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M.V. BABKIN, PhD in Vet. Science
M.A. GOLOVKO, graduate student
 State Scientific Control Institute of Biotechnology
 and strains of microorganisms, Kyiv

O.M. VERZHYHOVSKYY, Director of the Department of Veterinary Medicine
D.A. MOROZ, Deputy Director of the Department of Veterinary Medicine
 State Veterinary and Phytosanitary Service
 of Ukraine

PARTICULARITY OF RABIES EPIDEMIOLOGICAL PROCESS IN UKRAINE

The article analyzes the epidemiological situation of rabies in Ukraine, which is characterized by dynamism and dominance of the natural tendency of rabies. Shown a tendency to increase the number of outbreaks of rabies among domestic carnivores such as cats, indicating that the lack of regulation of these animals in urban and rural areas, and lack of routine vaccinations among this species in Ukraine. Established shift the epicenter of rabies from eastern and north-eastern regions of the north-western region of Ukraine.

Rabies – belongs to a group of viral zoonoses, developed as a result of a bite or contamination with saliva of sick animals and characterized by encephalomyelitis, displays sharp excitation of motor centers, salivation, convulsions of throat and torso muscles, respiratory muscles and their subsequent paralysis, usually ends in death.

Rabies is spread in all continents and has panzootic character. From the total number of reported outbreaks of rabies in the world 50,71% accounts for Europe, 25,55% – Africa, 11,65% – Asia and 12,9% – in America [6]. Rabies causes significant damage to livestock. Rabies is prevalent almost everywhere, except some island countries (New Zealand, Japan) and the continents of Australia and Antarctica. Not registered this disease in a line of countries on north (Norway, Sweden) and south (Spain, Portugal) of Europe.

Some European countries have successfully implemented national programs from rabies eradication. The key criterion, by which the OIE and WHO characterized states and territories free from rabies, is the absence of disease within 2 years of people, pets and wildlife.

The social aspect of this zoonosis is very significant. Each year, through over the world, around 45 000–60 000 people are died because of rabies. About 10 million people each year are forced to make rabies vaccination through the bites of wild and domestic animals suspected of having the disease [2, 5, 8, 9].

The mortality rate of people from rabies is 5 per 1 million populations [1, 3, 4, 7, 9, 12]. For example, in 2007 from 145 countries and territories who regularly submit information about rabies to the OIE, only 40 were not detected in this deadly disease [10].

Besides being on the planet die each year a large number of people, more than 4 million people require rabies vaccination, especially in those countries where rabies pathogen circulating in the most dangerous reservoir of infection – among dogs.

Objective: To assess the state of the epizootic situation in Ukraine on animal rabies and to identify trends in its development.

MATERIALS AND METHODS

The paper used the report materials of the State Veterinary and Phytosanitary Service of Ukraine.

Epidemiological study of rabies in Ukraine conducted using epizootic historical and statistical methods. Epidemiological values calculated by the methods adopted in the epidemiology [11].

RESULTS AND DISCUSSION

Rabies in Ukraine has a long history and widespread. Epidemiological situation is characterized by periodic ups and downs of tension.

In the last decade in Ukraine marked a difficult epidemiological situation regarding animal rabies. By analyzing the dynamics of the disease over the past 15 years in Ukraine, marked the rapid development of epizootic rabies from 1996 to 2007, the level of the disease has increased tenfold, from 2008 observed trend of a slight decrease in the incidence of animals with rabies (Fig. 1).

In Figure 1 is shown dynamics of the animals sick with rabies. As we can see, the number of animals that are sick with rabies in Ukraine between 2005 and 2012 ranged on average within 2171–1854 heads per year.

The peak number of sick animals from 2005 to 2012 reached 2976 heads in 2007 and the lowest number of cases observed in animals in 2009, according to around 1254 animals.

Similarly, characterized and dynamics of emergence disadvantaged points in Ukraine, which is shown in Figure 2.

So we observe most disadvantaged points – 2393 in 2007, and a minimum in 2009–1094 points. Throughout the period of observation amount of disadvantaged points were within the 1262–1733 cases per year.

An important characteristic of epizootic process is an indicator such as focal index.

As can be seen from the above table material during the period of observation focus index ranged from 1,25–1,12. In this case, we observe a gradual decrease of indicator value from 1,23 in 2005 to 1,14 in 2012. Its shows a gradual decrease of animals number involved in the epidemiological

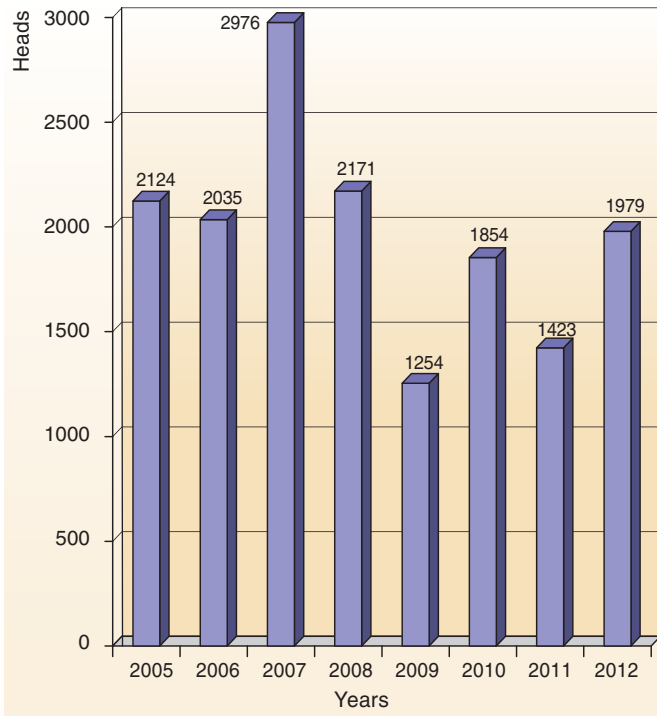


Fig. 1. Number of animals sick with rabies in Ukraine for 2005–2012 years

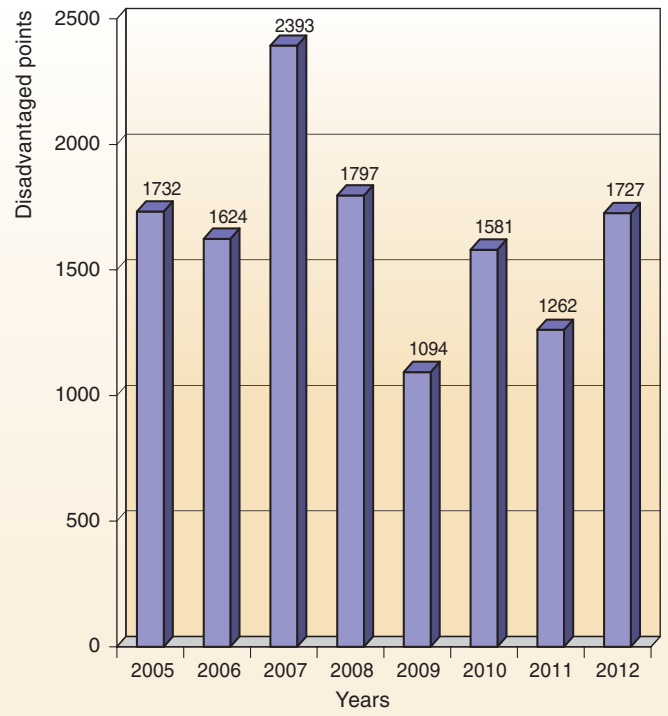


Fig. 2. Emergence dynamics of disadvantaged points according to rabies in Ukraine for 2005–2010

Table – The results of dynamic studies of the focal index in 2005–2012 years

Index	Years							
	2005	2006	2007	2008	2009	2010	2011	2012
Ill	2124	2035	2976	2171	1254	1854	1423	1979
Disadvantage points	1733	1624	2393	1797	1094	1581	1262	1727
Focal index	1,23	1,25	1,24	1,2	1,15	1,17	1,12	1,14

process in separate rabies cell, which in turn is an indicator of the effectiveness of prevention measures, which aim to eradicate the disease.

As shown in Figure 3, dynamics of rabies in different groups of animals during five years was characterized by periodic fluctuations.

So among farm animals (cattle, horses, pigs) the number of sick animals ranged from 148 heads min. (minimum rate) in 2011 to 251 heads in 2010 max. (maximum rate). Significantly greater number of sick animals, were observed in a group of pets (cats, dogs). Among this group of sick animals ranged from 579 heads min. in 2009 to 1182 heads in 2008, max. Number of identified sick fox was in the range of 473 heads min. in 2009 to 905 heads in 2012 max. Data shown in Figure 3 confirms the dominance of the natural tendency of rabies.

As can be seen from the chart line that characterized sickness of pets has tends to decrease, among red foxes a slight growth, and groups of agricultural and wild animals characterized by relative stability.

Dynamics of disease in animals of different species over the years is shown in Figure 4.

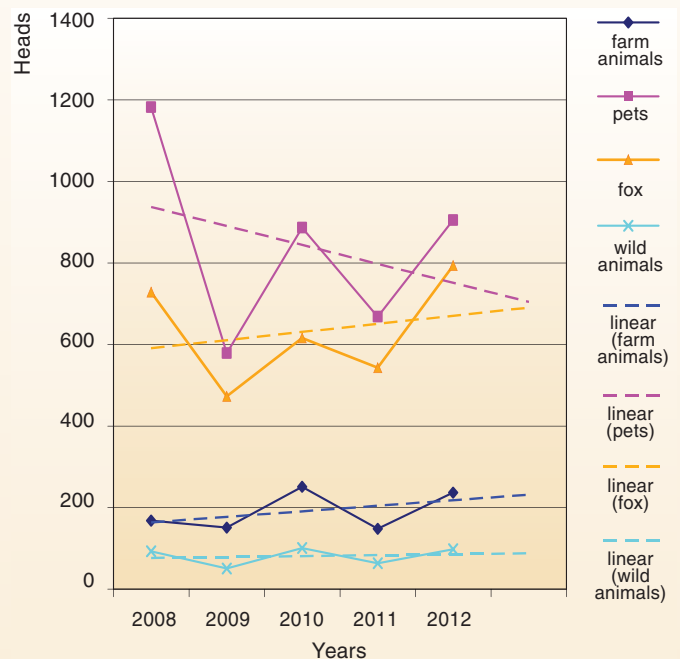


Fig. 3. The dynamics of rabies in 2008–2013 years by animal species

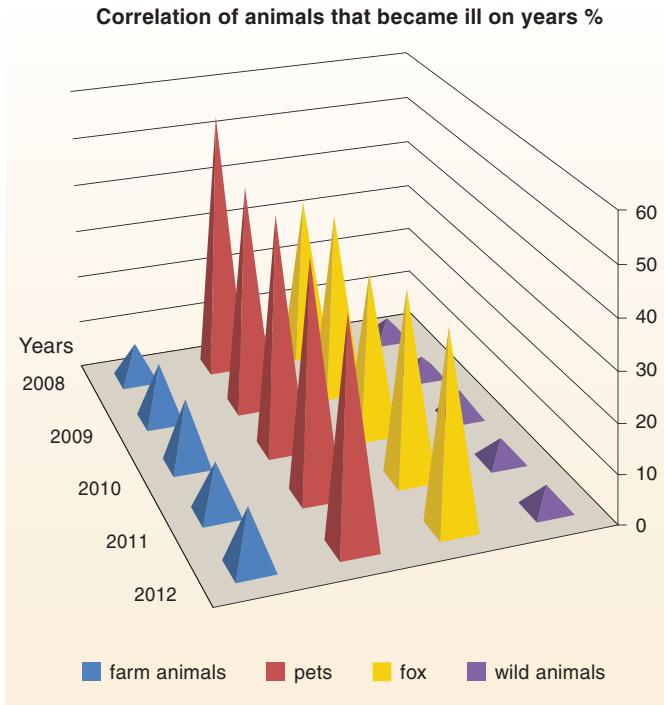


Fig. 4. Value on the species of animals that are sick with rabies in 2008 and 2012, %

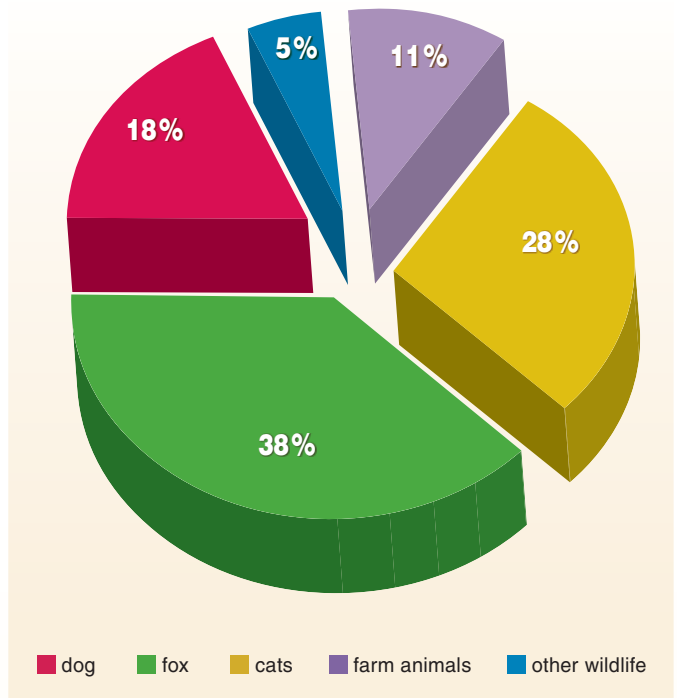


Fig. 5. Structural distribution of rabies sick animals in 2012 in Ukraine, %

As can be seen from Figure 4 the percentage of pets that are sick in 2008–2012 was in the range 54,4–44,5 %, the share accounted for foxes 33,5–39,5 %. In cadence among farm animals were 7,7–13,5 % wild and furry animals 4,1–4,8 %.

Thus, during the 2008–2012 period despite the fluctuations in the quantitative number of rabies sick animals, species structure of the disease remained relatively stable. Approximately 10 % decrease in the number of cases of pets that may be associated with increase epidemic fieldwork.

The specific structure of sick animals clearly indicates that the epizootic situation of rabies in Ukraine has a number of features, including the evolution of epizootic diseases as a natural focal and city type. In the first case, a reservoir and source of infectious agents are wild predators – foxes (87,9 % of cases diagnosed in wild animals), raccoon dog, marten, wolf. City type of rabies in Ukraine evolves due to uncontrolled increase in the number of feral and stray cats and dogs (Fig. 5).

As follows from the data in Fig. 5 the highest percentage of rabies diseased animals occupy fox – 38 %, cats – 28 %, dogs – 18 %, farm animals – 11 %, other wild animals – 5 %. Noteworthy that greater number of rabies outbreaks record among cats (483) and only 312 among dogs. Given the fact that dogs are reservoir species (cats are not reservoirs of infection for this disease), these data indicate a lack of regulation of cats in urban and rural areas, their uncontrolled breeding, and lack of planned vaccination among this species in Ukraine. From this it follows that routine vaccination among cats should also be mandatory. High levels of disease among dogs, also suggests that the program of compulsory

vaccination coverage of dogs in the settlements is not provided in full.

Leading role in maintaining habitat rabies virus in wild fauna belong foxes.

Analysis of rabies cases in previous years showed that rabies spread in all geographic areas and regions of Ukraine. It should be pointed out that in the Ukraine was displaced epicenter of rabies, as if from 2006 to 2008 the largest concentration of cases of rabies sick animals recorded in the eastern and north-eastern regions then in 2009 began to form the epicenter of rabies in north-western Ukraine and namely: (Khmelnitsky, Vinnytsia, Zhytomyr regions). In 2010–2011, due to the rapid development of rabies epizootic in Khmelnitsky, and Vinnytsia oblasts and since 2011 in the areas adjacent to these areas, namely, Ternopil, Kirovohrad, Cherkasy, formed the epicenter of rabies in six north-eastern regions. According to the research epicenter of rabies in 2012 increased by Odessa region, which recorded an increase in rabies cases up to five times compared to 2011. Now the epicenter of rabies covers 7 areas (Khmelnitsky, Vinnitsa, Zhitomir, Ternopil, Kirovohrad, Cherkasy, Odesa). In 2012, the number of animals that are sick with rabies in these 7 areas is 48 % of all cases of rabies in Ukraine.

CONCLUSIONS

1. Epizootic situation on rabies in Ukraine is characterized by dynamism and dominance of the natural tendency of rabies, with a leading role in maintaining habitat fox rabies virus in wild fauna.

2. Developing trend aimed at increasing the number of ra-



bies outbreaks among domestic carnivores by cats (2012 – 483 cats, 312 dogs), indicating that the lack of regulation of cats in urban and rural areas, their uncontrolled breeding, and lack of routine immunization among this species in Ukraine.

3. It is noted shift of rabies epicenter since 2008 to the eastern and north-eastern regions of the north-western region in 2012 (7 regions), which fall to 48 % of all cases of rabies in Ukraine.

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Особливості епізоотичного процесу сказу в Україні. М.В. Бабкін, М.А. Головка, О.М. Вержиковський, Д.А. Мороз

У статті проаналізовано епізоотичну ситуацію щодо сказу в Україні, яка характеризується динамічністю й домінуванням природного сказу. Показано тенденцію до збільшення кількості спалахів сказу серед домашніх м'ясоїдних, а саме котів, що свідчить про відсутність регуляції їх кількості в містах і сільській місцевості, а також відсутність планових щеплень серед цього виду тварин. Встановлено зміщення епіцентру сказу зі східних та північно-східних областей до північно-західного регіону України.

Особенности эпизоотического процесса бешенства в Украине. М.В. Бабкин, М.А. Головка, А.М. Вержиковский, Д.А. Мороз

В статье проанализирована эпизоотическая ситуация по бешенству в Украине, которая характеризуется динамикой и доминированием естественного бешенства. Показана тенденция к увеличению количества вспышек бешенства среди домашних плотоядных, а именно кошек, что свидетельствует об отсутствии регуляции их количества в городах и сельской местности, а также отсутствии плановых прививок среди этого вида животных. Установлено смещение эпицентра бешенства из восточных и северо-восточных областей к северо-западному региону Украины. ◉