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THE PREVALENCE OF PARASITES IN THE CHILD POPULATION WITH THE DEVELOPMENT OF FUNCTIONAL PATHOLOGY OF ORGANS

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Annotation
Parasitic disease - the development of painful symptoms as a result of the life of a helminth or protozoa in the human body. The main factor in the survival and spread of parasites is their unusually high reproductive ability, as well as constantly improving mechanisms of adaptation to living in the human body.

Keywords
Parasite, helminth, ascariasis, enterobiosis, giardiasis, reinvasion.

The alertness of medical workers regarding parasitic diseases in the population is currently extremely low, and the prevention of helminthiasis is reduced to the treatment of identified invasive patients. At the same time, many researchers note the connection of the widespread prevalence of parasitosis in the child population with the development of functional pathology of the digestive organs against the background of regulatory disorders and a high risk of the formation of chronic diseases, even under the condition of natural rehabilitation of the child over time.

The purpose of this work is to study the prevalence of parasites in the child population with the development of functional pathology of organs.

The most common and studied diseases — ascariasis, enterobiosis and giardiasis — are registered everywhere. Each person repeatedly suffers from various parasitic diseases during his life. In childhood, parasitoses are more common. In young children (up to 5 years) This is facilitated by the wide prevalence of reproductive material of parasites (cysts, eggs, larvae) in the environment and insufficient development of hygiene skills. Periods of transient weakening of the immune protection of the mucous membranes of the digestive tract are also important. The peaks of the detected parasitic diseases in children are noted at the age of 2-3 years, at 4-7 years, at 10-14 years. In the structure of

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morbidity, the proportion of young children and schoolchildren reaches 95% among all registered patients with enterobiosis and 65% among patients with ascariasis.

These periods of a child's life are characterized by the intensity of adaptation processes and a decrease in the reserves of protection along with the intense influence of the environment. Comparison of the significance of the criteria that determine the features of the selected age segments (mass-growth "jumps", critical periods of the immune system development, peaks of primary morbidity), first of all allows us to identify the level of metabolism that is increasing at this time in the child's body, aimed at ensuring a mass-growth spurt. This condition is beneficial for parasites, since the main task of their vital activity is the production of a huge amount of reproductive material (eggs, cysts), which also primarily requires a very high intensity of metabolic processes. For example, with giardiasis, up to 12 million cysts are released in 1 g of feces of a sick person. The significance of certain risk factors varies according to the age of the child. It is proved that sanitary and hygienic living conditions are more important for younger children, and for teenagers, when collecting anamnesis, it is necessary to pay attention to socio-economic and geographical factors (staying in a camp, a tourist trip, the presence of a younger brother or sister). A transient decrease in anti–infectious immunity as a risk factor for the occurrence of parasitosis in children is also recorded during the period of convalescence after viral diseases caused by herpes viruses (cytomegalovirus, herpes simplex virus I and II, Epstein-Barr virus), may occur as a result of iatrogenism (the use of immunosuppressive therapy for allergic and autoimmune diseases). Currently, a significant proportion of children are in a state of maladaptation, which is also accompanied by a decrease in immune protection. The immune protection of the gastrointestinal tract (gastrointestinal tract) of a child can be divided into specific and non-specific. Nonspecific protection includes a set of conditions for normal digestion: the maturity of enzymatic systems, the provision of acid-base gradient in various parts of the gastrointestinal tract, the activity of normal microflora, adequate motor skills.

Materials and methods of research: In some cases, non-specific protection may be violated. For example, the maturity of enzyme systems depends on the biological age of the child, which does not always coincide with the passport. Often this so-called phenomenon of delayed enzymatic start is included in the phenotype of a child with diffuse connective tissue dysplasia. This phenotype may also include the following specific signs: anomalies of the development of the auricle,

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"gothic" palate, epicanthus, hypertelorism, hypermobility syndrome of joints, small anomalies of the development of the heart, gallbladder, etc. The functional insufficiency of enzyme systems existing in such a child is combined with a change in the elasticity and strength of the gastrointestinal wall, forming a predisposition to the occurrence of functional disorders of the digestive organs. The conducted studies have proved that in children with the number of the above-mentioned small developmental anomalies more than 5, parasitic invasions are noted in 78% of cases, whereas in the control group the incidence of parasitosis was less than 45%. Separately, it should be noted that for a disease such as giardiasis, the predisposing factor of invasion is irregular and insufficient separation of bile into the intestine with abnormalities of the development of the gallbladder (constrictions, kinks).

In children in the recovery period after acute intestinal infections, after massive antibiotic therapy, as well as in patients with chronic pathology of the digestive system, concomitant disorders of enzyme supply, normoflora and intestinal motility also make the gastrointestinal tract more vulnerable to parasites. The specific protection of the mucous membrane of the digestive organs depends on the age of the child and his maturity. The mechanism of specific immune protection is one of the most ancient systems of the body, since helminthiasis has accompanied mankind for many millennia. This mechanism is primarily represented by blood eosinophils and immunoglobulin E. A classic expanded antiparasitic response can be formed in a child no earlier than the age of 4 and is closely related to the quality and quantity of IgE maturing by this age. When the body comes into contact with the parasite, inflammatory mediators are primarily released: interleukin, leukotriene C4, D4, prostaglandins, thromboxanes. The number of lymphocytes producing IgM and IgG increases. In the clinical blood analysis, an increase in the level of eosinophils and basophils is noted, associated with an increase in the content of these cells in the tissues of the invaded organ. When meeting with parasite larvae, tissue basophils secrete heparin and histamine, which, in combination with leukotrienes and other inflammatory mediators, cause common manifestations: itching, reactive edema, hyperemia, and can also provoke common manifestations: bronchospasm, manifestations of urticaria or diarrhea. Allergic inflammation in parasitosis develops along the classical path and is designed to create conditions leading to the death and / or elimination of the parasite. At the same time, eosinophils have a pronounced cytotoxic potential that exceeds the capabilities of other blood cells, which explains the paramount importance of eosinophils in antiparasitic reactions and their damaging role in

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allergies. The main action of eosinophils is shown in barrier tissues. In the focus of invasion, they degranulate, exerting helminthotoxic and cytotoxic effects. Proteins of eosinophilic granules (large basic protein, eosinophilic peroxidase, eosinophilic cationic protein, eosinophil-derived neurotoxin) are toxic not only to the parasite, but also to the cells of the child's body. Another important cause of systemic and organ lesions associated with parasitosis is the formation of immune complexes.

The effect of parasites on the child's body is carried out with the involvement of many systems. Almost all of their species can cause a shift in the Th1/Th2 ratio of cells in a direction favorable for their survival. Cases are described when the products of the parasite excretion had a hormone-like effect on the host organism. Parasites exert local influence by causing contact inflammation of the mucous membrane and stimulating vegetative reactions. At the same time, intestinal absorption processes, adequate gastrointestinal motility and its microbiocenosis are disrupted. The systemic effect is due to the use by the parasite of the energy and plastic potential of food to the detriment of the child's body, the induction of allergies and autoimmune processes, targeted immunosuppression and endogenous intoxication. Studies have shown that the allergic syndrome is accompanied by ascariasis and enterobiosis in 71.3% of cases. Among children with atopic dermatitis, parasitosis is detected in 69.1%, while giardiasis out of all infestations is 78.5%. Toxocarosis forms a particularly recognizable clinical picture. Clinical markers of this invasion are the leukemoid reaction of eosinophils (from 20% and higher of eosinophils in the blood formula), accompanying a vividly and persistently occurring allergic syndrome in the form of atopic dermatitis with severe itching and resistance to traditional therapy or severe bronchial asthma with frequent attacks. In 75.3% of cases, parasitosis is accompanied by various functional disorders of the gastrointestinal tract. A number of studies have proved that parasitic invasion can cause disorders of carbohydrate metabolism, as well as disaccharidase deficiency due to a decrease in lactase levels.

Conclusion:

Parasitic invasions, as a rule, are accompanied by neurotic reactions of varying severity, in particular, giardia is not without reason called "parasites of longing and sadness". In most children, adaptation disorders are one of the important links of the pathogenetic process in parasitosis. It should be noted that the state of maladaptation primarily affects the lymphocytic link of immunogenesis, which cannot but affect the maturation and differentiation of specific immunity.

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