



No 23 (2018)

P.2

The scientific heritage

(Budapest, Hungary)

The journal is registered and published in Hungary.

The journal publishes scientific studies, reports and reports about achievements in different scientific fields. Journal is published in English, Hungarian, Polish, Russian, Ukrainian, German and French.

Articles are accepted each month. Frequency: 12 issues per year.

Format - A4

ISSN 9215 — 0365

All articles are reviewed

Free access to the electronic version of journal

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свідчить значне накопичення МДА і гідроперекисей ліпідів в плазмі і, особливо, в клітинних елементах крові (еритроцитах), порівняно з пацієнтами, які не мають таких ускладнень.

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ГЕЛЬМИНТОЗ - ПРОБЛЕМА СОВРЕМЕННОСТИ И ЕГО ПОСЛЕДСТВИЯ

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HELMINTOSIS - THE PROBLEM OF MODERNITY AND ITS CONSEQUENCES

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АННОТАЦИЯ

В работе рассматриваются пути эффективного решения проблем профилактики, эпидемиологии, клиники и диагностики паразитарных заболеваний. Особенностью гельминтозов выступает чрезвычайное разнообразие клинических проявлений даже при заражении одним и тем же видом возбудителя - от бессимптомного течения до самых тяжелых проявлений с летальным результатом.

ABSTRACT

The paper considers ways of effective solution of problems of prevention, epidemiology, clinic and diagnostics of parasitic diseases. A special variety of helminthiasis is an extraordinary variety of clinical manifestations, even when infected by the same kind of pathogen - from asymptomatic to the most severe manifestations with lethal outcome.

Ключевые слова: гельминтоз, паразитарные заболевания, клинические проявления, реинвазия, инвазия.

Keywords: helminthiasis, parasitic diseases, clinical manifestations, reinfusion, invasion.

The deterioration of the ecological situation and the intensification of migration processes lead to the emergence and deepening of a number of medical problems. One of them is an increasing number of parasitic diseases.

A feature of most parasitoses is the long-term presence of the pathogen in the patient's body, which is associated with the long life of many parasites or frequent reinvasion. At the same time, metabolites of parasites exert a constant pathogenic effect on the patient's body, which is most often manifested in allergization,

immunodepression, beriberi, digestive tract disorders and other organs.

In addition to direct pathological effects on the functional state of the internal environment of the body, many helminthiasis lead to the development of predisposition to a wide range of diseases, resulting in many infectious and non-infectious diseases among parasitosis patients. Quite a small number of parasitic diseases can be the cause of an acute disease with marked characteristic clinical manifestations. A feature of the majority of parasitic diseases is the chronic course associ-

ated with a prolonged, multi-year presence of the pathogen in the patient's body due to the lack of specific treatment. Even prolonged parasitization in the patient's body may not lead to severe acute clinical manifestations. However, the perennial course of parasitic diseases is accompanied by various nonspecific clinical manifestations: fatigue, weakness, decreased appetite, etc.

These signs of asthenization of the body, as a rule, are not associated with general practitioners with the presence of parasites, which leads to late and often erroneous diagnosis. As the duration of the disease increases, symptoms can develop that indicate a lesion of the digestive system: decreased appetite, nausea, abdominal pain, unstable stools. For some intestinal helminthiases, the development of proctitis and perianal pruritus is characteristic. Often, with prolonged intestinal parasitosis, depression develops, "withdrawal to illness." At the same time, the number of patients with helminthiases remains extremely large even in economically developed countries. Along with intestinal manifestations in parasitic invasions, there are clinical manifestations such as maculopapular and urticarial rashes, aphthous ulcers of the oral mucosa, and arthritis of various etiologies.

In many countries, geogelmintoses lead overall statistics, and intestinal parasitosis caused by *Ascaris lumbricoides* occurs in 50% of the world's population. Only the most attentive patients usually detect the presence of parasites in feces, and this applies only to three species of helminths: ascaris, proglottid tapeworms and pinworms. Ascarids are easily recognized because of their large size and external similarity to large, pale-colored earthworms. scariasis is the second helminthiasis of mass character in Ukraine. Conditions for dissemination of ascariidosis in cities are absent. Nevertheless, the proportion of urban residents among registered patients with ascariidosis is steadily about 2/3. This situation is associated with a massive infection of citizens in the country areas and eating greenery and vegetables, bought in the markets and shops.

Greater attention in modern megacities is required by diseases caused by larvae of helminths that are not peculiar to humans. Larval infestations are caused by representatives of all three classes of helminths that affect a person: nematodes, trematodes and cestodes. The source of invasion in laryngeal helminthiases is in all cases (with one exception) definitive hosts. Man is an intermediate master, his epidemiological role is potentially comparable to the role of animals that perform a similar biological function, but the special position of man as a socially organized creature turns him into an "ecological dead end" for the parasite. A huge number of people, especially urban residents, brighten up their lives, having got into the apartment a pretty dog or a fluffy cat. Most often this is done in response to the request of children who dream of a four-footed friend. However, not all owners of dogs and cats are aware of the degree of responsibility that they take on, because our cute animals are very susceptible to various parasitic diseases. Often they involuntarily become the culprits of infection of their hosts with helminths *Dipylidium caninum* and *Toxocara canis*.

The multiplicity of the types of causative agents of parasitic diseases, the variety of ways and factors of their transmission indicate the need for continuous improvement of ways and methods of combating parasitic invasions taking into account local natural and climatic conditions, as well as social conditions of life and activity of the population. First of all, for all countries is the common problem of anthropogenic climate change, which actively affects the geographical distribution of activity, population density and seasonality of ticks, mosquitoes and other blood-sucking arthropods.

In Europe, parasitic diseases appear and will appear because of the constant increase in international travel, changes in food or sexual habits, immunosuppression, various social upheavals, climate change, and a "wild" lifestyle. Parasitic pollution of the environment is an integral part of biological action and at the same time - one of the unfavorable factors of influence on humans, animals and plants. In this aspect and scope, the term "parasitic pollution" has not been discussed so far by environmentalists or parasitologists. In this interpretation, it goes beyond the limits of traditional parasitological studies, although it includes the whole complex of them and becomes one of the environmental tasks in the protection of the environment. At the same time, conditions are created for increasing the background of parasitic contamination and, as a consequence, pockets of dangerous parasitosis and outbreaks of parasitic diseases. And as a result of such changes, new parasitic diseases arise that were "exotic" for the region, the number of patients with helminthiases increases. The tendency of the development of the situation with parasitic diseases is typical for Ukraine. The successful fight against parasitic diseases and even their elimination does not have to be related only to vaccination or immunocorrection. There are many diseases, the reduction in the incidence of which is provided by planned measures for non-specific prevention.

Thanks to measures to provide the population of endemic foci with safe drinking water, the global elimination of helminthic dracunculiasis is completed, which is likely to become the second liquidated human infectious disease after smallpox. The use of chemoprevention or mass preventive treatment has proved to be an extremely effective method of counteracting helminthiasis. The achievement of a transmission interruption in this way is possible for several human helminthoses - onchocerciasis (river blindness), filariasis of the lymphatic system and schistosomiasis.

Mass treatment underlies many programs to successfully reduce the incidence of children's contingents by intestinal helminthiases. An effective strategy of annual anthelmintic treatment of preschool children and schoolchildren, as well as representatives of risk groups and pregnant women, allows to save lives, prevent diseases and improve the health of the population of endemic territories. The estimated average cost of a mass anthelmintic treatment per person is 59 US cents per year. The real cost of one treated with a mass application should range from 1 to 2.5 dollars, even in the absence of easy access to remote areas of tropical Africa. Deworming significantly increases the attendance of

schools. Children with intensive trichocephalus skip twice as many school days as their healthy peers.

Simultaneously, after dehelminthization, short and long memory, attention and concentration, ability to respond to lessons and solve problems improve. The administration of an anthelmintic preparation of albendazole in the second trimester of pregnancy significantly reduces the risk of developing severe anemia. The appointment of two doses in the second and third trimesters resulted in an increase in the mass of newborns by an average of 89 grams and a reduction in infant mortality by 6 months by 41%. Unfortunately, in Ukraine, the growing global interest in parasitic pathology and the fight against so-called unselectable or neglected diseases of parasitic diseases has not yet affected the policy of protecting the health of socially unprotected populations.

Unlike other countries in Ukraine there are no programs for healing children from mass helminthiasis, there are no programs to combat especially important and dangerous helminthiasis for a person - opisthorchiasis, toxocarosis, echinococcosis. Thanks to the development of new effective remedies against intestinal helminthiasis, the role of chemotherapy in fighting them has increased significantly and a real opportunity has appeared to reduce the incidence by carrying out massive chemotherapeutic measures. Treatment of parasitic diseases using traditional methods (pyrantel and mebendazole) with a prolonged course is often accompanied by an exacerbation of the underlying disease - increased hyperemia in typical localizations, development of diffuse hyperemia, such as toxicodermia, urticaria, and Quincke edema. Most of these patients often have relapses and re-invasions.

One of the most effective ways to eliminate the maladaptive reactions of the host organism is the use of the drug Vormil (albendazole), which provides high efficiency of helminthiasis treatment. Vormil (MiliHealthcareLtd.) Is known in Ukraine since 2002. The drug is produced in convenient forms for children and adults - chewing tablets (400 mg No. 3) and suspension (10 ml in a flavon). The manufacturing company MeproPharmaceuticals, which produces it, is certified for compliance with international standards for the proper quality of GMP-WHO medicines. MeproPharmaceuticals are also known as a pharmaceutical products supplier to world famous companies: Alisons SPL, Belgium; ZenufaLabs, UK, and many others. Vormil found wide support not only among health professionals, but also among consumers. So, from 2003 to 2015, according to the data of the retail audit of the PharmXplorer market research system of ProximaResearch, it is Vormil that is the most prescribed and recommended health care specialist for anthelmintic drugs for children and adults in Ukraine. The total volume of retail sales of the brand VormilMiliHealthcare (Great Britain) for these years amounted to 18 million packs (oral suspension 200 mg / 5 ml, 10 ml No. 1 bottle and 400 mg No. 3 chewing tablets). The successful experience of using the drug Vormil has a wide range of specialists: pediatricians, therapists, family doctors, allergists, dermatologists, gastroenterologists, infectious disease and others. The active substance of the drug Vormil is

albendazole, which has the widest spectrum of anthelmintic action. The effect occurs at the cellular level and is directed at suppressing biological reactions in the body of helminth - tissue respiration and protein synthesis.

A very important advantage of albendazole (Vormil) is its ability to accumulate in the organs and tissues of the helminth. As a result of the effect of the drug, the helminth quickly dies. This mechanism of action provides high therapeutic efficacy of Vormil against various types of helminths (pinworms, roundworms, whistle, toxocar, etc., and also protozoa). However, due to the peculiarities of pharmacokinetics, this preparation also shows activity against all forms of parasites - eggs, larvae, adults and cysts. Along with high anthelmintic activity, Vormil has a low toxicity, as it is rapidly metabolized, while the metabolite - albendazole sulfate - retains 50% of the pharmacological activity of the primary substance. Therefore, WHO recommends exactly albendazole for the prevention and treatment of helminthiasis all over the world.

Vormil has a wide range of anthelmintic effects. A three-day course of preventive treatment with the use of Vormil allows to get rid of not only enterobiosis and ascariasis, but also from the most common helminthiasis: trichocephalosis, strongyloidiasis, intestinal trematodes, subcutaneous parasites (skin syndrome Larvamigrans). Due to its properties, albendazole, which is part of Vormil, has become the most proven means in the prevention and control of helminthiasis for tens of thousands of physicians of various specialties.

As evidenced by the information from the report of the State Expert Center of the Ministry of Health of Ukraine on September 25, 2017, only 11 cases of adverse reactions (in the form of isolated signs of allergic manifestations against the background of complex drug therapy) were reported to the Department of Post-Encephalopathy in the medical use of the drug Vormil (chewable tablets 400 mg № 3), which is only 0,0002% of cases, based on the number of packages sold Vormil this form of release for this three-year period. This circumstance indicates a high profile of drug safety. It is important to emphasize that Vormil is suitable not only for adults but also for children. Vormil can be used in children over the age of 1 (suspension) and from 2 years - chewable tablets. The key to the effectiveness of dehelminthization is that, in addition to a sick child, anthelmintic therapy is administered to all family members who have contact with it.

Treatment should be comprehensive: include not only the destruction of parasites, but also the elimination of the consequences of their vital activity (anemia, allergic manifestations, etc.); anthelmintic drug should larvicidal (kill larvae), ovicide (destroy eggs), vermifugal (to destroy adult parasites) action; the control of the results of treatment by parasitological methods should be mandatory. All of these requirements, from the authors' point of view, fully correspond to Vormil (MiliHealthcare, United Kingdom).

Many scientists are convinced of the need for secondary prevention, which is to establish a critical level of contamination of the population and to identify the source of infestation, and this, in turn, causes special

medical and epidemiological measures - neutralization of the source of infestation and rupture of pathways of the pathogen. For this, as the authors emphasize, it is necessary to take prophylactic Vormil according to the scheme: 2 times a year for the whole family, adults and children over 2 years old take 1 tablet (400 mg) or 10 ml suspension (400 mg) once a day after meals for 3 days.

Vormil (as a broad-spectrum drug) can now be used to prevent the development of parasitic diseases, namely, for preventive treatment. Modern approaches to the treatment of helminthiasis suggest a comprehensive treatment regimen, which consists not only in taking anthelmintic drugs, but also in correcting disorders from various organs and systems that arise both against the background of the invasion itself and against the background of taking these drugs. At present, during the specific anthelmintic therapy, it is recommended to use Vormil Fito.

The anthelmintic effect of plant components is provided by paralysis of the musculature of parasites, disruption of energy processes in helminth cells and blockade of neuromuscular transmission. In the complex therapy of helminthiasis, Vormil Fito also contributes to the normalization of general well-being: in helminthic infections, not only a significant improvement in objective and subjective symptoms is observed (reduction of headache, increased emotional lability, pathological fatigue, insomnia, impaired appetite, sleep, attention and other symptoms of helminthic invasions), but also correction of disorders caused by taking anthelmintic drugs.

So, helminthiasis are an actual medical and social problem, an effective way to eliminate which from the

host organism is the use of the drug Vormil (albendazole), which provides high efficacy of helminthiasis treatment. Today the brand Vormil is supplemented with a new product - Vormil Fito, as modern approaches to the treatment of helminthiasis suggest a comprehensive treatment regimen that consists not only in taking anthelmintic drugs, but also in correcting disorders from various organs and systems that arise against the background of the invasion itself, and against the background of taking these drugs.

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ДИФФЕРЕНЦИРОВАННОЕ ОБУЧЕНИЕ В ОБРАЗОВАТЕЛЬНОМ ПРОСТРАНСТВЕ ВЫСШИХ УЧЕБНЫХ ЗАВЕДЕНИЙ, ЕГО РАЗВИТИЕ И ПЕРСПЕКТИВЫ

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DIFFERENTIAL EDUCATION IN THE EDUCATIONAL SPACE OF HIGHER EDUCATIONAL ESTABLISHMENTS, ITS DEVELOPMENT AND PROSPECTS

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