УДК 616.12-002-053.2-07

Ефименко Оксана Владимировна,
доцент кафедры
«Госпитальной педиатрии»
Андижанского Государственного Медицинского института
Город Андижан, Республика Узбекистан

Хайдарова Лола Рустамовна,
старший преподаватель
кафедры «Госпитальной педиатрии»
Андижанского Государственного Медицинского института
Город Андижан, Республика Узбекистан

Инакова Севара Улугбековна,
студентка магистратуры
кафедры «Госпитальной педиатрии»
Андижанского Государственного Медицинского института
Город Андижан, Республика Узбекистан

КЛИНИКО-ЛАБОРАТОРНАЯ ХАРАКТЕРИСТИКА ОСТРОГО КАРДИТА И РОЛЬ ФАКТОРОВ РИСКА В ИХ РАЗВИТИИ

Аннотация. *Истинная распространенность кардитов в детской популяции не известна. Отсутствие чётких диагностических критериев, а также высокая распространенность инфекционных заболеваний у детей и, в частности респираторно-вирусных, приводит к достаточно частому вовлечению в патологический процесс сердечно-сосудистой системы. Немаловажную роль в развитии острых кардитов у детей раннего возраста играют – неблагоприятный перинатальный анамнез, белково-энергетической расстройство питания и высокая склонность к гиперергическим реакциям.*

Ключевые слова*: сердечно-сосудистая система, кардит, сердечная недостаточность, систолический шум, электрокардиография, Эхокардиография.*

CLINICAL AND LABORATORY CHARACTERISTICS OF ACUTE CARDITIS AND THE ROLE OF RISK FACTORS IN THEIR DEVELOPMENT

Efimenko Oksana Vladimirovna,
Candidate of Medical Sciences,
Associate Professor of the Department
"Hospital Pediatrics"
of Andijan State Medical Institute
Andijan City, Republic of Uzbekistan

Khaydarova Lola Rustamovna,
Senior lecturer Department of
"Hospital Pediatrics"
of Andijan State Medical Institute
Andijan City, Republic of Uzbekistan

Inakova Sevara ulugbekovna,
Master's student of the department
"Hospital pediatrics"
of Andijan State Medical Institute
Andijan City, Republic of Uzbekistan

Annotation. *The true prevalence of carditis in the pediatric population is not known. The lack of clear diagnostic criteria, as well as the high prevalence of infectious diseases in children and, in particular, respiratory viral, leads to a fairly frequent involvement in the pathological process of the cardiovascular system. An important role in the development of acute carditis in young children is played by an unfavorable perinatal history, protein–energy eating disorder and a high tendency to hyperergic reactions.*

Keywords*: cardiovascular system, carditis, heart failure, systolic murmur, electrocardiography, echocardiography.*

Relevance. Carditis is an inflammatory lesion of the membranes of the heart of an infectious, toxic, allergic, autoimmune or unknown etiology with a

wide range of clinical manifestations from asymptomatic to heart failure, life-threatening rhythm and conduction disturbances, cardiogenic shock and sudden cardiac death. [5,7,12]

In recent years, interest in the problem of carditis has increased - as a disease of non-coronarogenic and non-rheumatic nature, due to the growth of this pathology, especially among young children. [3,6,13]

The concept of “carditis” was recently introduced into pediatric clinical practice. The expediency of identifying carditis in pediatrics is due not only to isolated, but also often combined damage to two or three membranes of the heart. [4,6,8]

The true prevalence of carditis in the pediatric population is unknown. The lack of clear diagnostic criteria, as well as the high prevalence of infectious diseases in children and, in particular, respiratory viral diseases, leads to a fairly frequent involvement of the cardiovascular system in the pathological process. [1,2,9]

According to many researchers, approximately 1-5% of children with acute viral infection may have myocardial damage, which is either not diagnosed or the diagnosis is made at a later date. [1,5,13]

Features of the clinical manifestation of carditis depend on local or diffuse damage to one or more membranes of the heart, which determines the characteristics of the clinical course, possible complications, and often the prognosis. [5,6,10]

The course of carditis, regardless of the cause that caused the heart damage, can vary from mild, slightly symptomatic forms with an erased clinical picture and without signs of heart failure, to a pronounced clinical picture with severe circulatory failure and complex cardiac arrhythmias. [3,7,8,11]

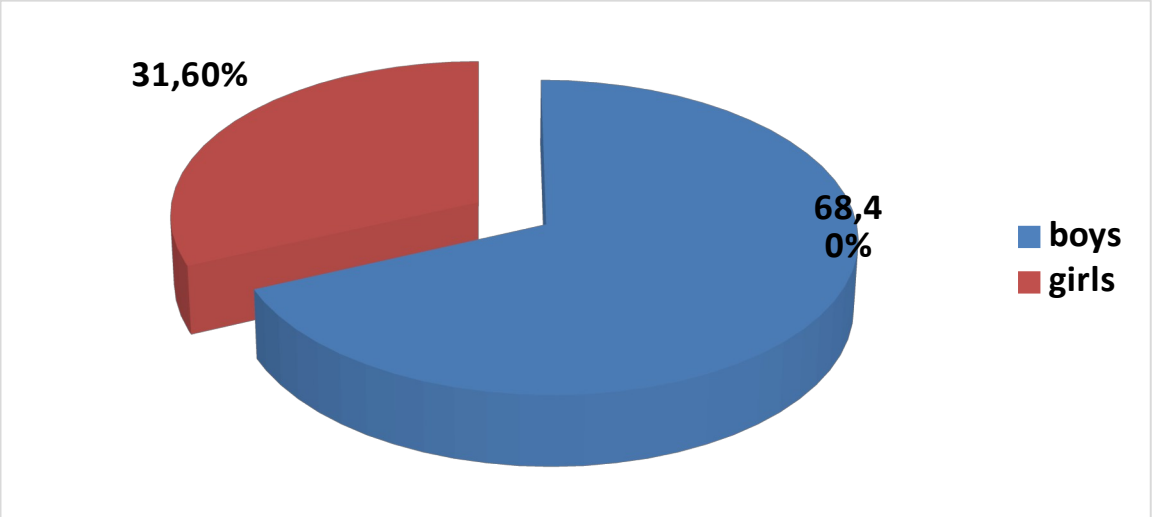
An important role in the development of acute carditis in young children is played by an unfavorable perinatal history, protein-energy malnutrition and a high tendency to hyperergic reactions. [1,4,7]

Purpose of the study: to establish possible risk factors and features of clinical manifestations of carditis in young children.

Material and research methods. All studies were carried out at the Andijan Regional Children's Multidisciplinary Medical Center, in the department of cardiorheumatology, for the period 2020-2022. The paper presents data from a survey of 38 children aged from 6 months to 3 years. While carrying out the work, we conducted conversations with parents, studied medical histories and used the results of laboratory and instrumental research methods.

Results. All children were admitted to the hospital in serious condition. In 7 children (18.4%), this hospitalization was repeated, in the rest it was primary. With a diagnosis of Carditis, 28 children (73.7%) were admitted to hospital treatment; the rest (26.3%) were diagnosed during the period of acute community-acquired pneumonia.

Children from rural areas dominated by place of permanent residence - 86.8%. By gender, boys predominated.



All mothers whose children received treatment for acute carditis had an unfavorable obstetric history. The frequency and significance of possible risk factors in the ante- and perinatal periods are presented in the table.

Risk factors of the ante and perinatal periods	Abs.	%
Frequent ARVI during pregnancy	38	100%
Anemia in mother	38	100%
Intrauterine fetal hypoxia	12	31.6%
Presence of TORCH infection in the mother	9	23.7%
Preeclampsia	8	21%
Exacerbation of maternal genitourinary tract infection	6	15.8%
Weakness of labor	16	42.1%
Early rupture of amniotic fluid	12	31.6%
Umbilical cord entanglement during childbirth	5	13.1%

We identified the most informative and predisposing factors in the development of carditis in young children in the postnatal period: anemia (100%), perinatal damage to the nervous system (60.5%), allergic mood (55.2%), frequent acute respiratory viral diseases (42.1%), intrauterine infection (23.7%) and protein-energy malnutrition (13.2%).

Particular concern in terms of the leading risk factor for the development of carditis was caused by children whose blood tests revealed cytomegalovirus infection (23.7%), with immunoglobulin G levels 3 times higher than the normative values.

The clinical course of carditis depended on the diversity and polymorphism of complaints. All children (100%) had shortness of breath and groaning breathing upon admission, which worsened with any physical activity of the child. Low-grade fever was diagnosed in 47.3% of cases, obsessive cough - in 63.1%, and 21% of children had edema, the appearance of which parents associated with a decrease in diuresis. Sleep disturbance in 8% of children was manifested by drowsiness, in the rest - with periods of unmotivated restlessness at night.

The auscultatory phenomenon in 1/3 of children (31.6%) was manifested by muffled tone I, in 69.4% of children - by dullness of tones, and the severity of the latter was associated with the degree of cardiomegaly. In 2/3 of children - 69.4%, a systolic murmur was heard that was not associated with organic lesions and in 14 children (36.8%) there was a splitting of the first tone according to the type of gallop rhythm.

Symptoms of heart failure of the left ventricular type were diagnosed in all children, and in 73.3% - degree II B. Hepatomegaly, as a sign of stagnation in the systemic circulation, occurred in all children. The liver dimensions varied from +2 cm to +5 cm.

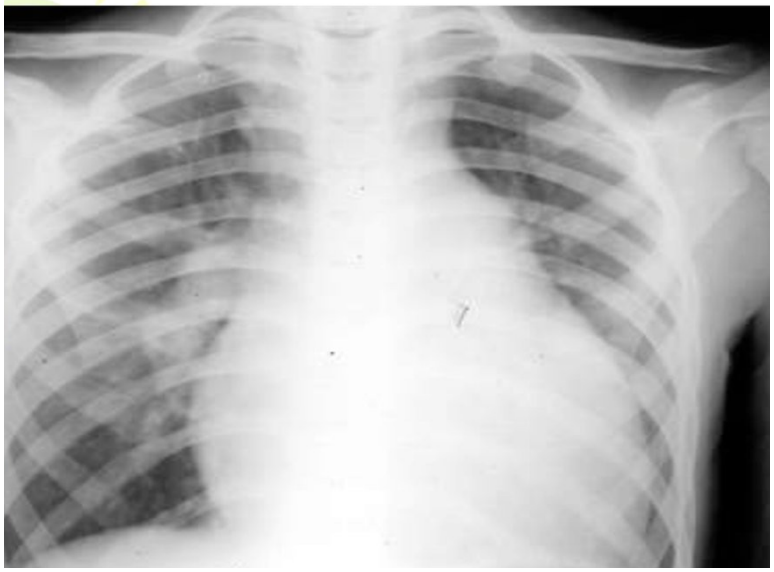
Hemodynamic disorders were assessed using electrocardiography parameters. Automaticity disorders were manifested by sinus tachycardia and in more than half of the examined children (55.3%) the heart rate exceeded the 20% threshold of age standards. One child was diagnosed with an attack of supraventricular tachycardia upon admission to the hospital. Conduction disorders in children with acute carditis are represented by RBBB (23.9%) and AV block of the first degree (7.9%).

In addition, electrocardiographic signs of carditis in the children we examined were signs of: left ventricular hypertrophy (39.5%), left ventricular hypertrophy with atrial overload (39.5%), biventricular hypertrophy (21%), subendocardial ischemia (31.6 %) and metabolic changes in the myocardium (15.8%).

Echo signs confirming carditis diagnosed changes in the form of dilatation of the cavity of the left and right ventricles, an increase in the end-systolic and end-diastolic dimensions of the left ventricles and a significant decrease in the ejection fraction, the range of which was from 28% to 42%.

X-ray examination revealed an increase in the shadow of the heart, mainly due to the left ventricle, with cardiothoracic index values of 67% + 3%.

X-ray of the patient Ashurov V., 2 year 3 months, diagnosis – acquired carditis, acute course, severe degree, NC 2 A. (case history No. 259/184).



Based on blood test results, all hospitalized children with carditis were diagnosed with anemia, as a factor aggravating the course of this disease. Children with moderate anemia accounted for 63%; in 8 children (21%), HB indicators corresponded to severe anemia.

A marker of myocardial damage is the creatine phosphokinase index, an increase in which was detected in all children with severe (73,7%) carditis. In addition, all children had high levels of CRP, exceeding standard values by 4-5 times.

Thus, based on our results, we can assume that the most likely and significant risk factors for the development of carditis in young children are on the maternal side: a complicated obstetric history; on the part of the child - frequent viral and viral-bacterial infections, intrauterine infections, perinatal damage to the nervous system, protein-energy malnutrition and allergic mood.

Acute carditis in young children in our studies was predominantly severe, with symptoms of heart failure, which we regarded as an unfavorable prognostic sign.

Sources used

1. Balykova L.A., Krasnopolskaya A.V., Vlasova E.A. Myocarditis in children: clinical picture, diagnosis and treatment// Pediatric pharmacology/ 2020/ Volume 17/ No. 2, pp. 137-147

2. Efimenko O.V., Khaidarova L.R., Zhalolov B.B. Comparative assessment of hemodynamic disorders in children with various forms of cardiomyopathies. //Biology and Integrative Medicine, 2022, No. 5 (139), pp. 60-62.

3. Efimenko O.V., Khaidarova L.R., Zhalolov B.B. The influence of the onset of dilated cardiomyopathy on hemodynamic disorders and prognosis. //Economy and Society, No. 2 (93) – 2022, pp. 308-315.

4. Efimenko O.V., Khaidarova L.R. and others. Assessment of the influence of possible risk factors on the course of non-rheumatic carditis in young children. //Economy and Society, No. 2 (105) – 2023, pp.570-577.

5. Potekhina M.N., Naumenko E.I. and others. Non-rheumatic myocarditis in children. Clinical observation. //Modern problems of science and education. 2022 No. 4, pp. 148-157.

6. Shaykhova M.A. The role of respiratory diseases in the development of non-rheumatic myocarditis in childhood. //Young Scientist, No. 22 (126), 2016, pp. 116-118.

7. Dasgupta S., Iannucci G., Mao C., Clabby M., Oster ME Myocarditis in the pediatric population: A review. Congenit Heart Dis. 2019. Vol. 14 (5). P. 868-877. DOI: 10.1111/chd.12835.

8. Tschope C., Ammirati E., Bozkurt B., Caforio ALP et al. Myocarditis and inflammatory cardiomyopathy: current evidence and future directions. Nat Rev Cardiol. 2021. Vol. 18(3). P. 169-193.

9. Myocarditis Foundation. Myocarditis in children: incidence, clinical characteristics and outcomes. [Electronic resource]. URL:

https://www.myocarditisfoundation.org/myocarditis-inchildren-incidence-clinical-characteristics-and-outcomes/ (accessed 07/28/2022).
10. Zhang M., Wang H., Tang J., He Y., Xiong T., Li W., Qu Y., Mu D. Clinical characteristics of severe neonatal enterovirus infection: a systematic review. BMC Pediatr. 2021. Vol. 21(1). P. 127. DOI: 10.1186/s12887-021-02599-y.
11. Chang Y.-J., Hsiao H.-J., Hsia S.-H. et al. Analysis of clinical parameters and echocardiography as predictors of fatal pediatric myocarditis. PLoS ONE. 2019. Vol. 14(3). e0214087. DOI: 10.1371/journal.pone.0214087.
12. Neagu O., Rodríguez AF, Callon D., Andréoletti L., Cohen MC Myocarditis Presenting as Sudden Death in Infants and Children: A Single Center Analysis by ESGFOR Study Group. Pediatr Dev Pathol. 2021. Vol. 24. R. 327-336.
13. Rodriguez-Gonzalez M., Sanchez-Codez MI, Lubian-Gutierrez M. et al. Clinical presentation and early predictors for poor outcomes in pediatric myocarditis: A retrospective study. World J. Clinical Cases. 2019. Vol. 7 (5). P. 548-561. DOI: 10.12998/wjcc.v7.i5.548.