmonary hypertension. High pressure and its further raising is important mechanism, which can change the myocardium electromechanical activity, central and peripherial hemodynamics, heart diastolic function. Functional changes of CVS in patients with BA occur as a result of hypoxemia negative effect on myocardium metabolism and vessels' vasoconstriction. This may be the cause of cardio-vascular and pulmonary failures in case of severe stage of disease. Changes of the CVS under conditions of the bronchopulmonary pathology develop slowly and for a long time have an obliterated character. Cardiovascular deviations in BA are potentially inversive in childhood what demands their early detection and elimination.

The aim evaluation the risk development of cardiovascular disorders in children with bronchial asthma.