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EVALUATION OF THE RESULTS OF SURGICAL AND ENDOVASCULAR CORRECTION OF THE DEFECT OF THE INTERAPTERIAL BARRIER USING ECHOCARDIOGRAPHIC EXAMINATION

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Abstract:

The atrial septal defect is one of the most common congenital heart defects. According to various authors, patients with atrial septal defect constitute 5-15% of TPS patients. An atrial septal defect is a pathological connection between the right and left atria due to disruptions in septal formation of primary and secondary nature. The review summarizes the anatomical and pathophysiological mechanisms, clinical and instrumental signs of the atrial septal defect, modern principles of diagnosis, and interdisciplinary treatment methods for this pathology.

Keywords: *atrial septal defect, right atrium, left atrium, heart defect, ejection fraction, left ventricle, etc.*

RELEVANCE. An atrial septal defect (ABD) is a congenital heart defect (BCD) (except for the open oval window), which reflects deviations in the development of primary and secondary atrial septums (APD), is characterized by the presence of a hole between the right (RB) and left (LB) atria and causes blood shunting between them [1, 5, 11]. Congenital heart defects (CCD) rank second in frequency among congenital heart defects, surpassing only the ventricular septal defect. Congenital heart defects are one of the most common congenital heart defects. According to various authors, patients with DMPP constitute 5-15% of patients with TPS [2, 6, 12]. BPH represents a pathological connection between the right and left atria due to disorders in the formation of the septum of primary and secondary nature. In DMPP, volumetric overload of the right heart chambers and pulmonary vascular bed occurs. The morphofunctional properties of the ventricles are mutually determined, with increased pressure.

Congenital heart defects constitute 7.1-8.7% of all congenital heart defects [4, 8, 12]. The incidence of DMPP varies from 0.317 to 0.941 cases per 1000 live births, depending on the population, diagnostic methods, and epidemiological research time [5, 9, 14]. Life expectancy for an unoperated defect is approximately 25 years. More often (40% of cases and more) the defect is diagnosed at birth or in the first year of life. As a rule, the defect proceeds asymptomatically until 2-5 years of age, which is partially explained by the large capacity of small blood vessels. Therefore, the presence of even large isolated BCC is rarely complicated by a severe condition. Spontaneous closure of small DMPPs can occur during infancy (approximately 80% of all defects up to 8 mm, which accounts for 26-34% of all DMPPs diagnosed in infancy). There is no spontaneous closure of a defect larger than 10 mm in school-aged children. Conversely, some initially small defects can increase as the child grows [6, 10, 15].

Considering that a significant number of patients with secondary biliary dysplasia have its atypical localization, and approaches to the diagnosis and endovascular correction of this TBI have not been sufficiently studied, the development of non-invasive diagnostics and management tactics for such patients, as well as the technique of performing X-ray endovascular closure of biliary dysplasia, is of undoubted scientific and practical interest.

PURPOSE OF THE RESEARCH. Analysis of the features of heart remodeling in children with congenital heart defects during the natural course of the defect and after endovascular and surgical correction.

MATERIALS AND METHODS. The study included 160 patients with isolated DMPP (QP/QS>1.5). The patients are divided into two groups. The first group included patients aged 1-3 years (n=80; 47 boys, 33 girls), followed by patients aged 3 to 6 years (n=80; 42 boys, 38 girls). The control group consisted of 150 patients aged 3 to 6 years, comparable in gender and age. Study control points 1-7 days, 6 months, 1 and 2 years. All patients underwent standard echocardiography, as well as atrial deformity measurements.

RESEARCH RESULTS. The values of atrial myocardial deformation in each of the studied atrial walls were lower in the DMDD group compared to the control group, but the difference reached statistical significance only in the case of the right atrial wall (right atrial deformity): 48.0±32.7% versus 100.2±46.6%, P=0.006. The average GLS of the left ventricle in our patients was comparable in both age groups. No significant difference was observed in the two age groups before and after correction of BPH. When

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focusing on different segments, the longitudinal deformation of the apical segment significantly decreased. Surgical correction of the duodenal papillae led to the normalization of chamber volumes. In children with coronary heart disease, deformation changes occur, the reservoir function of the atria and atria decreases, leading to the suspension of atrial rigidity. The degree of right atrial dilation determined the severity of the increase in longitudinal deformation of the PB. A positive correlation was found between the apical deformation of the PB and DBP.

CONCLUSIONS. Studying the deformation of the heart chambers can provide new, non-invasive, clinically significant information about regional changes in atrial function in patients with BPH. Endovascular correction of the atrial septum allows for the preservation of both the right and left atria. Despite the widespread availability and accessibility of ultrasound examination of the heart from the first days of a child's life, the problem of early diagnosis of atrial septal defect, monitoring of a number of echocardiographic indicators to resolve the issue of surgical treatment timing, the problem of indications for closing the open oval window and further observation after reaching adulthood remains unresolved. The use of interventional technology for closing septal defects is currently the optimal method of surgical treatment of biliary dysfunction. It should be noted that timely diagnosis and dynamic ultrasound examination of the heart contribute to choosing the optimal duration of surgical treatment, and in combination with interventional technology, help improve the quality of life of the child in earlier stages, which is necessary for their harmonious physical and intellectual development.

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