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Гугосьян Ю.А. Распространение, возрастная и сезонная динамики стронгилоидоза лошадей в Днепропетровской области.

Приведены данные о распространении стронгилоидоза лошадей в условиях хозяйств Днепропетровской области. Определены показатели экстенсивности и интенсивности инвазии, установлена зависимость уровня заражения гельминтами от возраста животных и времени года.

Установлено, что средняя экстенсивность стронгилоидозной инвазии составила 30,7 %, при интенсивности инвазии $59,2 \pm 13,7$ яиц/г фекалий. Наиболее зараженными возбудителем *Strongyloides westeri* оказались жеребята (ЭИ – 90 %, ИИ – $237,5 \pm 67,7$ яиц/г), тогда как у взрослых животных экстенсивность инвазии не превышала 40 %. Наиболее высокие показатели инвазирования лошадей зафиксированы весной (ЭИ – 50 %).

Ключевые слова: лошади, стронгилоидоз, экстенсивность, интенсивность инвазии, распространение, возрастная и сезонная динамика.

Gugosyan Yu. Spreading, age and seasonal dynamics of strongyloidosis of horses in Dnipropetrovs'k region.

By the results of helminthological studies found that 30.7 % of infested strongyloidosis horses. Strongyloidosis recorded in almost all surveyed households – 91,7 %. Extensiveness of invasion in horse farms uneven: the highest level of defeats horses (EI – 100 %) recorded in sports-entertainment complex «Kinniydvorik», the lowest (EI – 10 %) – in the Equestrian Club «Mustang» and «Bercut». According to the results of helminthological research strongyloidosis not registered in the stud farm and riding school «KANOM». Level intensive of invasion in farms mostly low (30 eggs/g of faeces). High level infestation recorded only in municipal cultural institutions «Central Park of Culture and Rest Shevchenko» (II – $552,7 \pm 56,7$ eggs/g).

Research has also found that, depending on the age of the animals the level of EI and II strongyloidosis invasion changed. The maximum lesion worms recorded in foals under 18 months, they EI was 90 %, II – $237,5 \pm 67,7$ eggs/g. With age, the animals reduced performance level of infestation and not exceed 50 %. II was also lower in older animals. Thus, a group of horses over 8 years strongyloidosis infestation intensity was $9,2 \pm 2,1$ eggs/g, which in 7 times less than in the young and in 25 times – than in foals, apparently due to the advent of the age of immunity.

Fluctuations strongyloidosis invasion in different seasons were studied at the farm, where the practice stable-range type of content. It is noted that the highest rate of EI falls was in April and May – 53,3 and 63,3 % respectively. In other months lower rates infestation of horses – from 23,3 to 36,7 %. These fluctuations can be attributed to the optimal temperature conditions for the development of larvae strongyloidosis and firth period of foals (March – May). II index averaged $37,8 \pm 7,8$ eggs/g. The highest intensity recorded in September and October ($126,9 \pm 23,6$ eggs/g). The highest EI installed in spring (50 %). At other times of the year EI fluctuations were lowly (30 to 33,3 %).

Keywords: horses, strongyloidosis, extensiveness, intensity of infestation, spreading, age and seasonal dynamics.

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PARASITOSIS AS MEDICAL AND VETERINARY PROBLEM

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According to the literature analyzed the distribution of the most important parasitic diseases of animals and people in Ukraine and abroad. Demonstrated growth of parasitic diseases including malaria, toxoplasmosis, opisthorchiasis, trichinosis, echinococcosis and other antropozoonosis. The information provided about the spread of emergent diseases particularly toxocarosis and dirofilariasis.

Keywords: toxoplasmosis, opisthorchiasis, trichinosis, echinococcosis, emergent diseases, Ukraine.

Parasitic diseases, caused by helminths, one-celled and arthropods, are a wide group of illnesses, that largely determine the state of health of animals and people. According to the official statistics of the WHO 4.5 billion of people suffer from parasitic diseases annually. Every third person is ill in

Europe, 85–95 % of the population in the USA have helminths diseases. Today it is proved that 95 % of the population is infected with parasites, 99,90 % of people, who have pets, including rodents and birds, are carriers of the parasites. The share of parasitic diseases account for 14 million deaths per year, representing 25 % of the total Earth mortality – every fourth death. In opinion of the WHO experts, the spread of parasitic diseases is connected with the fact that 25 % of the population on the Earth don't have an access to the clean epidemic – safe drinking water, and 66 % are denied of the normal sanitary facilities [1]. In Ukraine, the share of parasitosis in a sum of all infectious diseases without influenza and URTI (upper respiratory tract infections) is 59,70 %. It is approximately 500 thousand new patients per year [2].

Formulation of the problem and research methods. Given the extraordinary importance of parasitic diseases and their rapid spread today, the goal was an actualization of parasites problem, to display the harmfulness of different groups of parasites and their importance as agents of dangerous diseases of animals and humans. Showing the prob-

lems based on the analysis of literature information.

Results. Protozoan diseases. A big variety of intestinal forms of the unicellular are the most spread protozoonoses in Ukraine. Giardiasis, amoebiasis are dominant among them, and among histic protists *Toxoplasma gondii* is the most dangerous ones [3]. Today this disease was registered in more than 300 species of mammals and 60 species of birds. The source of toxoplasmosis infestation of people are mainly domestic animals: cattle, sheep, goats, camels, horses, donkeys, pigs, carnivores, ducks, geese, turkeys, guinea fowl, parrots and others. Infection of domestic, not predatory animals by toxoplasmosis was observed in many countries [4, 5]. However, cats and dogs remain to be a main source of infestation in synanthropic centers. According to the statistics 90 % of these animals are infected by pathogens of toxoplasmosis worldwide. There are 57.10 % of cats infected with *T. gondii* in Ukraine [6].

However, the most topical disease, which is caused by the single-celled, is malaria. About 100 countries are epidemic for malaria (fig. 1).

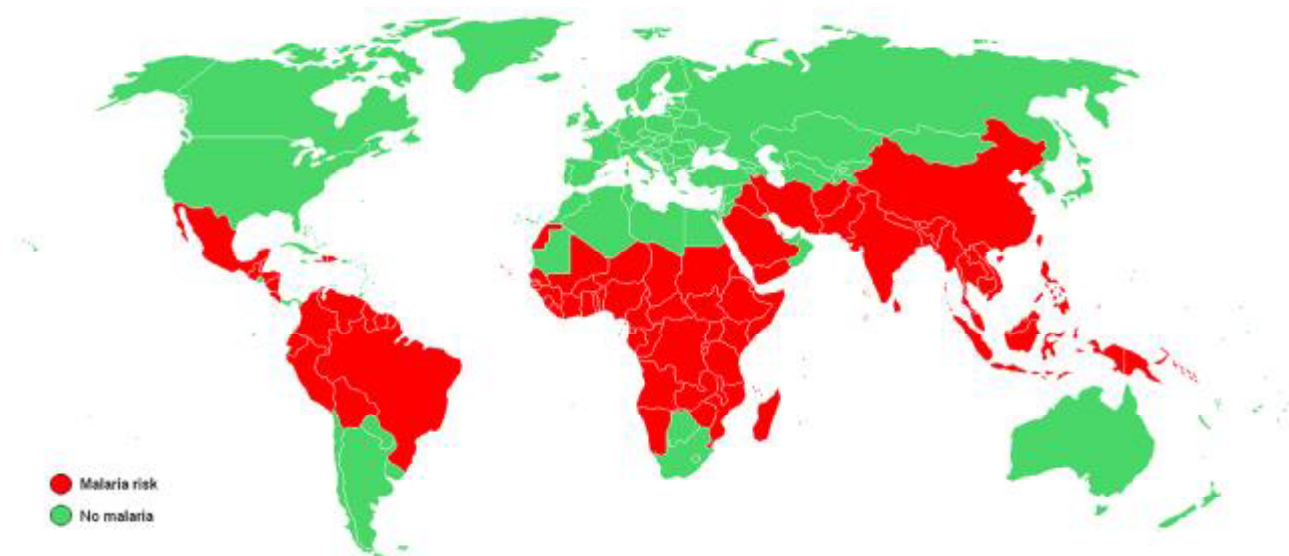


Fig. 1. Malaria in regions of the world [7].

From 300 to 500 million of people suffer from malaria every year, at that time from 1.5 to 2.7 million of world population die because of this disease [8]. Every year 10 thousands cases of malaria are brought in Europe, the mortality reaches 1.1 % [9]. More than 180 cases of malaria were brought in Ukraine during the recent years. This disease was registered in several regions of our country [10].

Helminthoses. According to the WHO, 2.50 % of the population are infected with helminths. Intestinal helminthoses take the 3d place in the world among all infectious diseases. About 2 billion of people suffer from helminthoses worldwide: Enterobiosis affects from 10 to 90 % of population of developed countries with temperate climate; 1.22 billion of people suffer from ascariasis worldwide, more

than 600,000 died, mostly children; about 795 million of people suffer from trichuriasis, infestation is found in 40-50% of the child population in the area of the tropics and subtropics, in the temperate zone-up to 36%. In some tropical countries, the level of infestation of the local population reaches 90 %; about 1.4 billion of people in 73 countries can potentially be infected by lymphatic filariasis, about 120 million fall ill, 40 mln. of people are disabled because of these diseases; 1.05 billion of people suffer from necatoriasis and ancylostomiasis worldwide. Economic losses in India, because of them, constitute 842 million US dollars a year, 40 million pregnant women have anemia because of these helminthosis; schistosomiasis potentially threaten to 700 million of people worldwide in 78 countries, and 249 million are in-

ected and receive appropriate treatment; about 100 million of people are affected by strongyloidiasis; for today, blindness caused by onchocerciasis is registered in 31 African countries and in 5 countries in South America; 50 million of world population are affected by trematodoses. According to the statistics, every third inhabitant of Europe is affected by at least one helminth [11].

About 30 human helminths were found in Ukraine. From 400 to 600 thousands patients with different helminthoses are officially registered every year [12]. The most common of these are nematodosis, trematodosis, cestodosis.

Nematodosis. Enterobiosis and ascariasis are the most spread representatives of nematodosis among the inhabitants of Ukraine. Enterobiasis proportion among all detected helminths is 77 % [13]. The most important, deadly disease is trichinellosis. *Trichinella spiralis* larvae were found in animals of all countries. According to the official statistics of World Organisation for Animal Health during 2005–2010, the largest number of cases of trichinellosis invasion was registered in Poland – 1475 cases. Also in Romania – 410, Finland – 323, Bosnia and Herzegovina – 290, Argentina – 184, Estonia – 145, Russia – 83, China – 63, Spain – 60. The most serious year which was connected with trichinellosis in Ukraine was 1997, during this period 421 pigs were found and burned because of illness. Since 1998, the level of morbidity has decreased till 0 cases during 2009–2010, but since 2011 the case rate of trichinellosis of domestic and wild ungulates and wild animals has increased [14].

More than 5 outbreaks of trichinellosis among people in Kherson, Chernivtsi, and Chernihiv regions were registered during the last 5 years, 11 people became ill there, and at that time trichinellosis endemic areas were formed in Vinnytsia, Khmelnytsky and Odessa regions [15].

Trematodosis. The infection of trematodosis in Ukraine during the last 15 years was 0.7 cases per 100.000 people. Opisthorchiasis is the most spread representative among all trematodosis, which were identified. The second largest focus of opisthorchiasis among the countries of the former Soviet Union is situated in Ukraine. It is the basin of the Dnieper with its tributaries (Psyol, Sula, Seym, Vorskla etc). Opisthorchiasis cases of carnivorous animals (mostly cats) in the Dnieper basin and its tributaries is 32 %, Southern Bug – 28 %, Seversky Donets – 25 %, Dniester – 19 %. Cercariae cases of shellfish in the basins of the Dnieper, Desna Vorskla range from 0.3 to 1.5 %, and metacercaria cases of fish of the carp family – from 3 to 18 %. Most affected are *Abramis brama* (25 %), *Leuciscus idus* (20 %), *Chondrostoma nasus* and *Blicca bjoerkna* (7 %), *Rutilus rutilus*, *Scardinius erythrophthalmus* (5 %) [16].

The highest level of the infection is observed in Poltava, Chernihiv and Sumy regions where the

percent of disease is accordingly 10 %, 15 % and 70–80 % in Sumy region [17].

Cestodosis. Teniarinosis, teniasis, hymenolepiasis, echinococcosis and diphilobothriasis are the most spread representative of cestodoses in Ukraine, as well as all over the world.

Echinococcosis takes a special place among cestodoses. *E. granulosus* of domestic animals is widespread in Ukraine. Cestodes are found in all types of domestic ungulates. According to the literature [18], *E. granulosus* in our country was found in 1550814 farm animals (pigs, sheep, cattle) during the period from 2004 to 2013. Extensiveness of infection by *Echinococcus* varies greatly in regions and years (fig. 2).



Fig. 2. Contamination of animal *E. granulosus* in Ukraine in 2004–2013 years, % (by Litvinenko A.P., 2015) [18].

The infection of this helminthosis increase every year. There were 669 cases of the disease in people during the period from 1960 to 1979 in Ukraine; during the next 10 year, 1980–1999, 867 cases were observed, and 1022 cases were during 2001–2005 [19, 20]. However, 2153 person were infected by the agent of echinococcosis during the years 2000–2013 [21]. Typically, the detection of the disease occurs in the late stages of the disease, making it impossible to eliminate it by medication. Therefore, the treatment of echinococcosis is accompanied by the surgery, that often causes different complications or death.

Recently in the medical practice more often reveal cases of animal parasitosis which are not typical for humans. These "non-traditional" or emergent diseases include cryptosporidiasis, blastosystosis, neosporosis, cyclosporosis and from helminthosis dirofilariasis, toxocarosis, gnathostomiasis, angiostrongyliasis, paragonimiasis, spirometrias, alyariasis and so on. The most topical for today are dirofilariasis and toxocarosis.

In recent years, the tendency of increasing the cases of dirofilariasis is observed in Europe, Asia, Africa, Italy, France, Greece, they are dominant on the level of infection with helminthoses. According to the Central Sanitary Epidemiological Station of the Ministry Of Health of Ukraine, 700 cases of

dirofilariosis among people were registered in Ukraine during 1975–2008 years [22].

Human toxocariasis is caused by the migrating larve of the canine nematodes – *Toxocara canis*, which provoke the disease «syndrome larva migrans». In recent years human toxocariasis has acquired the global dissemination and stay one of the most topical parasitic problems. The number of people, which were infected by toxocariasis, varies widely in the world. In European countries, from 2 % (UK) to 6.10 % (Netherlands) of population positively responds to the skin testes with toxocara antigens. Seroinfection index in Asia ranges from 3.60 % in Japan to 51.4 % in Taiwan. This index in Africa is over 30 % and in Columbia exceeds 68 % [23].

According to the Central Sanitary

Epidemiological Station of the Ministry of Health of Ukraine the number of toxocariasis cases among people in our country annually increase from 1 in 1998 to 154 in 2007 and more than 2.5 time during the last 8 years [24].

Conclusion. Analysis of the literature has revealed widespread zoonosis of animals and human zoonosis in the world and particular in Ukraine. Parasitic diseases are a major reason of the reducing of productivity of animals and the significant mortality of people, in addition they contribute to morbidity of animals and people by other infectious diseases, causing the deterioration of immunity of organism. The study of the spread of parasitic diseases is a topical problem nowadays, that needs its solution.

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Ємець О.М., Ємець М.О. Паразитози як медико-ветеринарна проблема.

За даними літературних джерел проаналізовано поширення найбільш важливих паразитарних захворювань тварин та людей в Україні та світі. Акцентовано увагу на зростанні захворювань на малярію, токсоплазмоз, опісторхоз, трихінельоз, ехінококкоз та інші антропозоозози. Висвітлено питання щодо поширення емерджентних захворювань, зокрема, токсокарозу та дирофіляріозу.

Ключові слова: токсоплазмоз, опісторхоз, трихінельоз, ехінококкоз, емерджентні захворювання, Україна.

Емец А.М., Емец М.А. Пазитозы как медико-ветеринарная проблема.

По данным литературных источников проанализировано распространение наиболее важных паразитарных заболеваний животных и людей в Украине и мире. Акцентируется внимание на росте заболеваний малярией, токсоплазмозом, описторхозом, трихинеллезом, эхинококкозом и другими антропозоозозами. Освещены вопросы распространения эмерджентных заболеваний, в частности, токсокароза и дирофиляриоза.

Ключевые слова: токсоплазмоз, описторхоз, трихинеллез, эхинококкоз, эмерджентные заболевания, Украина.

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