

Helminthoses - An Current Problem of Modern Medicine

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Abstract: The article analyzes the prevalence of helminthiasis in the world. Particular attention is paid to the phase of pathogenesis and clinical manifestations of helminthiasis. The most important role in helminthiasis is revealed - the factor of the helminth's influence on the host's immune system.

Keywords: Helminth, organism, host, disease, modern medicine.

At the end of the 80s, reports appeared in the American press that almost every person is a carrier of a mass of parasites - microbes, viruses, helminths (worms), living at the expense of the host (human) and being the true cause of many chronic diseases.

Parasites, that is, organisms that permanently or temporarily use organisms of other species as a habitat or source of food, are all pathogens of humans, animals and plants without exception.

Helminthiasis in modern medicine remain one of the pressing problems, despite the great successes achieved in the elimination of parasitic diseases. This is due to their wide distribution, diversity of species, pronounced negative impact on the body of invasive humans and a general decrease in the immune status of the population.

According to the World Health Organization, more than 85% of the world's population suffers from parasitic infestations. Studies show that the most pronounced pathological changes are caused by the larval and developing stages of helminths [1].

Larvae, according to research by a number of authors - Bronstein A.M. [2], Tokmalaev A.K. [3] are capable of parasitizing in various organs and tissues, completing their biological migration path in the "host" body. Adult individuals are characterized by stable localization.

Helminthiasis is a fairly large group of parasitic diseases - in total, more than 350 species of helminths are known, which live in both cold arctic and very hot countries. According to scientists, about 4.5 billion people worldwide suffer from diseases of this group.

The main danger of helminths is that they "poison" the host's body with the products of their vital activity, have a mechanical effect on organs, suppress the immune system, and lead to the development of complications and neoplasms (cysts, capsules).

For many species of helminths, the gastrointestinal tract is a permanent place of parasitism, and each species is localized in strictly defined sections of it [4]. Thus, ascaris, wide tapeworm live in the proximal parts of the small intestine, dwarf tapeworm - in its lower third, pinworms - in the lower part of the small intestine, ileum and rectum, whipworm - in the large intestine, lamblia - in the duodenum and bile ducts. ways [5].

In the pathogenesis and clinical picture of helminth infections, 4 phases are distinguished: acute, latent, chronic and the outcome phase, the main ones being acute - the first 2 - 3 weeks after invasion, and in severe cases - up to 2 months or more, and chronic - lasting from several months

up to many years. In the acute phase, according to a number of studies, pathological changes predominate, caused by a general allergic reaction to antigens of migrating larvae, especially in the early stages of developing parasites.

The leading and prognostically serious organ and systemic lesions of the acute phase of helminth infections are: allergic myocarditis, pneumonia, meningoencephalitis, hepatitis, disorders in the hemostatic system [6].

The most important role in helminthiasis is played by the factor of the helminth's influence on the host's immune system. The causes of organ and systemic damage, especially with tissue helminthiasis, is the formation of immune complexes that activate mediator systems - complement, kinins and a number of others [7].

On the one hand, helminths stimulate the immune response, on the other, they have a general immunosuppressive effect, which contributes to their survival in the host body [8]. The immune response to helminth infections is characterized by a low degree of tension, low specificity and a relatively short range of action depending on the number of helminths in the body [9].

According to numerous studies, parasitosis contributes to a more frequent occurrence of somatic diseases and exacerbation of chronic diseases, having a multifaceted effect on the host's body, including its immune system. AND I. Lysenko et al (1999) established toxocariatic etiology of the disease in patients suffering from bronchial asthma, revealing a high level of specific antibodies. Repeated courses of specific therapy in patients led to relief of specific manifestations of asthma.

Among children with atopic dermatitis, parasitosis is detected in 69.1%, giardiasis of all invasions accounts for 78.5%. N.P. Toropova et al. (2005) showed that parasitic invasion (helminths, protozoa) can be a trigger factor for the development of immunopathological, inflammatory changes in the skin (acute allergic dermatoses), as well as a factor supporting the chronic, wave-like course of dermatoses (atopic dermatitis, urticaria, psoriasis).

A number of studies have found that deworming leads to a decrease in bronchial hyperreactivity, a decrease in allergic inflammation and allergy manifestations.

As is known, parasitology is an ecological science. Its ecological essence was revealed and analyzed by V. Dogel (1962) and follows from his definition of parasites, which he characterized as "organisms that use other living organisms as a habitat and a source of food, while at the same time placing responsibility (partially or completely) on their hosts the task of regulating one's relationships with the surrounding external environment."

According to B. Lebedev (1989), "...parasitology, which is the science of life in the living, is not a particular, but a special branch of ecology."

The main object of parasitological research is the "parasite-host" system, well known in ecology, as a form of biotic relationships. These systems have undergone a long evolution, as a result of which both the virulence of the parasite and the mechanisms of the host's immunological defense have changed and improved.

Parasitology as a science has existed for 200 years, and during this time the priorities and directions of research in this area have changed more than once, which is due to 12 applied aspects.

Parasitism is a phenomenon of a biocenological scale, and parasite-host interactions are one of the forms of coenotic relationships that develop between the organisms that make up a specific biocenosis. The parasite population and the population of its host enter into certain relationships. This is how the population level of interaction is formed.

Let us specify the features of the interaction between parasites and their hosts as we move to the next level of analysis in the parasite-host system. For example, at the organismal level, parasitism exhibits systemic properties in a pair of interacting organisms – the parasite and the

host. At this level, the metabolic, biochemical and genetic interactions that form the traditional (conservative faunal) parasite-host system are analyzed.

The parasite individual and the host individual are the main elements of this system. But at the organismal level it is impossible to analyze issues of reproduction, dispersal and features of the invasive stages of the parasite.

These questions are addressed in a group (population) format. A system consisting of a population (part of a population) of a parasite and a host population forms a new object of study with certain systemic characteristics, as evidenced by numerous data on the impact of the parasite (population) on the population of its host.

Massive spread of parasitic diseases is recorded in all regions of the world. An expert assessment of the World Health Organization indicates that in terms of the number of patients, helminthiases are in third place in the world, and malaria is in fourth place among all the most significant infectious and parasitic diseases - 1.4 billion and 600 million patients, respectively. For comparison, the annual number of patients with influenza and other acute respiratory infections in the world is 395 million (sixth place).

Based on the number of patients in the world infected with intestinal infections, the World Health Organization assesses the situation with parasitic diseases as quite serious and, in accordance with this, plans to conduct large-scale research to combat "neglected" diseases of poor countries. Currently, about 300 human helminthiases are known, but not all are widespread.

Based on the characteristics of biological development, parasitic worms are divided into three main groups: biohelminths, geohelminths and contact helminths.

Helminth infections in children, as a rule, are accompanied by a variety of nonspecific clinical manifestations: weakness, fatigue, irritability, sleep disturbances, dyspeptic symptoms, slower growth and weight gain, and decreased immune status.

The most important component of the pathology of helminth infections is the sensitizing effect of metabolic products and excretion of helminths, leading to the development of allergic reactions in the form of atopic dermatitis, asthmatic bronchitis, rhinitis, blepharitis, etc.

Mass deworming is the leading part of the complex of antihelminthic measures. It is an effective, socially expedient and practically accessible method of improving the health of children from the most common helminthiasis - enterobiasis and heminolepidosis.

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