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METHODS OF THERAPY AND PROPHYLAXIS OF PYROPLASMOSIS AND TAYLERIOSIS OF LARGE CATTLE

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ABSTRACT

In treating Piropilazmidoz disease of cattle it was defined the efficiency of uzbicarb applied per 3 mg / kg of cow's body weight. Effectiveness of the policarb preparation produced in order to prevent from theileriosis made 15 days, it was received 7.6 sums of economic benefits for the spent 1 sum. A large amount of work has been done to develop methods of struggle against ixodic ticks that are introduced into production. Simultaneously, there were conducted studies pyroplasmidosis causative agents of cattle and the search for means of struggle and prevention in these diseases.

KEYWORDS: *Theileriosis, Pyroplasmosis, Prophylaxis, Diamidin, Uzbicarb, Polycarb, Berenil, Infection, Azidin.*

INTRODUCTION

Actuality

Among the invasive diseases pyroplasmidosis, cattle theileriosis are the most insidious diseases, the causative agents of which are transmitted by the animals to certain species of pasture blood-sucking ticks. The study of these diseases was started from the first days of the organization of the institute. At the same time, the great attention of Native scientists was focused on the study of the fauna of ixodic ticks in the republic, the identification of ticks of carriers of pathogens of pyroplasmidosis of animals and the study of fauna and biology. A large amount of work has been done to develop methods of struggle against ixodic ticks that are introduced into production. Simultaneously, there were conducted studies pyroplasmidosis causative agents of cattle and the search for means of struggle and prevention in these diseases. Along with this, measures of struggle, diagnostics, therapy, special and chemical prophylaxis, control of the epizootic state of pyroplasmidosis were also developed and improved. Taking into consideration that such work is needed and necessary for the development of livestock, many domestic scientists have developed various ways and means against pyroplasmidosis of cattle. So, in 1936-1941 and 1946-1955 years, Head of the laboratory of protozoology, Professor A.V.Bogoroditsky established the therapeutic and prophylactic properties of the preparations of ihtargan, albargen, tripanblau, hemosporidin in pyroplasmidosis of cattle and introduced them into veterinary practice.

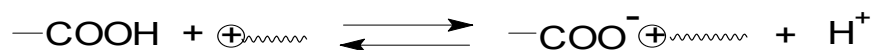
P.A.Lavrentev in 1956-1958 years studied the morphology, biology, immunobiological properties of the causative agents of pyroplasmidosis, developed a number of means and ways to struggle against these diseases.

In the period 1959-1965 years P.N.Lee and I.Kh.Rasulov approved the therapeutic and prophylactic properties of the drugs berenil, azidine, which they introduced into the production practice. This is a huge contribution of scientists, concerning the protection of animals from pyroplasmidosis.

The scientific activity of the staff of the laboratory of protozoology under the guidance of Professor T.Kh.Rakhimov (1969-1993) was directed to the study of epizootology of protozoan diseases of cattle, biology, morphology of pathogens and the development of means and methods of treatment. Based on the results of the research, methods of treatment with diamidin, ABP (acrichin + bigumal + plasmacid), delagilum, which have been introduced into veterinary practice, have been developed. After the independence of the Republic, all these developments and means lost their importance. Therefore, the need arose to create domestic antiprotozoal drugs in the Republic of Uzbekistan.

Scientists of the Faculty of Chemistry of the National University synthesized the antiprotozoal drug Uzbicarb (patent for invention of the Republic of Uzbekistan No. 1AP03933). Uzbicarb is an analogue of diamidin, which was previously produced in the Russian Federation, and then synthesized in our Republic.

Along with this, preparations of polyamidine, and then polycarb have been developed which have prophylactic properties in pyroplasmidosis and teileriosis. The polymeric complex of polycarb (this is a conditional name) is a 4% solution of uzbicarb with an apple pectin:



The antiprotozoal preparation of polycarb leads to deformation of the parasite, disrupts the metabolism, stops the synthesis of DNA. As a result, the life cycle of the parasite is disrupted.

The purpose of the research

The study of the therapeutic and prophylactic properties of uezbicarb and polycarb in pyroplasmiasis and theileriosis of cattle.

Tasks:

1. Study of the medicinal properties of uezbicarb in pyroplasmiasis and theileriosis of large stock.
2. Study of the prophylactic properties of polycarb in pyroplasmiasis and theileriosis of cattle.
3. Conduction of production tests of polycarb.
4. Determination of economic efficiency.

Materials and methods of research

Scientific-Research works on the study of the therapeutic properties of uezbicarb in pyroplasmiasis was performed both in experimental and in production conditions. Under experimental conditions, the animals were infected with blood from spontaneously sick animals.

Before and during the experiments, the experimental animals underwent clinical and parasitological examinations. During the clinical examination, the body temperature, pulse and respiration rate were measured, the condition of visible mucous membranes, the presence of bloody urine, and the condition of the superficial lymph nodes were observed. For the detection of blood parasites, smears were prepared from peripheral blood and the degree of erythrocyte involvement by parasites was determined. The smears were fixed with ethyl alcohol and stained using Romanovsky's method by Azur-Eosin.

Results of the research

The study of the therapeutic efficiency of uezbicarb in pyroplasmiasis under experimental conditions was carried out on 6 heads of experimental animals aged 10-12 months. The animals were infected with the invasive blood of pyroplasmiasis.

Every day a clinical and parasitological study was carried out in the result of which on the 8th day after infection in the experimental animals appeared clinical signs of pyroplasmiasis and parasitemia in the blood. After that, the experimental animals were divided into 2 groups in each of 3 animals.

1-group was treated with uezbicarb in a dose of 2 mg / kg of animals, and the second 3 mg / kg.

As a result, clinical and parasitological studies established that uezbicarb at a dose of 2 mg / kg of animal mass was not very effective, and at that time the use of a dose of 3 mg / kg was effective.

Production trials of uezbicarb were carried out on 14 spontaneously deceased with pyroplasmiasis animals in the Umed-B farm of the Djizak region. Before treatment, the body temperature of animals was 40.4-40.6 °C, the pulse and respiration rates were frequent, hemoglobinuria and

depression were observed. In smears taken from the transfusion blood, 2-3% of erythrocyte involvement was detected by pyroplasm. Patients were subcutaneously injected with uezbicarb at a dose of 3 mg / kg. 24 hours after treatment, the condition of animals improved, body temperature decreased to physiological norm, and in smears taken from peripheral blood, pyroplasm were not detected.

Consequently, the use of uezbicarb in a dose of 3 mg / kg was accompanied by a pronounced therapeutic efficiency in pyroplasmosis of large cattle. Comparative studies of the therapeutic efficiency of uezbicarb and the combination with buprolex in teileriosis were performed in 3 groups of animals in each of 3 heads. The animals were infected with blood taken from a spontaneously diseased animal body, subcutaneously in a dose of 10 ml.

After the appearing of clinical signs and parasitemia in the blood, the first group of animals was treated with uezbicarb, a second with buprolex at a dose of 5.0 ml per 100 kg of live weight of animals and a third with buprolex in combination with uezbicarb.

As a result of clinical and parasitological studies, it was found that the general condition did not change for the first group of animals in 2-3 days after the treatment, in the second group slightly improved, and in the third group the general condition improved, the parasitemia in the blood and body temperatures decreased to 40, 2 °C, there appeared an appetite and a chewing.

Therefore, uezbicarb in the applied dose did not give a positive effect, buprolex gave weak and buprolex in combination with uezbicarb gave expressed therapeutic efficiency (Table-1).

TABLE-1 A STUDY OF THE COMPARATIVE THERAPEUTIC EFFICIENCY OF UZBICARB IN COMBINATION WITH BUPROLEX

Group of animals	Number of animals	Method of treatment	Clinical condition and parasitemia on the first day of treatment	Clinical condition and parasitemia on the third day of treatment	Results
1	3	Uzbicarb in a dose of 3 mg/kg	General condition of the depressed, T ⁰ 40,6-41,0 parasite reaction 6-8%	The general condition is depressed, T ⁰ 40,6-41,0 parasitic reactions 6-8%	There is no curative effectiveness
2	3	Buprollex in a dose of 5.0ml per 100 kg of live weight of animals	General condition of the depressed, T ⁰ 40,6-41,0 parasite reaction 6-8%	The general condition slightly improved, T ⁰ 40.6-40.7 parasitic reaction 5-6%	Therapeutic efficiency is weak
3	3	Buprolex at a dose of 5.0 ml per 100 kg and Uzbicarb at a dose of 3 mg / kg of live weight of animals	The general condition is depressed, T ⁰ 40,6-41,0 parasitic reactions 6-8%	The general condition improved, T ⁰ decreased to 40.2 and the parasitic response to 3%	Therapeutic efficiency is expressed

Experiments on studying the prophylactic properties of polycarb in experimental pyroplasmosis and theilerosis were carried out in 2 groups of animals in each of 3 heads. Experimental animals of both groups were injected subcutaneously with 5.0 ml of polycarb per 100 kg of live weight of animals. Then, after 15 days, the first group was infected with pyroplasmosis and 2nd with theilerosis. Within 30 days, daily clinical and parasitological studies were performed.

As a result of the conducted studies, it was established that the polycarb when modified based on uzbicarb with apple pectin has prophylactic efficiency for pyroplasmosis and theilerosis during 15 days (Table-2)

TABLE 2 STUDY OF PROPHYLACTIC PROPERTIES OF POLYCARB IN PYROPLASMOSIS AND THEILEROSIS

Group of animals	Number of animals	Method of prevention	Ways of infection	Results
1	3	Subcutaneously injected polycarb in a dose of 5.0 ml per 100 kg of live weight of animals	Infected with pyroplasmosis	Within 15 days after infection, the clinical and parasitic reactions of pyroplasmosis were not detected
2	3	Subcutaneously injected polycarb in a dose of 5.0 ml per 100 kg of live weight of animals	Infected with Theilerosis	Within 30 days after infection, the clinical and parasitic reactions of the theilerosis behind were not manifested

Thus, the preventive efficiency of polycarb in pyroplasmosis and theilerosis is up to 15 days.

Consequently, the application of polycarb with the preventive purpose of pyroplasmosis and theilerosis is advisable.

Experiments on the production test of polycarb were carried out in the Agroistiklol farm of the Kamashinsky district of the Kashkadarya region on 284 adult heads and 150 head of young animals.

The drug was applied every 15 days to 5.0 ml per 100 kg of live weight of animals. As a control, Dungsanchikul farms were used on which no drug was used (Table-3).

TABLE-3 RESULTS OF THE APPLICATION OF POLYCARB IN PRODUCTION CONDITIONS

Group	Economy	Heads	Epidemiologic state in 2015	Results of applying polycarb in the current year					
				April	May	June	July	August	September

Experimental.	Agrostiklol	434	Brought in February of 2016 from Australia	-	-	-	2 heads fell ill with teilerosis	-	-
Control	Dunganchukul	140	Twelve headaches were caused by the disease, pyroplasmosis of 2 heads	2 heads fell ill with teilerosis	2 heads fell ill with Piroplasmosis	3 heads fell ill with teilerosis	5 heads fell ill with teilerosis	1 head fell ill with teilerosis	-

As a result of the production experience, it has been established that the polycarb used in every 15 days in active life of the tick mites has a pronounced preventive effect in pyroplasmosis and the theilerosis of cattle.

CONCLUSIONS:

- the application of uezbicarb in a dose of 3 mg / kg has therapeutic efficiency in pyroplasmosis, and does not possess in the case of theilerosis;
- a one-time application of buprolix in a dose of 5.0 ml per 100 kg of live weight of animals has weak therapeutic effectiveness;
- the use of uezbicarb in a dose of 3 mg / kg and the combination of buprolix in a dose of 5.0 ml per 100 kg of live weight of animals has high therapeutic efficiency;
- the use of polycarb in a dose of 5.0 ml per 100 kg of live weight of animals prevents pyroplasmosis and theilerosis during 15 days;
- 99% of efficiency was obtained from the use of polycarb in production experiments and 7.6 sums of economic benefit was received for the spent 1 sum.

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