

ЕПІЗООТОЛОГІЯ ТА ІНФЕКЦІЙНІ ХВОРОБИ

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Communicable diseases common to man and animals – current state of the problem

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One of the significant problems for the veterinary service and for human medicine workers around the world are infectious diseases (parasitic and infectious), common to humans and animals. In most countries, this group of diseases is called “zoonoses,” although in many countries and many researchers this term raises many questions and disagreements. In a number of countries, it is customary to strictly divide them into “zooanthroponoses” and “anthropozoonoses”.

However, despite the difference in terminology, the importance of zoonotic diseases remains relevant for everyone.

Of course, in countries with different climatic, geographical, cultural and gastronomic characteristics, certain diseases will prevail, but their social and economic significance, however, will be similar for everyone.

In our work, we wanted in a comparative aspect to show the most significant zoonoses and the dependence of their distribution on climatic, geographical, gastronomic, cultural and a number of other features of the countries. We have carried out work in such countries as the Republic of Belarus, Turkmenistan, Tajikistan and Azerbaijan.

In our work, we identified the most significant zoonoses for the above countries and determined the main causes and factors contributing to the emergence and dissemination of these pathologies

The studies were carried out using modern research methods, such as epizootological, virological, bacteriological, molecular genetic, statistical.

As a result of the studies, it was found that a number of zoonotic diseases, such as rabies, pasteurellosis, tuberculosis, are quite widespread in almost all of these countries, while anthrax, brucellosis, echinococcosis, have a significant difference in the intensity of spread, and the immediate causes of this difference are both climatic and geographical factors, and features of agriculture, and a number of others.

Key words: zoonoses, infections, infestations, rabies, pasteurellosis, anthrax, brucellosis, tuberculosis, echinococcosis, cestodosis, trichinosis, ascariasis, cryptosporidiosis.

Problem statement and analysis of recent research. The most important task in modern veterinary medicine is to develop effective measures in preventing contagious diseases, especially zoonosis - diseases that are common to animals and humans. Nowadays there are a number of differences in the terminology of this group of diseases, despite of a

clear WHO classification. A number of researchers and authors believe that this designation is absolutely wrong, others consider that the terms “anthropozoonosis” and “zooanthroponosis” should be separated rather than joint into one concept - “zoonosis”. Anyway, most researchers consider that the term “zoonosis” is the most acceptable and compre-

hensible and a number of diseases cannot be particularly classified as anthroozoonosis or zooanthroponosis, so there are various terminology in various literary sources.

There are zoonotic diseases of infectious nature and zoonotic diseases of parasitic nature among all diversity of zoonotic diseases. For each separate country, there are some of the most common and most significant zoonotic diseases, which depends on both the climatic and geographical characteristics of the country and on the special features of agriculture, cultural characteristics and gastronomic preferences.

Of course, all zoonotic diseases cause some socio-economic damage, but from all their diversity the most significant ones should be distinguished.

Today, rabies, anthrax, brucellosis, echinococcosis and some other diseases are the most dangerous for both humans and animals. It is favourable that a number of diseases mentioned above can be prevented by vaccinations, but, unfortunately, not all. At the same time, strict compliance of veterinary and sanitary rules, animal keeping rules allows to prevent the emergence and spread of those diseases in which specific prevention has not been developed. And it is precisely these rules that are quite often violated by ordinary people and in some cases by specialists of veterinary or human medicine, so that leads to the emergence and spread of zoonotic diseases.

Nowadays scientists in a number of countries (India, China, the United States, etc.) have shown the impact of a number of zoonoses, such as echinococcosis, opisthorchiasis, cryptosporidiosis, and a number of others on carcinogenesis. It has been proved that the chronic course of opisthorchiasis can lead to the development of cholangiocarcinoma, liver sarcoma, pancreatic cancer. People with colorectal cancer in 40-60% of cases were diagnosed with cryptosporidium, concurrently with echinococcosis localizing in the brain, and, in some cases, neuroglioma was also diagnosed. Blood cancer can be evolved in malaria, schistosomiasis can lead to bladder cancer [1, 13].

In recent decades, researchers and scientists have detected that cryptosporidiosis is becoming an increasingly serious problem in agriculture, especially in that the disease affects young farm animals, resulting in large economic losses. The disease is characterized by the development of severe immunodeficiency, diseases of the respiratory system, as well as diarrhea syndrome. There are also reports of mass people diseases by "water" cryptosporidiosis (because of eating poor quality water). Outbreaks of cryptosporidiosis caused by water sometimes can be large. Already in 1993 chrestomatic had the example of the largest water

epidemic in American history (Milwaukee, USA). As a result of drinking water from a communal water supply network containing the oocysts of cryptosporidium, at least 400,000 people were officially ill. At the same time, 54 deaths were registered. According to other information, the number of deaths was significantly higher.

At present, cryptosporidia have been selected from 170 species of pets. According to Levine N., over 20 species of cryptosporidium parasite in various species of animals. Most researchers note that in farm animals, *Cryptosporidium parvum* and *Cr. muris*, in birds - *Cr. meleagridis*, *Cr. Bailey* and *Cr. galli*. They parasite on the mucous membranes of the gastrointestinal tract, in respiratory organs, conjunctiva, in birds - also in the factory bag. Parasite development lasts 3-7 days on mucous membrane surface with formation of parasiform vacuum [1, 13].

It should be noted that close attention to this problem among the population began to be paid only in the 1970's due to the exacerbation of the problem of immunodeficiency in HIV-sick people and the detection of cryptosporidia in them. Many studies have shown that cryptosporidium infection is significantly more common than the reported incidence. For example, in Germany, *C. parvum* is diagnosed in about 2% of patients with severe kidney, but antibodies are detected in 15.4% of examined children. There are reports of detection of antibodies to cryptosporides in children under 16 years in 57.5% of cases (East China) and in almost 100% of children under 4 years (Brazil) [1, 2, 13, 16].

Echinococcosis - from the zoonosis point of view, it primarily has the importance of larval echinococcosis, which has a wide distribution among herbivores and omnivores animals (pigs, sheep, rodents, less often cattle, etc.). Parasitosis is particularly common in countries with developed sheep farming. Carnivores infected with imaginal echinococcosis (dogs, foxes, etc.) [1, 6, 13, 14] are dangerous to humans directly in terms of the transmission of invasion.

Opisthorchiasis is a widespread parasitosis among carnivores, especially in cat family, as well as among omnivores, including humans. Opisthorchiasis is particularly common in countries with advanced industrial fish farming, where river and lake fish make up a large part of the diet of humans and animals. As mentioned earlier, opisthorchiasis can contribute to the development of oncological pathologies [1, 13].

Rabies and anthrax are some of the most dangerous diseases for both humans and animals. Today, thanks to regular vaccinations of domestic or domestic and wild animals, rabies have been eliminated among domestic animals, and in a num-

ber of countries - by almost 100% in wild fauna. However, in Africa, India and several other Asian countries, rabies claimed thousands of lives every year, where a large percent of them are children. Almost the same situation is with anthrax: as for many developed countries it is either a long-forgotten disease, or recorded in the form of sporadic cases among animals, and rarely - among humans. At the same time, anthrax poses a real threat in Asia and Africa (primarily), where all conditions and prerequisites exist for its spread to both animals and humans. In the same countries, foot-and-mouth disease is widespread among farm animals. This disease also belongs to the group of zoonosis, but cases of registration among the population are isolated [2, 3, 4, 7, 8, 11, 12, 19].

Given the relevance of the chosen topic, the purpose of our work is to identify the most common zoonoses in the territory of the Republic of Belarus, Turkmenistan, Azerbaijan and Tajikistan and to determine the main ways and reasons for their spread.

Research materials and techniques. During the research parasitological (Darling's and Fulleborn's flotation methods, full and partial parasitological autopsy, Cil-Nielsen fecal smear colouring to diagnose cryptosporidiosis, trichinelloscopy), Microbiological (virological and bacteriological (seeding on selective nutrient media, seeding on cell cultures, and further identification of the agent), Histological (detection of Babesh-Negri bodies for rabies diagnosis), microscopic (preparation and colouring of smears from pathological material according to Gram), Serological (to detect specific antibodies), molecular genetic (PCR to diagnose a number of viral diseases) and statistical research methods, summary data from veterinary laboratories and epidemiological stations were conducted in each country. Researches were conducted among animals of different species and ages, both agricultural and domestic, ranging from 1.5 to 2000 and more on average for each country. All researches were carried out as part of mandatory dispensary studies, according to the plans of diagnostic and anti-epizootic measures in each separate country. Data on morbidity of the population were taken from the consolidated reports of the Ministry of Health.

Results of researches. As a result of conducted research on the spread of the main zoonosis in the territory of the Republic of Belarus, it has been detected that nowadays the most significant zoonosis are rabies, tuberculosis, pasteurellosis, leptospirosis, chlamydiosis, cryptosporidiosis, visceral toxocarosis (for the population) and ascaridatosis in general, opisthorchiasis, echinococcosis. Unfortunately, it is also worth to mention anthrax, that has been recorded this year for the first time since 1999 (a horse fell in one of the districts of Brest region).

From the above-mentioned diseases, special attention should be paid to rabies, this disease is recorded annually in wild fauna, less often - among dogs, on average from 600 to 1000 cases per year (in the last 5 years). It should be noted that rabies in pets is recorded in the form of sporadic cases (dogs account for up to 90% of cases from all registered), but "forest" rabies is more massive, here the main animal is fox, less often - raccoon dog, wolf and other animals. Among the population of the Republic of Belarus, the latest case of human rabies was recorded in 2012.

Tuberculosis, leptospirosis, pasteurellosis, salmonellosis, chlamydia are detected in a number of areas of the Republic, but are sporadic and do not tend to spread, as rapid and targeted measures are taken to eliminate diseases in unfavorable farms.

Brucellosis has not been registered in the Republic of Belarus for more than 30 years.

Regarding to parasitic zoonosis, the importance of cryptosporidiosis, ascaridatosis (visceral toxocarosis, neoascariasis, pig ascaridosis), echinococcosis and trichinellosis, and cysticercose is to be noted.

At present, cryptosporidiosis are relatively frequent (compared to previous years) registered in individual farms throughout the territory of the Republic of Belarus, although they are not epizootic. More often, cryptosporidiosis is recorded in young cattle aged from a few days (the most previously detected being 2 days old) to a month (95% of all reported cases) (Table 1). Rarely (5% of all cases) cryptosporidiosis was recorded by us in young people over 1 month, and the number of oocysts detected in the smear was 30-50% less than in young people before the month. During all the research, the oocysts of cryptosporidium in adults were detected only in 3 animals (3-5 oocysts in 20 fields of vision).

Among small cattle (sheep), the oocysts of cryptosporidium were detected by us in 23% of all animals examined with medium or low invasion intensity. The age of animals - lambs of 10-25 days old.

In Belarus, cases of cryptosporidiosis are also registered among the population. On average, about 30 cases of human disease are detected per year. There is also uneven distribution, which shows the extent of its damage much wider. The main distribution is in the east of the country (Mogilev and part of Gomel regions) up to 77%, and among the population of Brest, Grodno and Vitebsk regions this invasion has not been detected.

Ascaridatosis - here we release quite wide distribution (up to 70-80% of the animals examined) dog toxocarosis, toxascariasis, cat toxocarosis, from 10 to 60% of pig ascaridosis. It is also worth to note the annual registration of visceral toxocarosis in the population (on average 150-200

cases per year, in the vast majority of them are children from 3 to 10 years old) (Table 2).

Echinococcosis and trichinellosis have practically ceased to be registered among pig heads, which is due to the introduction of strict rules for the maintenance of pigs in closed enterprises and the prohibition of the holding of animals even in the private sector. During the last 5 years, only isolated cases of echinococcosis and trichinellosis in domestic pig were recorded (Table 1).

With regard to echinococcosis (larval) in farm animals, it should be noted that in the vast majority of cases echinococcus was recorded in sheep (in the opening of fallen animals or in the post-slaughter veterinary and sanitary examination of carcasses and organs). Here it should be noted that the greatest degree of invasion by echinococcus larvae, thin-neck and pisiform cysticercas (25-45% of all animals examined (carcasses)) we have noted in the private sector, where pastures are used on non-cultured pastures, near forest areas or on the outskirts of cities, where there is a high probability of falling on pastures of vagrants or rural agitators, fox and other and other. Among the probably and main reasons of spreading of larval cestodes are the harvesting of fodders in the area of forest and suburban areas, non-cultured pastures.

In the research of the spread of imaginal echinococcosis among dogs, we noted single cases of echinococcosis in domestic dogs (3-5%), while a high

percent (up to 60%) is in vagrant, rural and hunting dogs, which is related to the conditions of detention and feeding, as well as the level of veterinary care of animals. Rural and stray dogs are not regularly dehelminated and feed more often on waste and poor quality feeds. Hunting dogs are more likely to contact (especially when hunter-owners are illiterate) with infected larval stage echinococcus (and other cestodes) feeds, thereby infecting themselves and re-contaminating the environment. The highest percentage of echinococcosis infection from wild carnivores is observed in the fox.

With regard to human infection with echinococcosis, 10+3 cases in average per year have been recorded in recent years.

Opisthorchiasis is registered by us in domestic carnivores, mainly (about 70% of all reported cases are cats), was registered in wild carnivores. The main percentage of opisthorchiasis is found in the Gomel region, both in animals and in humans, which is due to the natural reservoir of this invasion in the area. In humans, opisthorchiasis is recorded in sporadic cases, as often as possible in the Gomel region (Table 3).

Fasciolosis is widespread among cattle, averaging 30-40% of the population in a number of farms. However, there have been no cases of registration of human fasciolosis in the territory of the Republic of Belarus in the last 5 years.

In Turkmenistan, compared to the Republic of Belarus, the issue of zoonosis is more topical,

Table 1 – The intensity of parasitic zoonosis among farm animals for the last 5 years according to reports from meat processing companies and regional veterinary laboratories

Name of diseases	Number of cases				
	2018 year	2017 year	2016 year	2015 year	2014 year
Echinococcosis of pigs	-	1	-	1	2
Echinococcosis of sheep.	-	2	-	2	-
Cryptosporidiosis of cattle.	742	1473	1187	1154	872
Cryptosporidiosis of pigs	15	31	11	23	7
Opisthorchiasis of fishes	-	4	-	4	15

Table 2 – The incidence rate of visceral toxocarosis among the human population averages in the region depending on age

Age, years	Quantity of cases in 2014	Quantity of cases in 2015	Quantity of cases in 2016	Quantity of cases in 2017	Quantity of cases in 2018
0-2	7	5	0	1	3
3-6	8	18	8	7	6
7-10	12	13	10	4	6
10-17	52	29	22	13	24

Table 3 – Intensity of rare helminthosis among the population in the Republic of Belarus in 2018

Name of diseases	Quantity of the registered cases	Percentage (%) of total cases
Visceral toxocarosis	162	51,6%
Trichocephalosis	59	18,8%
Opisthorchiasis	61	19,4%
Echinococcosis	13	4,2%
Trichinellosis	9	2,9%
Difillobotriosis	3	0,9%
Others	7	2,2%

especially with regard to a number of particularly dangerous diseases (rabies, anthrax, brucellosis, echinococcosis). As a result of the studies and statistical analysis carried out, it was found that parasitic zoonoses such as echinococcosis, cryptosporidiosis, visceral toxocarosis, cysticercosis are the most spread in the territory of Turkmenistan.

Echinococcosis larval is widespread among small cattle, especially sheep (up to 70% of the total study sheep carcasses in a number of farms). Imaginal echinococcosis is widespread among shepherd dogs (up to 40-60% of the animals tested). The basic reasons of imaginal echinococcosis spread among dogs (and other carnivorous) are violations in maintenance and feeding of dogs, feeding not neutralized and raw waste, lack of the planned and forced deworming, lack of isolation for dogs during expulsion of helminths and some other. From the point of view in the spread of larval echinococcosis, the main reasons are the co-maintenance, drinking and feeding of ruminant and carnivorous animals, grazing of animals in non-cultured, contaminated pastures, absence of planned deworming, etc.

Along with echinococcosis, other cestodoses pose a rather significant problem, or rather their larval stages - cysticercis. *Cysticercis* thin-neck (*tenuicole*) and *cysticercis* pisiform are most common among small cattle. The main causes of these invasions are identical, as in echinococcosis.

Cryptosporidiosis has become more common today than in previous years, and special attention is paid to it in human medicine, while veterinary services of the country often ignore this disease. The spread of cryptosporidiosis in the country is facilitated both by climatic conditions and by the peculiarities of agriculture, and by the late diagnosis and treatment of this disease both among animals and among the population.

The medical services of the country show that the incidence in Turkmenistan is significant, particularly high among children (on average between the ages of 2 and 7) or among adults with low immune status or with concomitant pathologies of the immune system (average age of adults is 30-50 years). The disease is recorded everywhere and year-round. The main route of infection for both animals and humans is oral, most often humans and animals are infected through contaminated water or food (feed).

Among animals, cryptosporidiosis is most common among cattle (about 10-35% of the studied population), it is registered in a number of sheep farms (5-7% of the studied population) and is the cause of high mortality of young people.

Fasciolosis is also quite common among farm animals: cattle is about 40%, sheep - 50%, goats - 40%, camels - 10-15% of the tested population. In recent years, diseases have not been officially

recorded among people, but the risk of infection exists especially among herders, shepherds and people living in rural areas.

The Republic of Tajikistan, due to its climatic and geographical location, also records quite a large number of zoonotic infections and invasions, among which anthrax, brucellosis, rabies, salmonellosis, leptospirosis, echinococcosis, cysticercosis are the most common.

Anthrax is the most common in the Republic of Tajikistan among animals and the population, where the main role in epizootic and epidemic of this disease is played by both climatic and geographical features, as well as features of agriculture, also the low sanitary literacy of the population is important. Every year the Republic records the disease both among the population and among animals. The main sources of infection are sick farm animals: cattle, horses, donkeys, sheep, goats, deer, camels. Between 2015 and 2018, a total of 38 unfavorable points were registered, in which 61 animals died.

In Tajikistan, education is constantly being provided to the population, especially in rural areas, with a view to preventing anthrax infection.

Rabies is also a major problem among zoonotic diseases in Tajikistan. Previously, the main source of rabies in the Republic was dogs, in recent years due to the introduction of strict and controlled vaccination their role in distribution has decreased. But the source of rabies today are foxes, and, often, stray cats. But unfortunately, despite of the vaccination of pets, the situation on rabies continues to be tense. During 2018, 61 rabies-affected animals were registered in 12 settlements. Over the past 3 years, more than 12,000 people have been injured by a rabid animal attack in the Republic. Rabies were most common in the southern regions (92.3%) and only 7.7% in the northern regions. More than 300 cases of rabies have been reported among farm animals in the last 3 years (Table 5).

Unfortunately, cases of rabies are also recorded in Tajikistan. In recent years (from 2015 to 2018) 44 people have died.

The next rather significant problem for Tajikistan is brucellosis. To date, 500-800 heads of cattle and 2000-2500 heads of small cattle with brucellosis are detected annually by veterinary specialists (Table 5). The main reasons for the spread of brucellosis are also primarily the low sanitary literacy of the population. Every year quite a large number of people are diagnosed with "brucellosis" - up to 1000 cases per year (Table 6).

Tuberculosis is less common than brucellosis, but an average of 100-200 cases per year are recorded among livestock.

Salmonellosis and leptospirosis are fairly common and widely recorded in the Republic of

Table 4 – Information on brucellosis of ruminants in the Republic of Tajikistan for 2015-2018 years

Name of diseases	Number of cases							
	2015 year		2016 year		2017 year		2018 year	
	Number of examinations	Positive result	Number of examinations	Positive result	Number of examinations	Positive result	Number of examinations	Positive result
Cattle brucellosis	341298	802	335092	661	340404	611	285520	294
Sheep brucellosis	466724	2650	423536	2099	444072	1194	335607	462

Table 5 – Information on communicable diseases of farm animals in the Republic of Tajikistan for 2015-2018 years

Name of diseases	Number of cases			
	2015 year	2016 year	2017 year	2018 year
Anthrax	18	12	4	4
Tuberculosis	116	192	184	170
Rabies	260	192	191	121
Echinococcosis	87	60	68	51

Table 6 – Epidemic situation on brucellosis among people in the Republic of Tajikistan according to the epidemiological reports of Ministry of Health of the Republic of Tajikistan for 2010-2018 years

Administr. territory	Number of human disease cases per year								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
GBAO	64	128	130	262	368	276	317	479	210
Dushanbe	5	0	1	31	20	0	25	53	28
RRP	251	287	257	357	388	425	469	491	359
Kulob	54	48	31	25	23	21	21	16	26
Qurghonteppa	289	210	132	129	87	75	54	57	38
Hatlon	343	258	163	154	110	96	75	73	64
Sughd region	292	338	200	103	61	52	42	26	37
In total on to the republic	955	991	841	907	947	849	928	1122	698

Tajikistan, the most common infections among the population working in agriculture.

One of the most common parasitic zoonosis in Tajikistan is echinococcosis. The study of the incidence of echinococcosis shows the endemic nature of this disease in the Republic of Tajikistan. Taking into account difficult diagnostics, all data on the spread of echinococcosis in the Republic are based on the data of veterinary and medical services, rather than on the results of mass surveys of the population and farm animals.

According to the Ministry of Health of the Republic of Tajikistan, an average of 700 to 1,000 people with echinococcosis are allocated per year, but this figure is only approximate, taking into account that not all the population of the country regularly visits medical centers (Table 7).

The total number of cattle and sheep carcasses in slaughter points and markets for the period 2013-2018 was 280,402 heads, and echinococcosis was identified in 1,454 cases. Of these, 3677.8 kg of animal products were destroyed (Table 8).

The main reasons in spread of echinococcosis (larval and imaginal) among the population and animals are the same as in a number of other countries: lack of planned dehelminthisations of dogs, co-maintenance, feeding and drinking of carnivorous and herbivorous animals, grazing of animals on non-cultured pastures, feeding of slaughterhouse waste to parochial dogs, low sanitary literacy of the population and a number of others.

Opisthorchiasis is diagnosed in the form of sporadic cases, and primarily among the population, whose diet includes fish and fish products.

Cryptosporidiosis is widespread in the territory of the Republic of Tajikistan, but it should be noted that this disease is not given due attention. The largest percent of cryptosporidiosis (5-10%) is detected in calves and lambs for the first month of life, but we consider these figures to be inaccurate, as diagnosis for cryptosporidiosis is quite rare.

In the territory of the Republic of Azerbaijan, among all zoonotic diseases, the greatest danger to

both animals and humans today is such diseases as anthrax, rabies, tuberculosis, brucellosis, echinococcosis, trichinellosis, opisthorchiasis and a number of others. Rabies, anthrax, brucellosis are particularly dangerous. The causes of the occurrence and spread of zoonotic diseases are mainly the same as in other countries: climatic and geographical characteristics, conditions and peculiarities of agriculture, gastronomic preferences, low sanitary literacy of the population in some parts of the country and a number of others. Contributing factors are often the following: boring animal maintenance, lack of regular preventive measures (disinfections, vaccinations, disinfections, etc.), absence of quarantine measures for newly arrived animals, unsatisfactory feeding and maintenance conditions, stationary natural centers of disease and much more.

To date, one of the problems that tends to spread is pasteurellosis. In recent years, cases

of registration of this zoonosis have increased, which, according to some experts, is related to the resistance of the microorganism to the antibacterial preparations used, on the other hand, to the reduction of the effectiveness of preventive vaccinations (Table 8).

Among parasitic zoonosis remains the problem of echinococcosis, visceral toxocarosis, cysticercosis and a number of other zoonosis. The spread of the main zoonoses is primarily related to the low literacy of certain groups of the population, the violation of sanitary and veterinary rules for the maintenance of animals (both agricultural and domestic), the receipt and sale of livestock products (primarily in the private sector).

Discussions. Our research on the prevalence of selected zoonotic diseases in a number of countries show that, in general, the data is coincide with the data of a number of other countries - cer-

Table 7 – Number of human echinococcosis cases for the period 2013-2018 in the Republic of Tajikistan

Years	Number of sick people	Including operated on
2013	808	179
2014	694	147
2015	973	148
2016	943	196
2017	761	262
2018	736	172

Table 8 – Number of examined carcasses of cattle and sheep for echinococcosis for the period 2013-2018 years in Dushanbe

Years	Number of examined carcasses	The number of carcasses infected echinococcosis	Rejected raw meat (kg)
2013	42209	171	963
2014	21388	176	380,9
2015	54590	166	388
2016	47589	277	401,3
2017	53608	246	588,8
2018	41018	418	955,8
total	280402	1454	3677,8

Table 9 – Number of cases of pasteurellosis among the farm animals in the Republic of Azerbaijan for 2010-2018 years

Years	Cattle		Sheep		Birds	
	Number of samples examined	Positive results	Number of samples examined	Positive results	Number of samples examined	Positive results
2010	5	5	3	3	61	61
2011	3	3	0	0	37	37
2012	6	6	2	2	40	40
2013	24	23	13	10	55	53
2014	244	36	411	122	188	8
2015	351	48	425	84	295	20
2016	389	45	460	89	324	54
2017	421	65	543	97	278	47
2018	543	76	521	123	336	78

tain zoonoses tend to decrease their prevalence (Such as trichinellosis and larval echinococcosis among pigs in the Republic of Belarus), others (rabies, anthrax, brucellosis, larval and imaginal echinococcosis) remain a huge problem for countries such as Turkmenistan, Tajikistan, or begin to register again after many years (anthrax in the Republic of Belarus). A number of diseases, such as leptospirosis, chlamydiosis, pasteurellosis, tuberculosis, are recorded more frequently in the form of small or sporadic outbreaks in individual farms, without noting trends in either increasing or decreasing intensity, but showing their stationary nature in individual farms, areas, regions. The main reasons for the occurrence and spread of zoonosis are primarily disorders on the part of animal maintenance, lack of regular diagnostic studies and medical and preventive treatments, as well as low sanitary literacy of the population.

Thus, we note that the problem of zoonosis is still relevant to many countries, and some of them are a significant threat to both the animal population and the population of a country. Solving the problem of zoonotic diseases can be achieved only by joint efforts of veterinary and medical services of countries, and the fact of constant improvement of theoretical knowledge and practical skills in the field of diagnosis, control and prevention of these diseases is important, and exchange of experience and joint work with colleagues from different countries is important.

Conclusion. The problem of zoonotic diseases is common to all countries, despite the species difference between the diseases recorded. Studying the characteristics of the occurrence, transmission and spread of certain diseases in different countries will allow to develop and implement measures aimed at preventing zoonosis, their spread and combating these diseases in a more detailed and reasonable manner. Knowledge and understanding the ways of spreading this group of diseases, clear adherence to the developed rules and instructions, transparency in cross-border relations, scientific and practical cooperation of countries will allow preventing entry and spread of not only common diseases, but also contagious diseases in general both among animals and the population.

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Хвороби, спільні для людини і тварин – сучасний стан проблеми

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Однією з істотних проблем для ветеринарної служби і працівників гуманної медицини всього світу є заразні хвороби (паразитарні та інфекційні), спільні для людини і тварин. У більшості країн цю групу хвороб називають зоонози, хоча у багатьох дослідників цей термін викликає низку спірних питань. У ряді країн прийнято суворо розділяти їх на зооантропонози і антропозонози.

Однак, незважаючи на відмінність у термінології, важливість зоонозних хвороб залишається актуальною.

Звичайно, в країнах з різними клімато-географічними, культурними та гастрономічними особливостями будуть превалювати ті чи інші хвороби, проте їхня соціальна і економічна значимість подібна для всіх.

У роботі в порівняльному аспекті висвітлено найбільш значущі зоонози і залежність їх поширення від клімато-географічних, гастрономічних, культурних і ряду інших особливостей країн. Проводили дослідження у Республіці Білорусь, Туркменістані, Таджикистані і Азербайджані.

У процесі досліджень виявляли найбільш значущі зоонози для перерахованих вище країн і визначали основні причини та чинники, що сприяють виникненню і поширенню цих патологій.

Дослідження проводили з використанням сучасних методів, зокрема паразитологічних, вірусологічних, бактеріологічних, молекулярно-генетичних і статистичних.

В результаті проведених досліджень встановлено, що ряд зоонозних хвороб, таких як сказ, пастерельоз, туберкульоз досить широко поширені практично у всіх зазначених країнах, тоді як сибірка, бруцельоз, ехінокоз – мають суттєву різницю в інтенсивності поширення, і безпосередніми причинами такої відмінності є як клімато-географічні чинники, так і особливості ведення сільського господарства тощо.

Ключові слова: зоонози, інфекції, інвазії, сказ, пастерельоз, сибірка, бруцельоз, туберкульоз, ехінокоз, цестодози, трихинельоз, аскаридоз, криптоспориоз.

Болезни, общие для человека и животных – современное состояние проблемы

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Одной из существенных проблем для ветеринарной службы и работников гуманной медицины всего мира являются заразные болезни (паразитарные и инфекционные), общие для человека и животных. В большинстве

стран эту группу болезней называют зоонозы, хотя у многих исследователей этот термин вызывает ряд спорных вопросов. В ряде стран принято строго делить их на зооантропонозы и антропозоонозы.

Однако, несмотря на различие в терминологии, важность зоонозных болезней остается актуальной.

Конечно, в странах с различными климато-географическими, культурными и гастрономическими особенностями будут превалировать те или иные болезни, но социальная и экономическая их значимость будет сходной для всех.

В работе в сравнительном аспекте показано наиболее значимые зоонозы и зависимость их распространения от климато-географических, гастрономических, культурных и ряда других особенностей стран. Проводились исследования в таких странах как Республика Беларусь, Туркменистан, Таджикистан и Азербайджан.

В процессе исследований выявляли наиболее значимые зоонозы для вышеперечисленных стран и определяли основные причины и факторы, способствующие возникновению и распространению данных патологий.

Исследования проводили с использованием современных методов, таких как паразитологические, вирусологические, бактериологические, молекулярно-генетические, статистические.

В результате проведенных исследований установлено, что ряд зоонозных болезней, таких как бешенство, пастереллез, туберкулез довольно широко распространены практически во всех указанных странах, тогда как сибирская язва, бруцеллез, эхинококкоз – имеют существенное различие в интенсивности распространения, и непосредственными причинами данного различия являются как климато-географические факторы, так и особенности ведения сельского хозяйства, ряд других.

Ключевые слова: зоонозы, инфекции, инвазии, бешенство, пастереллез, сибирская язва, бруцеллез, туберкулез, эхинококкоз, цестодозы, трихинеллез, аскаридозы, криптоспориоз.



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