УДК:

ETIOPATHOGENETIC FACTORS OF ACUTE HEMATOGENIC EPIPHYSICAL OSTEOMYELITIS IN YOUNG CHILDREN.

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Resume. *Acute hematogenous epiphyseal osteomyelitis (AHEO) is often accompanied by disability. The modern problem of acute hematogenous osteomyelitis (AHO) in children is associated with the high incidence rate of the pediatric population and the severity of this purulent-septic pathology in childhood. 'liq. The continuing difficulties of early diagnosis are unsatisfactory results of treatment with frequent chronic purulent process. Despite the successes achieved in the treatment of AHO in children, the mortality rate in severe forms of the disease is from 0.2% to 3.7%, the transition to a chronic state is from 5.2% to 13.0%. After epiphyseal osteomyelitis, 23-58.3% of patients experience orthopedic complications. This disease is closely related to social and economic factors, so the pathomorphism of the disease has been clearly seen in the last decade. At the current stage, the organization of medical care for patients with this serious disease remains perfect. Late hospitalization of patients was noted in 77.0-86.2% of cases. The level of timely diagnosis before the hospital remains low, and there is a misunderstanding of the relevance of emergency care for this pathology. During the initial examination of the patient, diagnostic errors are observed in 25.1-58.3% of cases.*

Key words: *Acute hematogenous epiphyseal osteomyelitis, etiopathogenetic factors, children.*

YOSH BOLALARDA O‘TKIR GEMATOGEN EPIFIZAR OSTEOMIELITINING PAYDO BO‘LISHINING ETIOPATOGENETIK OMILLARI.

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Rezyume. *O'tkir gematogen epifiz osteomielit (O`GEO) tez-tez nogironlik bilan birga keladi. Bolalardagi o'tkir gematogen osteomielitning (O`GO) zamonaviy muammosi bolalar populyatsiyasining yuqori kasallanish darajasi va bolalik davridagi ushbu yiringli-septik patologiyaning og'irligi bilan bog'liq. Erta tashxis qo'yishning davom etayotgan qiyinchiliklari, tez-tez surunkali yiringli jarayon bilan qoniqarsiz davolash natijalaridir.Bolalarda O`GOni davolashda*

erishilgan muvaffaqiyatlarga qaramay, kasallikning og'ir shakllarida o'lim darajasi 0,2% dan 3,7% gacha, kasallikning surunkali holatga o'tishi 5,2% dan 13,0% gacha. Epifizar osteomiyelitdan keyin bemorlarning 23-58,3% ortopedik asoratlarni boshdan kechiradi. Ushbu kasallik ijtimoiy va iqtisodiy omillar bilan chambarchas bog'liq, shuning uchun so'nggi o'n yillikda kasallikning patomorfizmi aniq ko'rindi. Hozirgi bosqichda ushbu og`ir xastalikka chalingan bemorlarga tibbiy yordam ko`rsatishni tashkil etish mukammalligicha qolmoqda. 77,0-86,2% hollarda bemorlarni kech kasalxonaga yotqizish qayd etilgan. Kasalxonadan oldin o'z vaqtida tashxis qo'yish darajasi pastligicha qolmoqda va ushbu patologiya uchun shoshilinch yordam ko'rsatishning dolzarbligini noto'g'ri tushunish mavjud. Bemorni dastlabki tekshirishda diagnostik xatolar 25,1-58,3% hollarda kuzatiladi.

Kalit so‘zlar: *O'tkir gematogen epifiz osteomielit, etiopatogenetik omillari, bolalar*

ЭТИОПАТОГЕНЕТИЧЕСКИЕ ФАКТОРЫ ОСТРОГО ГЕМАТОГЕННОГО ЭПИФИЗАРНОГО ОСТЕОМИЕЛИТА У ДЕТЕЙ РАННЕГО ВОЗРАСТА.

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Резюме. *Острый гематогенный эпифизарный остеомиелит (ОГЭО) часто сопровождается инвалидизацией.Современная проблема острого гематогенного эпифизарного остеомиелита (ОГО) у детей связана с высокой заболеваемостью детского населения и тяжестью этой гнойно-септической патологии в детском возрасте. детство. Сохраняющимися трудностями ранней диагностики зачастую являются неудовлетворительные результаты лечения при хроническом гнойном процессе.Несмотря на достигнутые успехи в лечении ОГО у детей, смертность при тяжелых формах заболевания составляет от 0,2% до 3,7%, заболеваемость переход в хроническое состояние - от 5,2% до 13,0%. Ортопедические осложнения после эпифизарного остеомиелита наблюдаются у 23-58,3% больных. Данное заболевание тесно связано с социальными и экономическими факторами, поэтому патоморфизм заболевания четко прослеживается в последнее десятилетие. На современном этапе организация медицинской помощи больным с этим тяжелым заболеванием остается идеальной. Поздняя госпитализация больных отмечена в 77,0-86,2% случаев. Уровень своевременной диагностики до стационара остается низким, существует непонимание актуальности оказания неотложной помощи при данной патологии. При первичном*

осмотре больного диагностические ошибки наблюдаются в 25,1-58,3% случаев.

Ключевые слова: *острый гематогенный эпифизарный остеомиелит, этиопатогенетические факторы, дети.*

Acute hematogenous epiphyseal osteomyelitis (AHEO) is accompanied by frequent disability. The modern problem of acute hematogenous osteomyelitis (AHO) in children is due to the high morbidity rate of the child population and the severity of this purulent-septic pathology in childhood, with the continued difficulty of early diagnosis, unsatisfactory treatment results with frequent chronicity purulent process. Despite the successes achieved in the treatment of AHO in children, mortality in severe forms of the disease ranges from 0.2 to 3.7%, and the transition of the disease to the chronic stage from 5.2% to 13.0%. After suffering epiphyseal osteomyelitis 23–58.3% of patients experience orthopedic complications [3, 4]. This disease is closely related to social and economic factors, therefore, over the last decade, the pathomorphism of the disease has been clearly visible [1, 4, 5]. At the present stage, the organization of medical care patients with this serious disease remains imperfect. In 77.0–86.2% of cases, late hospitalization of patients is noted. The level of timely diagnosis before hospital remains low, and there is a misunderstanding of the urgency of providing emergency care for this pathology. Diagnostic errors during the initial examination of the patient are observed in 25.1–58.3% of cases. The incidence of hematogenous osteomyelitis in age terms, according to various authors, is as follows: up to 5 years - 20-30%, from 5 to 14 years - 70-75%. Among the skeletal bones, the femur and tibia are most often affected (80%) [3; 7; 8]. Localization of AHO in the metaepiphyses occurs more often at an early age [11]. In 30.5% of newborns with AHO, damage to the epiphyses occurs [10].]. With the development of bacterial sepsis in the clinical course of a patient's acute respiratory syndrome, the danger to his life is determined by the severe course of the disease and the low effectiveness of traditional treatment for children, with a dangerous outcome in multiple organ failure and mortality [14]. H. Schottmuller (1997) contributed quite a lot to the doctrine of sepsis, who created a theory about the significance of the primary purulent focus, from which microbes penetrate into the blood through the vascular system. He believed that the course of the septic process depends both on the number of microbes entering the blood and on the volume of tissues and organs involved in the inflammatory process. Currently, one of the pressing problems in emergency neonatal surgery is early diagnosis and adequate treatment of infectious complications. In this regard, difficulties arise from the fact that the recommended modern definitions of septic conditions differ from the terminology used by most neonatologists [11;18]. In addition, there are differences in pathophysiology, clinical interpretation of infection, and susceptibility of newborns to the same

bacterial pathogen depending on gestational age. Intrauterine infection is of great importance in the development of many pathological conditions of the gestational period, diseases of childhood and later stages of human life and is an urgent problem in perinatology [15; 17;19.].

According to some authors, the most successful definition of sepsis is: sepsis is a generalized, polyetiological infectious disease with an acyclic course, with the presence of a primary purulent-inflammatory focus, the occurrence and course of which is determined by the characteristics of the macroorganism and the properties of the pathogen. In the development of the disease, endogenous foci of infection and the general somatic condition of the patient play an important role, forming a decrease in the immunological resistance of the body, which in turn leads to the ineffectiveness of surgical and antibacterial treatment and the occurrence of relapse of the bone-purulent process [7; 13]. From the standpoint of immune status, the study of the etiopathogenesis of sepsis and the features of its clinical course in children of various age groups remains relevant [17]. The systemic response to infections is the result of an imbalance in the interaction of pro- and anti-inflammatory reactions of the body, initiated by endo- and exotoxins of bacteria and mediators formed in the area of tissue damage (Itokazu, M., 1998).

Currently, medical practice has a huge arsenal of therapeutic agents and techniques that make it possible to influence almost all parts of the pathogenesis of the purulent-septic process. Constant improvement of surgical methods of influencing a purulent focus, the emergence of a new generation of antibacterial drugs and many immunotropic agents, the use of new methods of combating toxicosis, in particular extracorporeal detoxification, have significantly improved the results of treatment of hematogenous osteomyelitis. A wide variety of therapeutic techniques makes it possible to solve one practical problem in different ways. But at the same time, certain difficulties arise associated with the need to select the most optimal therapeutic measures for a specific infectious process. Therefore, the results of treatment of children with severe forms of hematogenous osteomyelitis depend not only on the development and implementation of new treatment methods, but also on a clear pathogenetic rationale for the use of certain treatment methods [9; 16]. Intrauterine infection is one of the causes of perinatal development of AHO in children under three months, generalization of the inflammatory process and deaths [7]. An infectious process that begins in utero causes a different response from the body's immune system, different from the postnatal period, and is characterized by a unique clinical picture of the disease and low sensitivity to standard treatment methods [2]. Inflammatory diseases of the osteoarticular system are one of the severe pathologies of the newborn period (Krasovskaya T.V., Beloborodova N.V., 2005). The embolic theory does not fully explain the sudden, against the background of complete health, onset of primary acute hematogenous osteomyelitis, which developed without any previous inflammatory disease. In the mid-20th century, the neuroreflex theory was widely

recognized, according to which pathological irradiation from the focus of the inflammatory process is associated with a sharp irritation of the interoreceptor apparatus of the bone and its reflex effect on the state of the central nervous system and the cardiovascular system. In this case, the active beginning of pathological osteoreception is a sharp increase in intraosseous pressure caused by various reasons. This theory is important in explaining the appearance of a pathological process in the bone, in understanding the development of a number of pathological reactions on the part of vital organs. Neurogenic disorders are based on the formation of generators of pathologically enhanced excitation. The influences that cause the formation of generators of pathologically enhanced excitation include physical and chemical factors, scar deformities, as well as a cascade of enzymes for the hydrolysis of phospholipids, excessive formation of arachidonic acid and its metabolites. These processes are activated under conditions of thrombosis, ischemia of bone tissue in the dynamics of the development of acute hematogenous osteomyelitis. In addition, endogenous biologically active substances contribute to the emergence of generators of pathologically enhanced excitation: prooxidants, hydroperoxides, phospholipase hydrolysis products, enhanced lipid peroxidation, nitric oxide [8;13]. Osteomyelitis that developed in the fetal period is a little-known disease and is a rare observation [18]. In recent years, there has been an increase in the number of patients in a surgical hospital due to premature, low birth weight patients, who, due to anatomical, physiological, immunological, and microbiological characteristics, are more susceptible to purulent-septic diseases [1; 2]. In an experiment on a model of gram-negative sepsis, it was proven that in the initial stages of septic shock the phagocytosis system, 21 immunoglobulins and B-lymphocytes play the greatest role; in the later stages, all T-lymphocyte complexes and factors of the specific immune response (complementary and proportional system, cytotoxic activity of the blood, etc.) are included. According to N.T. Dolidze et al., (1999); N.I. Melnikova et al., (2003); Duke, D., (1998); Cardinal, E. et. al., (2001), studies of sepsis have led to some progress in understanding the pathogenesis of the disease, especially those caused by gram-negative flora. The central link in pathogenesis is a part of the shell of gram-negative bacteria, which is called endotoxin or lipid polysaccharide - both of these names are used interchangeably. Endotoxin levels can be determined qualitatively and quantitatively in serum using a highly specific test. Clinical studies indicate the important prognostic role of determining endotoxin in the blood serum of patients before the start of antibacterial therapy. These studies revealed a direct correlation between the level of endotoxin, the severity of multiple organ failure and unfavorable outcome in patients with generalized infections. However, the use of this method for determining the severity and prognosis of gram-negative sepsis in routine clinical practice is not possible due to high cost and technological complexity [5] According to the modern concept of the development of purulent surgical infection in childhood, the occurrence and progression of AHO in children

of the younger age group is determined not only by the factors of aggressiveness of the pathogenic agent, but also by the state of the mechanisms of specific and nonspecific resistance. An objective judgment about the state of the child's body's defenses is based on clinical and laboratory analysis, including a comparison of the clinical symptoms of the disease with the results of various studies. As noted by A.A. Baskov et al. (1990), T.A. Vasina et al. (1996), N.V. Beloborodova (2001), Macionis, V. et.al. (1998), Liu, H. et.al. (2001) soft tissue suppuration in children is characterized by a slight decrease in factors of nonspecific reactivity and cellular immunity, while humoral immunity remains intact and is even somewhat stimulated, as evidenced by an increase in the levels of immunoglobulins due to antigenic irritation by microorganisms. Thus, an analysis of literature data and the results of our own research indicate that the main etiological and risk factors that determine and predetermine the complex of local destructive and systemic metabolic disorders in AHO in young children are:

1. Cytotoxic effects of infectious pathogens on the child's body, pathogenicity factors and toxins produced by them in the inoculation zone.

2. Absence or insufficiency of normal microflora in the child at the time of infection, which ensures suppression of the pathogenic competitive strain of the pathogen.

3. Unfavorable premorbid background (the presence of foci of purulent infection in the mother, complicated pregnancy and childbirth, accompanied by blood loss, injury, infection of the fetus).

4. Insufficiency of specific immunological defense mechanisms in the form of congenital or acquired immunodeficiency in the T-, B-lymphocyte systems, or a combined form of immunopathology.

6. Insufficiency of nonspecific resistance factors.

7. Insufficiency of mechanisms for the formation of typical pathological processes, in particular inflammation, ensuring encapsulation and inactivation of infectious pathogenic factors in foci of infection.

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