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DISEASES CAUSED BY HELMINTHS OCCURING IN CHILDREN OF WORLD COUNTRIES AND PROGNOSIS OF THESE DISEASES

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ABSTRACT
This article describes the origin of pinworms (helminths) in young children of world countries and the cause of enteribiosis. In this article, as a result of the analysis of the stability of stationary solutions of the basic model of helminthic disease the damage of the human body by worm disease has been studied and the prognosis of this disease has been made.

Keywords: Pinworms, helminths, mathematical model, differential equation, algorithms, microscope, animals, prognosis.

INTRODUCTION

One of the diseases that people around the world suffer from is parasites. One of these types of parasites is pinworms, which is a human parasite that causes enterobiasis. Doctors all over the world are fighting this disease and publishing about it in scientific journals, publishing the results of their experiments in articles and theses, and using them in treatment and prevention. Currently, based on obtained results and experiments, modern methods of treating this disease are being studied and applied in practice.

Scientists from the USA, Europe, Russia and Ukraine have conducted numerous scientific studies, including such scientists as J.E. Truscott, H.K. Turner, S.H. Farrell, R.M. Anderson worked on this disease[1].

Nowadays, a number of departments of medical institutes are carrying out research on the mathematical model, the algorithm for using differential equations, statistics and assessing the reliability of this disease. Scientists from «London Center for Research on Neglected Tropical Diseases» in Europe conducted a series of experiments on the topic “Soil-transmitted helminths: mathematical models of infection, the effect of mass drug administration and criteria for elimination eradication of infection”. Aristide G., Lambura Gasper G. Mwanga, Z. K. Livingston Luby and Dmitry Kuznetsov also did their research work on this problem. In addition, a number of scientists from the first school of computational and communication engineering; Nelson Mandel African Institute; Arusha Institute of Science and Technology, Tanzania; Faculty of Computer Systems and Mathematics, Ardi University, Dar es Salaam, Tanzania worked on the above problem. Scientists of the Faculty of Physics, Mathematics and Informatics of the University of Dar es Salaam, Tanzania; Department of Physics, Mathematics and Computer Science, University of Dar es Salaam; Tanzanian Institute of Mathematical Sciences, Strathmore University, Nairobi, Kenya studied and carried out experiments on the topic “Mathematical model of the optimal control of soil helminthic infections”.

LITERATURE ANALYSIS AND METHODOLOGY

In applied parasitology, the theory of "Natural foci of the vector of diseases" developed by E.N. Pavlovsky have been widely used in practice. If more than half a century ago, only a few diseases were classified as natural focal, now their list has expanded significantly. It contains many parasites that can be identified as natural foci according to environmental parameters.

The population of the pathogen (parasite), as well as the population of hosts and M vectors determine population interpretation of infectious diseases developed by V.N. Beklemisheva.

Later, other researchers developed this point of view in connection with the development of the concept of parasitic systems self-regulation. V.D.Belyakov et al identified the areas where the foci of the parasite are occupied by the population of the causative agent of this particular parasite. It is characterized by ontogenetic stages and develops due to the peculiarities of the life cycles of the population of parasites. The natural foci of helminthiases in certain regions are considered in connection with the specifics of the climate and ecological and geographical conditions. The main materials on the presented problem have been collected by us in the central part of Europe and Russia, in the Central Black earth region. The main materials were obtained in the territory of Voronezh region, mainly in the forest-steppe zone, and in

the southern regions - in the steppe. One of the most striking ecological features of this region is the presence of insular forests, which are unique “islands” of high species diversity and abundance of biota (*Biota* means *life* in ancient Greek). These environmental conditions can be considered the basic ones in assessing the presence of natural foci of the M disease and the probability of P circulation here. A large amount of information about some natural helminths circulating in the Voronezh region has been collected. In particular, this concerns to opisthorchiasis, trichinosis, alariasis, hepatic capillaries and teniidosis. In this paper, materials on the ecological aspects of the circulation of these helminthiases are analyzed and the main directions for their monitoring are developed.

Collection of materials on the problem under study. Objects of research: 1) different stages of development of opisthorchiids, trichinella, A-alata, C-hepatica, teniids; 2) The intermediate and final mother of these worms (helminths) are mammals, amphibians, reptiles, aquatic and terrestrial invertebrates. During this period, more than 7,000 samples were examined. Vertebrates (mammals - 36 species and fish - 9 species) and about 2000 invertebrates (mollusks - 2 species and insects - 5 species) were studied. When rationing helminthological materials, animals included in the livestock count, i.e. dead animals, were used. Diagnostic and micromorphological investigations of eggs and developed forms of worms (helminths) are examined and carried out with the help of light microscopes MBS-10, MBI-6, Biomed-6, Motik SMZ161-TLED. To assess the qualitative and quantitative indicators of infestation and spread of eggs and matured forms of parasites (helminths) living in the body of animals, the following indicators (intermediate and final) are used: the multiplicity index (MI), the intensity of invasion (II) and expansion of the invasion (appearance) (EI) (investigation by V. N. Beklemishev). To date, the ecological features of the circle of opisthorchiasis, as well as the ecological and biological patterns of the circle of opisthorchids (Trematoda, Opistorchiidae), have been studied. Four species of opisthorchid have been registered in the study area: Opistorchis felineus, Pseudamphistomum truncatum, Metorchis bilis va M. Xanthosomus. The first three species are true, the fourth (M. xanthosomus) has potential epidemic and epizootic significance. (V.V. Shimalov, 2001; S.A. Berr, 2005; B.V. Ramashov et al., 2005). The results of the study confirm that opisthorchids are very specific and do not change evolutionarily - they have a polygostal property. This feature determines the availability of a wide range of specific hosts. Large forms of opisthorchiids have been recorded in 6 species of mammals: American mink, European mink, otter, river beaver, fox, and raccoon. Among them, semi-aquatic wild mammals play a key role in the transmission of opisthorchiasis to each other.

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DISCCUSSION

The figure below presented the results of our research on the prediction of worms (helminths) in the Republic of Uzbekistan.

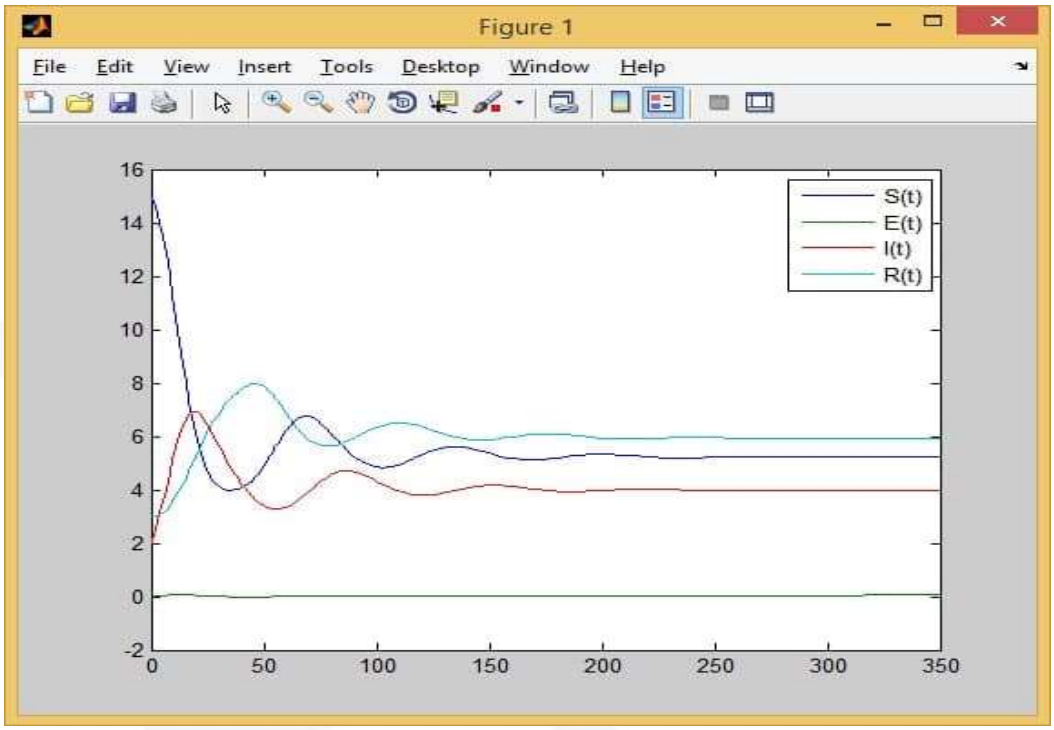
S(t) is the constant rate of body recovery.

E(t) - the speed of movement of worms (helminths)

I (t) - the speed of worms (helminths) in this range

R(t) - reproduction of helminthes

The graphics on this figure were developed under the Matlab program.



Currently, the principle of a thorough study of the dynamics of helminths is being considered, while approaches to the mathematical analysis of immunity are giving more results. Mathematical immunology is widely used today. The proposed ideas of systems analysis in biomedicine are called “systems biology”. Besides, in medicine also used mathematical modeling, the theory of differential equations, the largest sections of modern mathematics. Theory of differential equations is very widely used in medicine. With the help of the given examples it is possible to apply the theory of their differential equations with the development and analysis of effective methods of treatment of worms. A characteristic feature of the mathematical model of the disease is that it can be used to study the characteristics of susceptibility, reproduction of helminths, the spread rate, and the time of spread. Previously, mainly for the study of diseases, the expert model was used[2].

CONCLUSION

Thus, it is known that parasitic (helminthic) disease is found not only in children, but also in animals. The emergence of a number of new methods for preventing the transmission of this disease from animals, predicting the disease and treating it using the data obtained, makes it possible to assess and draw conclusions about the helminthic morbidity of children. Based on the data presented, the spread and reproduction of pinworm and opisthorchiasis, as well as their negative influence on the human body, transmission from person to person, were studied.

References

1. Biocenotic foundations of comparative parasitology. V.N. Beklemishev -
1. Moscow. The science. 1970, 501 pp.
2. Self-regulation of parasitic systems. V.D. Belyakov, D.B. Golubev, G.D.
3. Kaminsky, V.V. Tets. - L .: Medicine, 1987. 240 pp.
4. Natural focal helminthiases of the central Chernozem. Romashov B.V., Manzhurina O.A., Romashova N.B., Skogoreva A.M., Breslavtsev S.A., Dueva V.A. FSGU "Voronezh State Reserve", Voronezh
5. Helminth infections transmitted through the soil.
6. THE METHOD OF USING THE FUNCTIONAL-DIFFERENTIAL EQUATION IN DETECTING PARASITES IN CHILDREN. R. Bakhramov, M. Malikov, A. Kubaev - Turkish Journal of Physiotherapy and Rehabilitation;32 (3) 2021. P 136-140 https://turkjphysiotherrehabil.org/pub/pdf/321/32-1-706.pdf
7. A method of using the functional differential equation in the detection of parasites in children. Baxramov R.R., Malikov M.R.ACADEMIC RESEARCH IN EDUCATIONAL SCIENCES, 2021. P 280-288. https://cyberleninka.ru/article/n/bolalarda-parazitlarni-ani-lashda-funktsionaldifferentsial-tenglamadan-foydalanish-usuli
8. THE METHOD OF USING THE FUNCTIONAL-DIFFERENTIAL EQUATION IN DETECTING PARASITES IN CHILDREN. Rustam Bakhramov, Murod Malikov, International Journal of Innovations in Engineering, Research and Technology, March 2021, P 10-14. https://repo.ijiert.org/index.php/ijiert/article/view/2294
9. 8. R.R.Bakhramov, M.R. Rakhmatullaev, E.G. Meliboev. ANALYSIS OF SMOKING IN ADULT BOYS AND GIRLS IN MS EXCEL SCIENTIFIC PROGRESS VOLUME 2 | ISSUE 3 | 2021 ISSN: 2181-1601 Page 129-132 https://cyberleninka.ru/article/n/analysis-of-smoking-in-adult-boys-and-girls-in-ms-excel