Piroplasmidozes of Cattle, Modern Methods of Therapy and Prophylaxis

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Abstract
In the article there are adduced the results of the study of medical preparations of local production for treatment of protozoal diseases of cattle. There is as certained that the native preparations Uzbicarb and Polyamidine-P are effective means for treatment and prophylaxis of piroplasmose and theylerios of animals.

Keywords: piroplasmidozes, theyleriose, piroplasmose, prophylaxis, polyamidin-P, uzbicarb, Hiayalotta detritum, H.anatolicum, Boofilus calcarius.

INTRODUCTION
On stock-breeding farms of the Republic of Uzbekistan there are observed considerable losses in the connection with cattle-plague and reducing of the productivity of animals from a number of invasional diseases. Among invasional diseases piroplasmidozes (piroplasmose, babesios, theyleriosis) of cattle are the most treacherous diseases, the agents of them are spread by definite types of pasture bloodsucking ticks. That is why it is not accidental, that the study of these diseases was started from the very first days of organization of the institute. Thus, great attention of our country’s scientists was concentrated on the study of fauna of ixode ticks, in the Republic, revealing the ticks-carriers agents of piroplasmidozes of animals and study of fauna and biology.

A large amount of work was carried out on the elaboration of methods of struggle with ixode ticks and inculcated into production. At the same time, there was continued the study of agents of piroplasmidozes of cattle and producing of effective struggle and prophylaxis of these diseases and inculcated into production.

At the same time, there was carried out the elaboration and improvement of struggle measures, means of diagnostics, therapy and specific and chemical prophylaxis, and also the control after epizootical state of piroplasmidozes.

Taking into consideration that similar works are necessary for the development of stock-breeding, most of our country's scientists elaborated different ways and means against piroplasmodozes of cattle.

The scientific activity of the staff of the laboratory of protozoology under supervision of Professor T.H. Rakhimov (1969-1993) was directed to the study of epizootological situation of protozoal diseases of cattle, biology, morphology of agents and elaboration of means and methods of treatment. As a result there are elaborated the ways of treatment with diamidine, ABP (acrihine + bigumal+ plasmocide), delagile and there were inculcated into veterinary practice. After acquiring the independence of the Republic of Uzbekistan all these elaborated methods and means were stopped to be applied in connection with foreign production of these preparations. In this connection, during the years of independence of the Republic of Uzbekistan (1998) there appeared the necessity of creation of native antiprotozoidal preparations in our Republic.

As a result, the scientific workers of chemical faculty of Nation University synthesized antiprotozoal preparation Uzbicarb and subsequently there was obtained the patent for this invention № IAP 03933. Uzbicarb is the analogue of diamidine, which was earlier produced by Russian Federation.

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At the same time there was produced the preparation polyamidine-P which also obtained the patent for invention for the Republic of Uzbekistan N IAP 04607.

Polymeric complex polyamidine is 4% solution of Uzbicarb on citrus pectin

- COOH + (+) \:
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\:
- COO’ (+) \:
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\: \: + H⁺

It was symbolically given the name Polyamidine-P.

The Aim

The aim of our work is the study of treating-prophylactic properties of Uzbicarb and polyamidine-P at piroplasmose and theylerios of cattle.

Tasks

1. The study of medical properties of Uzbicarb at piroplasmose and theylerios of cattle.
2. The study of preventive properties of polyamidine-P at piroplasmose and theylerios of cattle.

MATERIALS AND METHODS OF RESEARCHES

The scientific research work on the study of medical properties of Uzbicarb at piroplasmose was conducted both under experimental and production conditions. Animals were infected with blood of spontaneously sick animals.

Before the beginning and in the course of experiments the experimental animals were subjected to clinical and parasitological researches. In process of clinical researches they took the temperature of the body, pulse rate, respiration, the observed the state of visible mucous capsules, bloody urine and surface lymphatic knots. For revealing the blood parasites they prepared smears from peripheral blood and determined the degree of affecting of erythrocytes with parasites. The smears were fixed with ethyl spirit and painted by method of Romanovsky with azur-soosine.

The Results of Researches

The study of medical effectiveness of Uzbicarb at piroplasmose under experimental conditions was carried out on 9 head and under production conditions on 35 head of spontaneously sick animals. Before the beginning of the treatment the body temperature of animals comprised 40,4-40,6° C, the pulse rate and respiration was high, there was observed the haemoglobinuria, the state was depressed. Animals were treated with Uzbicarb in the doze of 3 mg/kg. In 24 hours after treatment the state of animals improved, body temperature fell down up to physiological norm. Piroplasm in the smears taken from peripheral blood was not revealed. During the following days their state remained unchanged. Hence, as a result of application of Uzbicarb in the doze of 3 mg/kg there was observed the pronounced medical effectiveness at piraoplasmose of cattle.

The scientific research work on study of medical effectiveness of Uzbicarb in combination with antimalarial preparation-delagil (chlorine diphosphate) was carried out on 6 experimentally infected and on 31 spontaneously sick with theylerios animals. Experimental animals were infected with 10 ml of blood taken from hypodermic of spontaneously sick with theylerios animals. By the 16th-17th days after infecting there was observed the raise of temperature of animals up to 41,6-41,8 ° C, the depressed state, the increasing of surface lymphatic knots, anemia of visible smear capsules. In the smears, taken from peripheral blood, there was observed 13-17% of affected erythrocytes with theylerios.

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During the experiments on the study of medical effectiveness both under experimental and production conditions they applied Uzbicarb in the doze of 7,5 mg/kg during 1-3 days, and delagile during 6 days in the doze of 6 tablets (1,5 g) per 100 kg of living mass of animals.

On the 5th-6th days of treatment the total state of all treated animals got better up to physiological norm. In the smears, taken from the peripheral blood there was observed the reducing of parasites up to minimum guaranties (1-2%) of affection of erythrocytes.

Hence, the application of Uzbicarb during 1-3 days in the doze of 7, 5 mg/kg and delagile in the doze 1, 5 g during 6 days rendered high medical effectiveness.
Experiments on the study the preventive properties of polyamidine-P at the experimental piroplasmose were carried out with 6 heads and at theylerios – with 6 head of animals.

Animals were injected with polymidine in the doze of 5 ml per 100 kg of living mass. Then in 15 days the 1st group was infected with piroplasmose and the 2nd one with theylerios.

Clinical and parasitological researches were conducted with experimental animals. During clinical researches there was observed the total state of animals, there was taken the temperature of body, pulse and respiration, and also there was controlled after the state of the surface of lymphatic knots. During parasitological researches there were taken smears from peripheral blood and looked through microscope to the presence of parasites.

The results of conducted scientific-research works have ascertained that during 21 days there was not revealed the signs of theylerios and parasitemia in blood.

Polyamidine-P was used in the doze of 5 ml per 100 kg of living mass of animals every 15 days during the active periods of life of ticks-carriers.

The results of conducted researches have given 98% of effectiveness which shows high result.

CONCLUSION
1. The domestic preparation Uzbicarb synthesized by National University of the Republic of Uzbekistan has medical effectiveness at piroplasmose in the doze of 3, 0mg/kg.
2. The application of Uzbicarb at theylerios during 1-3 days in the doze of 7,5 mg/kg and the delagile during 6 days in the doze of 1, 5g per 100kg of living mass of animals has rendered high medical effectiveness.
3. The domestic preparation polyamidine-P has preventive effectiveness at piroplasmose and theylerios at application for every 15 days in the doze of 0, 5 ml per 100kg of living mass of animals during active periods of life of ticks.

REFERENCES