

**ОШ МАМЛЕКЕТТИК УНИВЕРСИТЕТИНИН ЖАРЧЫСЫ. АЙЫЛ ЧАРБА:
АГРОНОМИЯ, ВЕТЕРИНАРИЯ ЖАНА ЗООТЕХНИЯ**

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**ЭФФЕКТИВНОСТЬ ЛЕЧЕНИЯ ПИРОПЛАЗМОЗА ЛОШАДЕЙ
ЖЫЛКЫ ПИРОПЛАЗМОЗУН ДАРЫЛООНУН ЭФФЕКТИВДҮҮЛҮГҮ
EFFECTIVENESS OF TREATMENT OF EQUINE PIROPLASMOSIS**

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EFFECTIVENESS OF TREATMENT OF EQUINE PIROPLASMOSIS

Abstract

Pyroplasmosis is a dangerous acute invasive disease of horses accompanied by a sharp rise in temperature to 41°C, anemia, jaundice of mucous membranes, disorders of the cardiovascular system and gastrointestinal tract, albuminuria combined with oliguria and urobilinuria. The disease is registered in many countries of the world and occurs in most districts and regions of the Russian Federation. In the Republic of Bashkortostan piroplasmosis is registered in the form of single cases of the disease, mainly during the seasonal activity of tick vectors. The main consequences of equine piroplasmosis include: decreased performance, deterioration of performance and endurance, weakness and dysfunction of organs and systems, a long period of rehabilitation and a high risk of possible complications. The proposed method of treatment allows to reduce the time of the animal's over-disease and to avoid complications, but requires significant material costs. At the same time, preventive measures provide protection of the animal for 4-6 weeks and help to avoid the disease of the animal for the period of training and testing.

Keywords: horses, piroplasmosis, treatment, prevention, Piro-stop, anemia.

ЖЫЛКЫ ПИРОПЛАЗМОЗУН ДАРЫЛООНУН ЭФФЕКТИВДҮҮЛҮГҮ

Аннотация

Пироплазмоз - бул жылкылардын оор жана курч мүнөздө өтүүчү инвазиялык оорусу, анын белгилери катуу температуранын 41°C чейин көтөрүлүшү, анемия, шишиктердин саргайышы, жүрөк-кан тамыр системасынын жана ашказан-ичеги жолдорунун иштешинин бузулушу, альбуминурия көрүнүштөрү менен бирге олигурия жана уробилинурия менен коштолот. Бул оору дүйнөнүн көптөгөн өлкөлөрүндө катталган жана Россия Федерациясынын көпчүлүк райондорунда жана аймактарында кездешет. Башкортостан Республикасында пироплазмоз оорусу клещтердин сезондук активдүүлүгүнүн мезгилинде, негизинен, жеке оору учурлары катары катталат. Атардын пироплазмозунун негизги кесепеттери: иштөө кубатынын төмөндөшү, чыдамкайлык жана жылдамдык көрсөткүчтөрүнүн начарлашы, органдардын жана системалардын иштешинин бузулушу, узак реабилитация мезгили жана мүмкүн болгон осложнениялардын жогорку коркунучу. Сунушталган дарылоо ыкмасы жаныбардын оорудан айыгуу убактысын кыскартып, осложнениялардын пайда болушунан сактайт, бирок ал чоң материалдык чыгымдарды талап кылат. Ошол эле учурда, алдын алуу чаралары жаныбарды 4-6 жума бою коргоп, машыгуу жана сыноо мезгилинде оорудан сактайт.

Ачкыч сөздөр: жылкы, пироплазмоз, дарылоо, алдын алуу, Пиро-стоп, аз кандуулук.

ЭФФЕКТИВНОСТЬ ЛЕЧЕНИЯ ПИРОПЛАЗМОЗА ЛОШАДЕЙ

Аннотация

Пироплазмоз – это опасное остропротекающее инвазионное заболевание лошадей, сопровождающееся резким повышением температуры до 41°C, анемией, желтушностью слизистых оболочек, нарушениями в работе сердечно-сосудистой системы и желудочно-кишечного тракта, явлениями альбуминурии в сочетании с олигурией и уробилинурией. Болезнь зарегистрирована во многих странах мира и встречается в большинстве районов и краев Российской Федерации. В Республике Башкортостан пироплазмоз регистрируется в виде единичных случаев заболевания, преимущественно в период сезонной активности клещей-переносчиков. К основным последствиям пироплазмоза лошадей относятся: снижение работоспособности, ухудшение показателей резвости и выносливости, слабость и нарушения работы органов и систем, длительный период реабилитации и высокий риск возможных осложнений. Предложенный метод лечения позволяет сократить время переболевания животного и избежать возникновения осложнений, но требует существенных материальных затрат. В тоже время профилактические мероприятия обеспечивают защиту животного на 4-6 недель и помогают избежать заболевания животного на период тренинга и испытаний.

Ключевые слова: лошади, пироплазмоз, лечение, профилактика, Пиро-стоп, анемия.

Introduction.

The history of horse breeding in the Republic of Bashkortostan is closely connected with the development of the region. Horses have firmly entered our life and for a long time served both as a means of transportation and as a pulling force in agricultural work. Nowadays, in addition to the already favorite equestrian competitions and tests of horses of cultivated breeds, amateur tests of the Bashkir breed of horses at the equestrian international tournament «Terra Bashkiria» are becoming more and more popular.

Competing requires the horse to be constantly moving around, which increases the risk of contracting infectious and invasive diseases. One of the most dangerous diseases of horses is piroplasmosis. Piroplasmosis is an acute invasive disease of horses accompanied by a sharp rise in temperature to 41°C, anemia, jaundice of mucous membranes, disorders of the cardiovascular system and gastrointestinal tract, albuminuria combined with oliguria and urobilinuria [9, 11, 13, 14]. The disease is registered in many countries of the world and occurs in most districts and regions of the Russian Federation [1, 4, 5, 6, 8, 10, 12]. Horses sick with piroplasmosis lose efficiency and muscle mass, as a result of a long period of rehabilitation, the animal suspends sports activity for a long time, and sometimes completely stops due to complications that arose during the disease. In turn, this leads to the fact that overinfected horses do not have time to participate in age category trials [11].

Thus, piroplasmosis, even in the case of a positive outcome of the disease, prevents the identification of the best representative of the breed, the improvement of breed characteristics, and also retards the development of equestrian sport in the region. Therefore, there is a need for more careful monitoring of compliance with preventive measures, as well as improvement of existing treatment schemes [2, 3, 7].

In this regard, the aim of the research was to study the effectiveness of treatment methods for equine piroplasmosis.

Materials and methods of research.

To conduct the study we analyzed the data on cases of piroplasmosis infection of horses in the territory of the Republic of Bashkortostan.

The diagnosis of piroplasmosis was made on the basis of collected anamnesis, epizootology of the area where the horse came from, clinical manifestation of the disease and data of laboratory tests.

Six head of purebred horses were selected for the study, as they are the most susceptible to piroplasmosis.

The first group included horses with obvious clinical signs of piroplasmosis (3 horses). The second group included clinically healthy horses newly brought from different regions of the republic (3 horses).

The first group of animals was subjected to complex treatment aimed at destruction of the causative agent of invasion and control of disease symptoms. As specific treatment modern antiparasitic preparations with good efficacy against piroplasmes are used.

The following types of drugs were used as symptomatic treatment:

- antispasmodics, for gastrointestinal tract disorders, most often manifested as colic and flatulence of varying degrees of severity;

- hepatoprotectors as a supportive agent and to reduce the hepatotoxic effect of drugs, which, in turn, reduces the likelihood of complications against the background of reduced performance of the organ or its complete dysfunction;

- complex preparations containing microelements and B vitamins were used to support organs and systems, as well as to increase the resistance of the organism and prevent secondary infection;

- to prevent the occurrence of cardiovascular system disorders, intravenous administration of drugs aimed at improving metabolism, as well as performing the function of anti-inflammatory and hemostatic agents was prescribed.

The second group of animals at admission were subjected to a thorough examination and check of veterinary documentation, from which it was concluded that the horses were clinically healthy. Horses from this group carried full loads throughout the duration of the study according to the approved training regimen. The complete treatment regimen is shown in table 1.

Table 1. *Scheme of treatment and prophylaxis of equine piroplasmosis*

| Group | Number of animals | Name of drug | Method of application | Dose |
|--|-------------------|----------------------|--|---|
| Group 1 (treatment of piroplasmosis) | 3 | Pyro-Stop | Intramuscular, once | 2,0 ml per 100 kg of animal weight |
| | | Baralgin | Intramuscularly, for digestive disorders | 15 ml, according to the instructions |
| | | Hepatodect | Intramuscularly, 5 days course | 50 ml, according to the instructions for the preparation |
| | | Hemobalance | Intramuscularly, every 48 hours for 7 days | 1,0 ml per 45 kg of animal weight |
| | | Calcium chloride 10% | Intravenously, slowly, once | 50 - 100 ml according to the results of the animal's condition assessment |
| Group 2 (prevention of piroplasmosis) | 3 | Pyro-Stop | Intramuscular, once | 2,0 ml per 100 kg of animal weight |

Daily monitoring of the condition of horses of both groups was established for timely detection of changes in the condition of animals.

Research results and discussion. The center of competence of the Republic of Bashkortostan on horse breeding and equestrian sport «Akbulat» is located in the south-eastern part of the city of Ufa on an elevation in relative proximity to the forest and the Belaya River. The city of Ufa is located in the northern forest-steppe subzone of the temperate zone with a fairly humid climate. Summer in this area is warm, winter - long, moderately cold. The air temperature rises mainly in April and remains until September-October. These climatic conditions ensure increased activity of arthropods - vectors of piroplasmosis from the second half of April to the end of May and from early September to October. These periods are the most favorable climatic conditions for ticks and in these months most of the importation of horses for competitions and tests on the territory of the racetrack is carried out. According to the data of the register of sick animals in these

periods there is an increase in the incidence of piroplasmosis in horses, which is associated with frequent transportation of horses to tests and competitions. This is explained by the fact that horses on the territory of the racetrack are kept in stables with daily alternating walking in levadas and do not have access to pastures with ticks. However, horses are imported from all districts of the Republic of Bashkortostan, where they are kept in different conditions.

In the Republic of Bashkortostan there are latent and enzootic type areas of equine piroplasmosis.

The latent type districts include: Baymaksy, Meleuzovsky, Khaibullinsky and Uchalinsky. In these districts a high degree of piroplasmosis carriage is registered, up to 37% in combination with low parasitemia - about 0,04-0,07%. In the districts of enzootic type, which include Birsky, Krasnokamsky and Yanaulsky annually register single cases of clinical manifestation of the disease with parasitemia from 1 to 1,5%. The other regions of the Republic of Bashkortostan belong to the threatened zone, as not only the import and export of susceptible animals are kept and carried out here, but also the presence of tick vectors of the disease is registered. A not insignificant factor is that when transporting horses from distant areas, horses are periodically walked to minimize stress and reduce the risk of injury to the horse in the horse carriage. Thus, susceptible animals may be infected during transportation.

As an additional study, data on the incidence of equine piroplasmosis on the territory of the Akbuzat hippodrome for the last five years were studied. When analyzing the data, a tendency of disease incidence growth was revealed in case of compliance with all veterinary and sanitary measures, as well as careful control of imported animals. This dynamics may be related to the importation of horses of local Bashkir breed to the territory of the complex for participation in the equestrian tournament «Terra Bashkiria». Only clinically healthy horses with all necessary accompanying veterinary documents are allowed to participate in the competitions. However, imported Bashkir horses are less susceptible to such disease as piroplasmosis. The clinical picture of the disease is less pronounced or asymptomatic, which is why cases of over-disease may go unnoticed by horse owners. This is particularly common when horses are kept in herds over large areas. After natural transmission, horses are carriers of piroplasmosis for a long time.

Finally, the main reason for increased morbidity in the conditions of the racetrack is the lack of preventive measures during the seasonal activity of ticks. Veterinary preparations aimed at the prevention of blood-parasitic diseases provide protection of the animal for a period of 4-6 weeks, so treatment twice a year (spring, fall) is not enough to ensure the protection of the animal. It should also be taken into account that prophylactic deworming of animals is carried out, as a rule, in February and October. Therefore, during the period of increased activity of ticks, the protection of animals against them is weakened, which increases the risk of infection.

Thus, the lack of regular preventive measures against blood-parasitic diseases, seasonal increase in tick activity, as well as the importation and keeping of carrier animals on the territory of the racetrack leads to an increase in the incidence of disease in horses of cultivated breeds.

When a horse becomes ill with piroplasmosis, it is relieved of its workload for the period of treatment and rehabilitation, and possible complications may prevent it from returning to its normal pace of work soon. Because of which horses stop taking part in age category trials, at the same time their potential breeding value is reduced.

It should also be taken into account that when the disease is severe, the horse's cardiovascular system and gastrointestinal tract are impaired, avitaminosis develops and blood quality deteriorates, so they are often unable to fully regain their previous performance and are completely withdrawn from trials and are not used in breeding work.

Also, if a horse has fully recovered from an illness, but has not competed for more than 3 months, he must qualify again, regardless of his performance before the illness. Because of this she may also miss the trials of her age category. Such norms allow the most promising and valuable animals to be selected among the horses for further improvement of breed characteristics.

Thus, due to piroplasmosis infection, potentially valuable horses are culled from sporting activities and breeding work. This, in turn, hinders the development of horse breeding and equestrian sport in the region.

During the research we found out that the costs of piroplasmosis prophylaxis, which includes a single injection of antiparasitic drug to the second group of horses are equal to 457 rubles, while the costs of treatment of diseased animals from the first group are 13 294 rubles.

An important aspect of comparing the organization of treatment and prophylactic measures is their economic component. Since in many respects the choice of treatment or prophylaxis scheme depends not only on the effectiveness of the measures taken, but also on the monetary costs incurred.

It is worth noting that the study was conducted on horses with detected piroplasmosis at early stages, which allowed to start treatment in time and avoid possible complications. Otherwise, the costs of treatment measures could have been significantly higher.

At the same time, the use of antiparasitic drugs effective against piroplasmas allows not only to prevent infection and development of the disease, but also to eliminate possible carriage of the pathogen.

Conclusions

1. On the basis of the conducted research it was concluded that the incidence of horse piroplasmosis is associated with the seasonal activity of ticks and the beginning of the season, when a large number of horses from different regions of the Republic of Bashkortostan arrive at the racetrack. Also the support of amateur trials of local breeds of horses, which are often vectors of the disease, has an impact.

2. The main consequences of equine piroplasmosis include: decreased performance, deterioration of sharpness and endurance, weakness and dysfunction of organs and systems, a long period of rehabilitation and a high risk of possible complications. All this leads to a prolonged suspension of sport horses from competitions or a complete cessation of testing of the infected animals, which, in turn, hinders breeding work.

3. The proposed method of treatment allows to reduce the time of over-disease of an animal and avoid the occurrence of complications, but it requires significant material costs. At the same time, preventive measures provide protection of the animal for 4-6 weeks and help to avoid the disease of the animal for the period of training and testing.

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