

CHARACTERISTICS OF HEART CURRENT PROCESS IN CHILDREN BORN WITH HYDROCEPHALY

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Annotation. *This study investigated the characteristics of heart cusps in children with congenital hydrocephalus. The aim of the study was to identify the specific features of cardiac activity and blood circulation in these patients, to diagnose them in time and to determine an effective treatment strategy. The study analyzed the neurological and cardiological changes caused by hydrocephalus, and also provided practical recommendations for diagnosis and treatment.*

Keywords: *Hydrocephalus, Heart cusps, Congenital condition, Pathophysiology, Clinical course, Diagnostics.*

ОСОБЕННОСТИ СЕРДЕЧНОГО ТЕЧЕНИЯ У ДЕТЕЙ, РОЖДЕННЫХ С ГИДРОЦЕФАЛИЕЙ

Аннотация. *В настоящем исследовании изучены особенности сердечных створок у детей с врожденной гидроцефалией. Целью исследования было выявление особенностей сердечной деятельности и кровообращения у этих пациентов, их своевременная диагностика и определение эффективной тактики лечения. В исследовании проанализированы неврологические и кардиологические изменения, обусловленные гидроцефалией, а также даны практические рекомендации по диагностике и лечению.*

Ключевые слова: *Гидроцефалия, Сердечные створки, Врожденная патология, Патофизиология, Клиническое течение, Диагностика.*

Introduction

Hydrocephalus is a chronic neurological condition resulting from an increase in the amount of fluid in the brain, which can be congenital or acquired. In children born with congenital hydrocephalus, not only the functions of the central nervous system are impaired, but other systems, including the cardiovascular system, are also significantly affected. The heart valves are complex mechanisms that control the development and functioning of the heart. Neurological and physiological changes associated with hydrocephalus may be associated with heart valve dysfunction, circulatory failure, changes in muscle tone, and irregular heart rhythm.

An integrated approach is necessary to identify the specific features of heart valve dysfunction in such patients, as well as to correctly determine the clinical course of the disease and treatment methods. Therefore, studying the pathophysiological, clinical, and diagnostic aspects of heart valve dysfunction in children with congenital hydrocephalus is of great importance in medical practice and improving child health.

Main part

Heart failure in children born with hydrocephalus is a complex clinical phenomenon that occurs as a result of the interaction of the central nervous system and the cardiovascular system.

Congenital hydrocephalus is characterized primarily by an increase in the amount of fluid in the brain, which leads to increased intracranial pressure, deformation of brain tissue, and

impaired transmission of nerve impulses. As a result, not only neurological symptoms are observed, but also changes in the rhythm and contractile function of the heart.

The main causes of heart failure in children include impaired muscle tone, dysfunction of the vagus nerve, slowing of blood circulation, and aspiration phenomena associated with bronchial secretion. These factors lead to irregular heart rhythm, changes in arterial pressure, and in some cases, signs of heart failure. At the same time, hydrocephalus makes it difficult for children to provide the lungs with sufficient oxygen, which places an additional burden on the heart.

Clinically, such children are characterized by rapid fatigue, difficulty breathing, slowing or accelerating heart rate, as well as changes in peripheral blood vessels. Therefore, they require regular cardiological and neurological monitoring. Treatment and rehabilitation approaches are multidisciplinary and include neurologists, cardiologists, physiotherapists and pediatricians.

Support for heart and lung function with physiotherapy, bronchial drainage, nutrition optimization and medications is important. Also, advanced diagnostic methods - ultrasound, echocardiography and monitoring - are used to determine the course of heart failure and pathological changes.

Therefore, a deep study of the specific features of the course of heart failure in children with congenital hydrocephalus, a preliminary assessment of the course of the disease and the development of an effective treatment strategy are of great importance for medical practice.

Conclusion

The course of heart failure in children born with hydrocephalus is a complex and multifactorial process, resulting from the interaction of the central nervous system and the cardiovascular system. In these children, increased intracranial pressure, impaired muscle tone, vagus nerve dysfunction, and aspiration phenomena negatively affect heart rhythm and blood circulation. Clinical observations show that such children experience rapid fatigue, shortness of breath, changes in heart rhythm, and peripheral vascular dysfunction. Therefore, they need regular neurological and cardiological monitoring. Treatment approaches are multidisciplinary and include neurologists, cardiologists, physiotherapists, and pediatricians. Heart and lung function can be supported by medications, physiotherapy, bronchial drainage, and nutrition optimization.

Advanced diagnostic methods ultrasound, echocardiography, and monitoring - allow the course of heart failure and pathological changes to be detected.

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