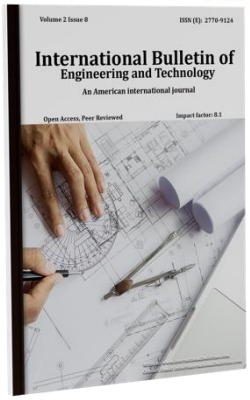

CONDITION OF THE CARDIOVASCULAR SYSTEM IN NEWBORNS WITH PERINATAL INJURIES

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https://doi.org/10.5281/zenodo.18481065

Abstract. The maternal history revealed the presence of risk indicators for congenital viral infection in 100% of children with perinatal lesions (PL) of the central nervous system (group 1) and in 95% of children with posthypoxic syndrome (group 2). Severe intrauterine infections were observed in 10 (12%) of the examined children with CNS PP. In 40 (83%) newborns, along with CNS PL, there were signs of persistent pulmonary hypertension and the functioning of fetal communications. In 66.7% of newborns with CNS PL and in 73.7% of children with posthypoxic syndrome with disorders of adaptation of the cardiovascular system, fluid retention was observed on the 4-5th day of life. In 35.4% of newborns with CNS PL and in 26.3% of children with posthypoxic syndrome, adaptation disorders of the cardiovascular system were noted.

Key words: newborn, cardiovascular system, perinatal damage to the central nervous system.

Introduction. One of the clinician's tasks is to find the etiological factors of cardiac pathology. In recent years, views on the nature of heart pathology have undergone significant revisions. Until recently, the leading cause was considered to be the influence of viruses on embryogenesis, followed by the formation of perinatal CNS damage (PP) or the development of local inflammation. Recent scientific research indicates the enormous role of genetic factors in the formation of various cardiac pathologies [1,2,5].

According to V.A. Tabolin et al. (2000), in newborns and infants with various heart pathologies, Coxsackie enteroviruses predominate among the viruses, while influenza, cytomegalovirus, herpes simplex, and rubella viruses are detected less frequently, and the vast majority of patients have a mixed viral infection [2,4,8]. In addition, the transplacental transmission of the absolute majority of viruses has been confirmed, and direct dependence has also been identified.

Furthermore, the transplacental transmission of the absolute majority of viruses has been confirmed, and a direct correlation between the severity of heart damage and viral infection activity has been established [3,5].

The severe clinical course of CNS PA, as well as the manifestation periods of defects (from 1-3 days of life to 1 year), are due to the peculiarities of hemodynamics, the degree of morphological maturity of lung tissue, and the presence or absence of pulmonary hypertension [1,3,5,6]. In the clinical presentation of CNS PP, a commonly known symptom is present: the appearance of shortness of breath and peripheral or general cyanosis during feeding and physical exertion, tachycardia, noise acoustics, and the subsequent formation of chest deformities in the heart area, "drum sticks," and "clock glasses" [3,4,5]. Upon examination of patients with perinatal CNS damage, other developmental defects, dysembryogenesis stigmas,

intrauterine hypotrophy, morphological immaturity, delayed physical, neuropsychiatric development, etc. are found [5,7].

The mortality rate of children with CNS PA remains very high, despite the improvement in cardiac surgery for this category of patients. According to global statistics, approximately 40-50% die within 1 year of life, of which 50% of children with TPS die within the first month of life.

The purpose of this study was a comparative analysis of the etiological and clinical indicators in children who had various types of perinatal CNS damage, depending on the presence or absence of organic pathology, in particular, TPS.

Materials and methods. We examined 83 children with CNS PD (48 newborns and 35 infants under 1 year), who underwent chronic intrauterine and perinatal hypoxia, which constituted the 1st group.

In addition, 58 children without organic heart pathology (38 newborns and 20 children under 1 year of age) who also had chronic intrauterine and/or perinatal hypoxia were included in the 2nd observation group. Forty children (20 newborns and 20 children aged 1 to 2 years).

Forty children (20 newborns and 20 children aged 1-2 years) were relatively healthy and constituted the 3rd (control) group.

During the analysis of clinical and epidemiological data, the risk of congenital viral infections was assessed. As indicators of high risk for vertical enterovirus transmission, cases of spontaneous miscarriage, premature birth, and stillbirth were considered in the medical history. Information on women's chronic diseases, as well as such complications during this pregnancy as the threat of termination, gestosis, acute infectious processes, and exacerbation of chronic pathology, was analyzed [5,6].

Results. Clinical and epidemiological analysis revealed the presence of congenital viral infection risk indicators in maternal history in 100% of children with organic heart pathology and in 95% of children with cardiovascular system disadaptation syndrome (CVD). In the maternal history of healthy children in the control group, the above-mentioned risk indicators for congenital viral infections were not identified.

According to [8], with equal infection in children with organic heart pathology, Coxsackie enteroviruses, as well as rubella virus, are detected significantly more frequently than in children with posthypoxic cardiovascular system disadaptation syndrome (CVD). V.A. Tabolin and co-authors (2000) believe that congenital enteroviral infection in children with cardiac pathology is primarily associated with the vertical transmission of enteroviruses from mothers with the chronic form of this infection.

The clinical presentation of hemolytic anemia, hepatosplenomegaly, intrauterine hypotrophy, prolonged jaundice, and CNS damage symptoms was observed in 10 (12%) examined children of the main 1st group with CNS PD, which may indicate the presence of an intrauterine viral infection in the mother.

In 40 (83%) newborns, along with TPS, there were signs of persistent pulmonary hypertension and fetal communication functioning, which was accompanied by a systolic murmur at the base of the sternum, which transitioned into a diastolic murmur. Also, these children experienced heart and respiratory failure associated with both the underlying disease and the influence of the HBV. 30 (79%) newborns of the 2nd group and 1 (5%) child of the control group also had signs of persistent pulmonary hypertension.

In 32 (66.7%) newborns of the 1st group and in 28 (73.7%) children of the 2nd group, fluid retention was observed on the 4-5th day of life. In 17 (35.4%) newborns of the 1st group and in 10 (26.3%) children of the 2nd group, liver enlargement was noted. A decrease in diastolic blood pressure was observed in all 3 groups. The condition of most children with the use of vasodilators against the background of adequate oxygenation (up to artificial lung ventilation), correction of metabolic acidosis and metabolic disorders progressively improved (by the end of the first week of life).

In 42 (72.4%) children of the 2nd group, a diagnosis was made - posthypoxic cardiovascular system disadaptation syndrome (CVD). In catamnesis, 35 children of the 1st group and 20 children of the 2nd group were examined. Signs of cardiovascular disease persist in 12 (60%) children of the 2nd group.

The clinical manifestations of transient myocardial dysfunction in cardiovascular disease in these children were nonspecific. The following symptoms were noted: paleness or "marmarsimon" skin; cyanosis or acrocyanosis, perioral cyanosis; tachypnea; muffled or deafness of heart sounds, accent of the second heart sound over the pulmonary artery; expansion of the borders of relative cardiac dullness; systolic murmur of mitral or tricuspid valve insufficiency; heart rhythm and conduction disorders.

The greatest severity of clinical symptoms is observed in the neonatal period, may be accompanied by the development of heart failure symptoms (either total heart failure or left ventricular failure).

The results of clinical and catamnestic observation of children allowed for the registration of frequent ARVI in the first year of life, including with a complicated course in 52.8% of children with congenital heart failure and 60% of children with cardiovascular diabetes.

It should be noted that we can talk about the role of congenital viral infections, as well as TORCH-infections, in the etiopathogenesis of congenital cardiovascular pathology in children, taking into account the high frequency of detection of cardiotropic enteroviruses and TORCH-infections in mothers.

Furthermore, it is impossible to deny the existence of syndromic pathology, a complicated heredity for TPS, which may indicate the genetic nature of these pathological conditions. According to V.A. Tabolin et al. (2000), the interpretation of examination results for congenital viral infections should be carried out taking into account infectious agents, the nature of the microorganism's response, determined by immunological, genetic, and chronological factors. According to recent literature data, genetic factors play a leading role in the formation of organic heart pathology.

However, according to [8], the possibility of persistent viral infection affecting the fetal body, both in the early stages of its development and throughout pregnancy, cannot be ruled out. In addition, the course of the adaptation period of newborns, combined cardiac pathology, as well as the prolonged course of concomitant somatic pathology may depend on viral infection. The teratogenic effect of viruses in the earliest stages of intrauterine development leads to the formation of TPS, after 12 weeks of gestation - to the formation of fetopathies, and at the end of pregnancy - to the development of post hypoxic heart damage.

In persistent viral infection, a decrease in the cell's energy reserve and a slowdown in metabolism are observed. In this regard, it is impossible to exclude the combined effect of viruses and hypoxia on the myocardium with the development of its dilatation and

hypercontractility in the form of the formation of post-hypoxic inadaptation syndrome of the cardiovascular system.

Considering the above, clarifying the status of the cell (energy reserve, metabolism, integrity of cell membranes, completeness of nuclear inclusions) may be of great scientific interest in TPS and post-hypoxic cardiovascular disease.

Conclusions. In maternal history, the presence of risk indicators for congenital viral infection was found in 100% of children with CNS PD and 95% of children with cardiovascular diabetes, while in healthy children of the control group, the above-mentioned indicators were not detected. In 10 (12%) of the examined children with TPS, severe forms of intrauterine infections were observed. In 40 (83%) newborns, along with CNS PD, there were signs of persistent pulmonary hypertension and fetal communication functioning. The results of clinical and catamnestic observation of children allowed for the registration of frequent ARVI in the first year of life, including with a complicated course in 52.8% of children with congenital heart failure and 60% of children with cardiovascular disease, pneumonia - in 77% of children with congenital heart failure during the first year of life

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