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RETROSPECTIVE ANALYSIS OF THE EPIZOOTIC SITUATION ON RABIES IN THE SOUTH-WEST REGION OF THE REPUBLIC OF KAZAKHSTAN

Summary

The article presents the research results of the retrospective analysis of the epizootic situation on rabies given visualization disadvantaged areas and zoning in the southwest region of the Republic of Kazakhstan**.**

Keywords: Rabies, rabies virus, zoning, visualization, epizootic situation.

Introduction

Epizootic and epidemiological significance of rabies - this especially dangerous infection, both in our research areas and in Kazakhstan as a whole remains high [1,2]. The disease is natural-focal, all warm-blooded patients get sick, it is characterized by absolute lethality. The rabies virus is constantly circulating in the wild, forming natural foci. Therefore, it is completely impossible to liquidate it. From natural foci of infection through wild animals, the rabies infectious agent is transmitted to domestic animals and penetrates into human settlements, contributing to the occurrence of diseases of agricultural and domestic animals [3, 4, 5]. The main task of the veterinary and health service, the authorities - to prevent human disease. And this is really being done today. Therefore, relatively high figures of detectability and registration of infection - in this situation - an indicator of effective work of the veterinary service of our Republic. The disease is diagnosed on time, all measures for the elimination of infection are taken promptly. No case, even with a suspicion of rabies - does not remain without attention. Accuracy of the diagnosis is achieved by comparative (parallel) studies in several laboratories (RVL, NSCM).

The purpose of this work

This article presents the results of a retrospective analysis of the epizootic situation of rabies with a scheme for visualization of disadvantaged sites and a map of zoning of the territory in the South-West region of the Republic of Kazakhstan.

Materials and methods

Epizootological monitoring of farm animals for rabies in the Kyzylorda, Atyrau and Mangistau Regions of the RK was carried out by analyzing the statistical data of veterinary reports, the results of serological monitoring performed by the RVL, as well as own research. At the same time, statistical data on rabies were used in retrospect for 2010-2015. During the period under review, we conducted an analysis of the development of the epizootic process for rabies in the Southwest regions of the Republic of Kazakhstan, with the help of the ArcGIS electronic system maps were created for visualization and zoning of the territory on rabies in Kyzylorda and Atyrau regions. The risk of occurrence and spread of rabies among animals in the context of districts and rural districts of the southwestern region of the Republic of Kazakhstan, criteria for assessing the risks of occurrence and spread of rabies in the study area, including relative epizootic values (number of dysfunctional items, percentage of unsuccessful points, epizootic index and epizootic situation).

Results of the research and discussion

As a result of the piloting of research work, rabies among animals was recorded in all three areas, but most often in the Atyrau region. The epizootic situation in the south-western regions of rabies in 2010-2015 is shown in Table 1.

Table 1 - Number of affected animals by rabies in the regions in 2010-2015.

№	Region	Вид животных								
		Date of start	caws	sheeps	horses	camels	dogs	cats	wild carnivores	foxes
1	Atyrau	2010	4	3	-	-	-	-	-	3
		2011	6	1	1	1	-	1	-	2
		2012	3	-	1	1	-	1	-	-
		2013	3	2	1	1	-	1	-	-
		2014	2	2	-	-	-	1	3	-
		2015	2	1	-	-	-	-	1	-
	Mangystau	2010	-	-	-	1		-		
		2011	1	-	1	1		-		
		2012	1	-	-	-	1	-		
		2013	-	-	-	1	-	-		1
		2014	-	-	-	-	-	-		
		2015	-	-	-	-	-	-		
	Kyzylorda	2015	-	-	-	-	1	-	1	1

According to Table 1

Distribution of cases of rabies in the context of the districts of Atyrau region is as follows: 16 cases among cattle: 4 cases in 2010 (2 in Kyzylkogin, and one in Makhambet and Isatai districts); 6 cases in 2011 (4 in Kurmangazinsky, and one in Kyzylkogin and Zhylyoi districts); 3 cases in 2012 (Isatai, Kurmangazin and Zhylyoi districts); 3 cases in 2013 (2 in Zhylyoi and 1 in Kyzylkoginsky). On one occasion among camels, cats and horses in 2012, 2011, 2013, in Zhylyoi, Isatai and Zhylyosky respectively. 5 cases among foxes: 3 cases in 2010 (in Kurmangazy, Isatai, Makhambet districts); 2 cases in 2011 in the Kurmangazy region. 6 cases among MRS: 3 cases in 2010 (2 in Kyzylkogin, one in Zhylyoi); 1 case in 2011 in the Kurmangazy region; 2 cases in 2013 (in the Kyzylkoginsky and Isatay districts).

In 2014, 8 foci of infection among KRS-2, 2 MRS, 1 cat and 3 wild carnivores were registered in Atyrau oblast. In 2015, four foci of rabies infection were registered in the Atyrau region among cattle-2, MRS-1, and 1 carnivore. Rabies was recorded in 2010-2015. also in the Mangistau region. One case among the cattle in 2011-2012, as well as one case among horses in 2011, one case among camels in 2010-2011, one case among dogs in 2012 and one case among foxes in 2013. According to the veterinary reports of district and regional veterinary laboratories, the territory of Kyzylorda Oblast for the last 10 years was considered safe from rabies. However, in Kyzylorda region rabies was registered in 2015 among dogs, one case among jackals and foxes.

In 2010-2015 years. in the south-western regions in general, a significant number of identified cases of disease occur in carnivorous and wild animals, which confirms the natural nature of the epizootic, followed by cattle and MPC. Based on statistical data over the past five years and conducted studies, as well as on relative epizootic values, such as the proportion of unsuccessful items, the epizootic index and the tension of the epizootic situation, we compiled a visualization of dysfunctional rabies and zoning of the territory of Kyzylorda, Atyrau, Mangistau region for rabies for 2010-2015.

Information visualization of disadvantaged rabies virus items in the territory of Atyrau region is presented in Figure 1.

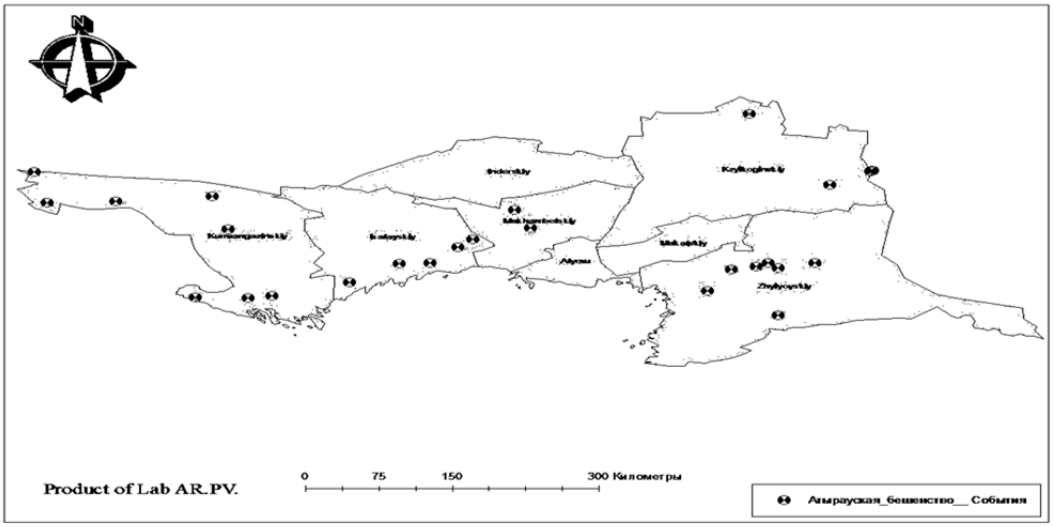

Figure 1 - Visualization of dysfunctional rabies in the territory of Atyrau region for 2010-2015.

The information on visualization of cases of rabies in Atyrau region, summarized in Figure 1, allows us to state that in the Atyrau region during 2010-2015, 25 foci of this infection were identified, with 7 foci, Kyzylkoginsky district 3 foci, Makhambet district 2 hearth, Isatai area of 5 foci, Kurmangazinsky district 8 foci of rabies, mainly agricultural animals were sick. The tendency of the area of expansion of rabies disease in Zhyloisk, Isatai and Kurmangazinsky areas in Atyrau region has been outlined. The results of our studies on carrying out epizootological monitoring in Atyrau oblast show that one of the main causes of this infection are neglected dogs, cats and wild carnivores. In connection with the situation in the Atyrau region, rabies has been zoned for this infection. Results zoning of the territory of the Atyrau region for rabies for 2010-2015. is shown in Figure 2.

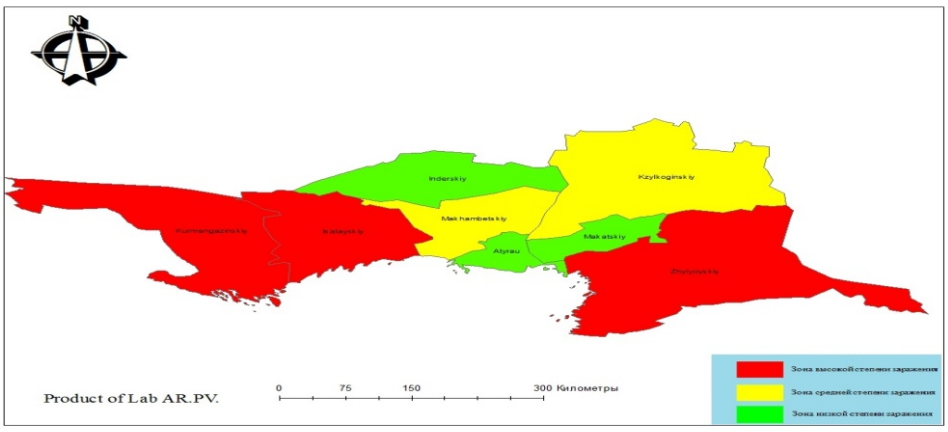

Figure 2 - Zoning of the territory of the Atyrau region for rabies in the context of districts for the period 2010-2015.

In the zone of high risk of occurrence and spread of rabies (Zhyloisky, Isatai, Kurmangazinskiy) regardless of the form of ownership, it is mandatory to carry out preventive vaccination of the entire number of agricultural animals, to regulate the number of stray dogs and wild carnivores. In zones of medium and low risk of spreading the disease, ring vaccination

should be performed when a foci of rabies is manifested. Visualization of the rabies virus in the territory of Mangistau region for the period 2010-2015. is shown in Figure 3.

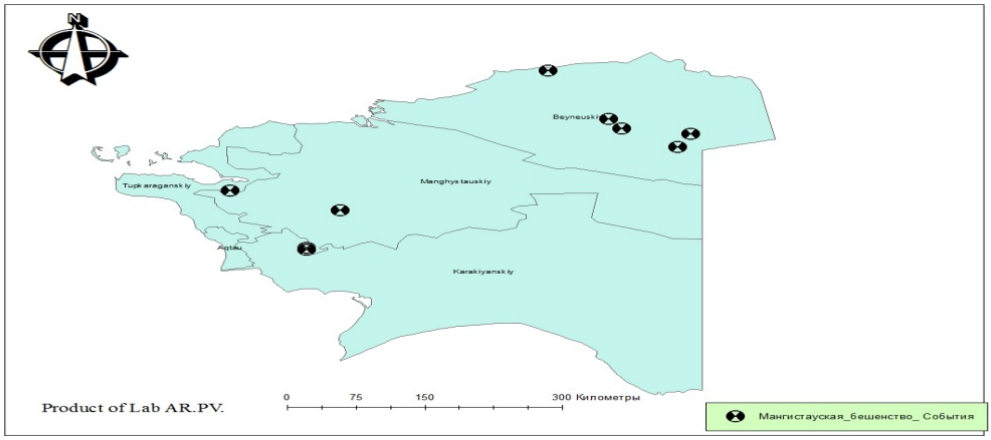

Figure -3 Visualization of cases of rabies in the territory of Mangistau region for 2010-2015.

During the analyzed period, rabies in the territory of Mangistau region registered 8 foci of infection, the results of zoning showed that for the period from 2014-2015 the region remained safe for this disease, therefore it is referred to the zone of medium infection inFigure 4.

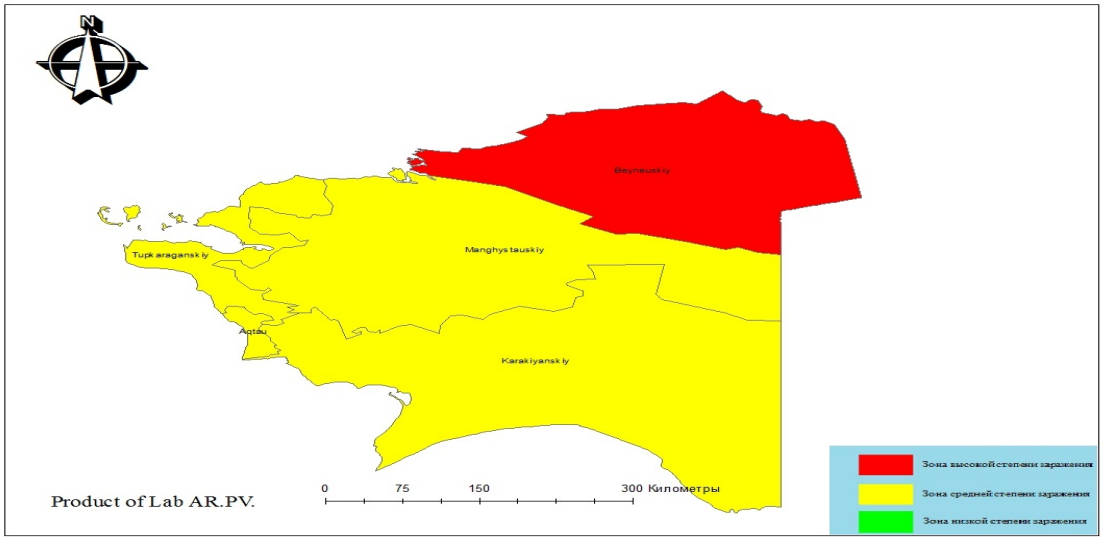

Figure -4 Zoning of the territory of Mangistau region for rabies in the context of districts for 2010-2015.

The Beineu district is a high-risk zone for the onset and infection of rabies, and the rest of the Mangistau region is in the zone of moderate infection. During the analyzed period, rabies in the Kyzylorda region was registered in 2015 in the Shieliinsky district, the zoning results showed (Figure 5) that the Shielin district is classified as a medium-risk zone, the remaining 7 districts of the region are a zone of well-being. The results of zoning of the territory of the Kyzylorda region for rabies in 2010-2015.

Figure 5. Zoning of the territory of Kyzylorda region on rabies of cattle for 2003-2015.

In 2016 in connection with the current situation of rabies in Atyrau region zoning of the territory for this infection was carried out. The results are shown in Figure 6.

The distribution of rabies is registered in Inder Isatay and Kyzylkuginsky districts of Atyrau region.

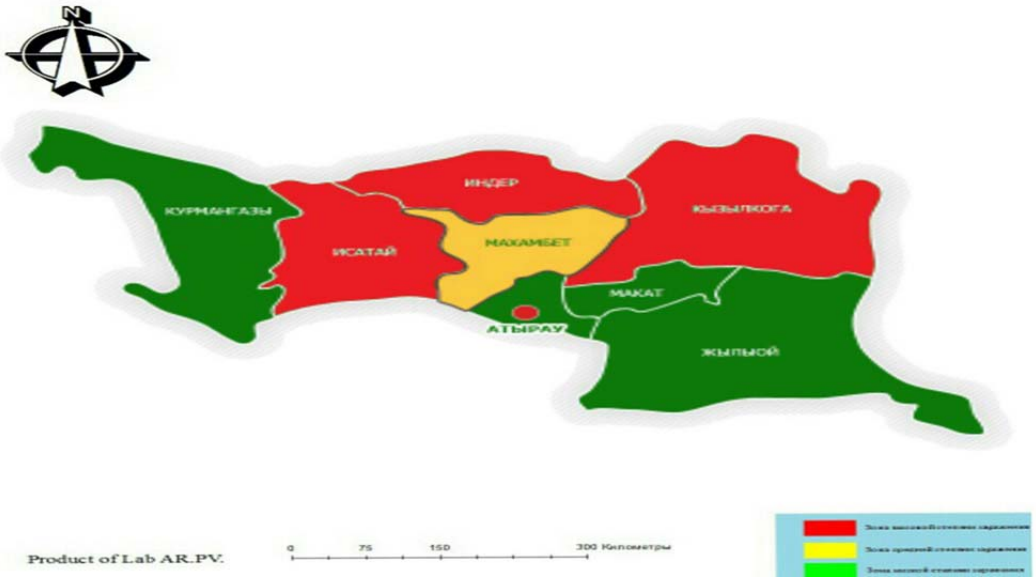

Figure 6- Zoning of the territory of the Atyrau region for rabies in the context of districts for 2016.

It can be seen from Fig. 6 that in the high-risk zone of occurrence and spread of rabies are the Inder and Isatai regions, the foci of infection are registered in 2 cases. The Kyzylkuginsky area is classified as a zone of environment with degree of infection, where one focus of infection and low risk of Atyrau, Makhambetsky, Kurmangazinskiy, Zhyloisky, Kurmangazinsky districts of the region, which do not have foci of infection, is registered. The territorial confinement of rabies in the Atyrau region is mainly tied to the Inder, Isatai and Kyzylkogin districts located in the northern and north-eastern part of the region, which borders on the territory of the West

Kazakhstan region. The West Kazakhstan region has been one of the most disadvantaged regions for rabies in recent years. This neighborhood certainly affects the epizootic situation, especially in terms of the migration of wild carnivores in the especially-winter period. Of this number of positive samples, the largest share in the Atyrau region falls on agricultural animals (cattle), which indicates their role in maintaining epizootic problems, followed by MPC and camels. It should also be noted that, along with an increase in the number of cases of rabies, there is a parallel increase in the diagnostic tests conducted on the disease.

Conclusion

The results of the conducted experiments show that the results of epizootic and epidemiological monitoring confirm the complexity of the epizootic situation of rabies in the Atyrau region. In areas of high risk of occurrence and spread of rabies (Indersky, Isataisky Kyzylkuginskiy), regardless of the form of ownership, it is mandatory to carry out preventive vaccination of the entire number of agricultural animals, to regulate the number of stray dogs and wild carnivores. In the zones of medium and low risk of spreading the disease, ring vaccination should be performed in cases of rabies. On the territory of Mangystau region for the analyzed period, 8 foci of infection were registered, the results of zoning showed that for a period of time from 2014-2015 the region remained free from this disease, therefore it is referred to the zone of medium infection. In Kyzylorda region, there were 3 cases of rabies registered in 2015 in the Shielin district, zoning results showed that the Shielin district is referred to the zone of medium infection, the remaining 7 districts of the region were a zone of well-being. Factors of occurrence and spread of rabies among agricultural and carnivorous animals in the Southwest regions of the RK include economic, natural and technogenic factors of disease transmission. The epizootic situation in rabies in the Atyrau region remains tense, which is due to the persistence of numerous active natural foci and unsuccessful stationary points in the incidence of animals.

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ҚАЗАҚСТАН ТЕРРИТОРИЯСЫНЫҢ ОҢТҮСТІК-БАТЫС АЙМАҚТАРЫН ҚҰТЫРЫҚ ІНДЕТТІ БОЙЫНША ЭПИЗООТОЛОГИЯЛЫҚ РЕТРОСПЕКТИВТІ ТАЛДАУ

Аңдатпа

Қазақстан территориясының оңтүстік-батыс аймақтарын құтырық індеті бойынша сандық және географиялық көрсеткіштерін тәуекел факторларымен байланыстыра отырып, аурудың эпизоотологиялық ретроспективті талдауы көрсетілген

Кілт сөздер: құтырық, рабикалық вирус, аймақ, визуализация, індеттанулық жағдай.

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РЕТРОСПЕКТИВНЫЙ АНАЛИЗ ЭПИЗООТИЧЕСКОЙ СИТУАЦИИ ПО БЕШЕНСТВУ В ЮГО-ЗАПАДНОМ РЕГИОНЕ РЕСПУБЛИКИ КАЗАХСТАН

Аннотация

В статье приведены результаты исследования ретроспективного анализа эпизоотической ситуации по бешенству с учетом визуализации неблагополучных пунктов и зонирования территории в юго-западном регионе Республики Казахстан

Ключевые слова: бешенство, рабический вирус, зонирование, визуализация, эпизоотическая ситуация.

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ИЗУЧЕНИЕ БИОЛОГИЧЕСКИХ СВОЙСТВ НЕКОТОРЫХ ШТАММОВ ВИРУСА БОЛЕЗНИ НЬЮКАСЛА

Аннотация

В данной статье представлены результаты изучения биологических свойств двух штаммов вируса болезни Ньюкасла, изолированных от кур содержащегося в частном подворье и одного вируса изолированных от павшего голубя на террритории г. Алматы.

Ключевые слова: вирус болезни Ньюкасла, парамиксовирус птиц типа1, генотип.

Введение

Ньюкаслская болезнь – это вирусное высококонтагиозное заболевание многих видов сельскохозяйственных и диких видов птицы, имеющее тенденцию к панзоотическому распространению и сопровождающееся различными формами течения.

Возбудитель заболевания – вирус ньюкаслской болезни (ВБН, парамиксовирус птиц типа 1) в соответствии с современной классификацией является таксоном рода Avulavirus, подсемейства Paramyxovirinae, семейства Paramyxoviridae, порядка Mononegavirales [1].

По данным Б.Т.Стегния, А.П.Гериловича, Д.В.Музыки [2] изоляты вируса НБ, выделенные на территории Украины в период с 1993 по 2007 гг. в виде экстраэмбриональной жидкости от инфицированных куриных эмбрионов: NDV/Dnipro/2007, NDV/WB/19/2006, NDV/WB/22/2007, NDV/Muskovy duck/2005, из этих выделенных изолятов Muskovy duck/Ukraine/2005 показал 0,7% отличий по анализируемой областив сравнении с другими украинскими изолятами и оказался наиболее близким к Бельгийскому изоляту (Belgium, выделен в Бельгии в 2004 г.).