

PREVENTION OF NECROBACTERIOSIS IN HUGE HORNS ANIMALS

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Abstract

Necrobacteriosis is widespread among the huge horns animals in the republic. The causative agents of *Fusobacterium necroforum* necrobacteriosis are usually harmless microorganisms which live in the usual case, in the gastrointestinal tract of ruminant animals. It is a violation of the basic calcium metabolism in the body, which turns them into the causative agents of severe pathologies of the bone tissue, muscles and internal organs of the animal. The starting mechanism of necrobacteriosis occurs after the loss of the skin's natural impermeability. This happens during mechanical damage to the skin and nails of animals, as well as in violation of mineral and vitamin metabolism in the body.

At this stage, factororamill is defined as an infectious disease, necrobacteriosis requires a non-standard approach to fight against brucellosis, tuberculosis, leukemia and a number of other diseases. At first glance, vaccinating all farm animals with quality vaccines seems to be the solution/ OR: At the first glance, the solution seems to be vaccinating all farm animals with quality vaccines. However, the perpetrators of these diseases are observed living inside the animal`s body. The animal's immune system reacts weakly to the presence of the causative agent of this disease - in the process of evolution, the pathogen is genetically close to the host's body, and in this case, the vaccine does not give/show/come with the desired effect. Only when a stressful situation arises - low-quality diet, care, delivery, transportation, etc. When the immune balance between the host organism and the pathogen is disturbed, the clinical signs of the disease manifest themselves. Therefore, the prevention of diseases from this group should be focused on prevention, elimination of stressful situations and the identification of latent carriers of the pathogen in animals. An example is the proper prevention and even complete prevention of the spread of necrobacteriosis in animals contracted/contaminated with factorial infectious disease through proper nutrition and veterinary care.

During the epizootiological, clinical and pathoanatomical examinations carried out on farms, the spontaneous occurrence of these diseases in huge horned animals was studied by examining the materials taken from the nails suspected of necrobacteriosis. The pathogenicity of cultures of *Fusobacterium necrophorum* isolated as a result of bacteriological examination was determined on various laboratory animals, rabbits and white mice. The sensitivity of these agents to drugs was determined and their effectiveness was studied in the treatment of necrobacteriosis in laboratory experiments.

Keywords: huge horns animals, disease, treatment, necrobacteriosis, nutrient, environment.

Introduction

It is obvious that the state pays more and more attention to the development of agriculture in Azerbaijan. Undoubtedly, the success achieved is based on consistent and well-thought-out policy, courageous and selfless activity. As a result of successful agrarian policy, large-scale work has been carried out in recent years to accelerate the development of agriculture in our country, and ongoing projects give reason to believe that in the near future our country will become a major exporter in the region.

There is new farmer pastoral farming in the country. However, most of them do not meet the requirements for pastoral farming, or rather, there are no bio-protection, sanitary checkpoints, veterinary laboratories and so on. Therefore, the import of infectious agents from these farms and their spread to the external environment is not prevented. Therefore, a number of infectious diseases, including necrobacteriosis of cattle, spread and cause serious damage to pastoral farming (Alasgarov, 2006; Aliyev et al., 2010; Aliyev et al., 2013; Gadimov et al., 1990).

Drugs are used for the treatment and prevention of this disease blindly, that is applied without studying the susceptibility of pathogens to them, which in most cases does not work.

Of course, it is important to apply preventive measures against infectious diseases and prevent diseases.

However, in the event of a disease, the correct diagnosis of the disease, in short, the identification of the etiological factor, ensures the realization of the possibility of proper treatment of the disease in the future (Alasgarov, 2006; Aliyev et al., 2013).

In view of the above, we aimed to study the effectiveness of drugs used to facilitate the diagnosis and treatment of these diseases.

Cattle necrobacteriosis is a disease that causes/leads to great damage to livestock, so the prevention of this disease is of great importance.

The causative agent of necrobacteriosis is a serious anaerobic microorganism *Fusobacterium necrophorum*. It is a gram-negative and highly polymorphic microorganism that does not form spores or capsules.

Our goal was to study the causes of cattle necrobacteriosis, which is widespread in large dairy farms in the city of Lankaran, and to develop proposals for its prevention.

Materials and methods

The research was conducted at the Department of Veterinary and Agrarian Disciplines of Lankaran State University and identified on the basis of monitoring on unhealthy farms. Anamnestic data conducted on farms, pathological materials taken for necrobacteriosis during clinical and epizootiological examinations were involved in bacteriological examination in the laboratory of the department. The pathogenicity of the pathogens isolated from these materials, *Fusobacterium necrophorum*, was studied in experiments on white mice, and their susceptibility to drugs was studied by sequential dilution of discs and drugs approved for veterinary laboratories. As a result, the therapeutic efficacy of these microbial-susceptible drugs was tested on farm animals on spontaneously sick animals (Bessarabov et al., 2007; Belyaev & Belyaeva, 2013; Volkova, 2009).

Results and discussion

In the farms we researched, the causative agent of necrobacteriosis, *Fusobacterium necrophorum*, was isolated from sick animals, and through taking advantage of laboratory tests, the presence of this causative agent as the main cause of nail diseases among cattle was confirmed..

However, when considering the specific gravity of necrobacteriosis during the observation period, it appears that in the nosological profile there is a gradual increase in this disease: as it varies from year to year from 2.7% in 2019 (26 cases) to 3 in 2020, reached 6% (31 cases).

The incidence of necrobacteriosis in huge horn animals is due to insufficient supply of vitamins to animals on farms in the spring (April, May), which ultimately leads to a decrease in the body's "strength" and the impact of pathogenic factors. The second crucial factor is the change in the temperature-humidity regime of the microclimate. High humidity, combined with sharp temperature fluctuations, creates optimal conditions for the intensification of the pathogenicity of *Fusobacterium necrophorum* and the development of the infectious process.

Necrobacteriosis of huge horn animals was also observed in/during the warm months of the year (July, October). In July, the disease in animals is caused by hot and dry weather, which in turn weakens the protective properties of the epidermal membrane of the nails, allowing pathogens to enter through them.

Samples taken from 10 cows, 6 to 8-month-old calves and 12 from dairy cows showed that signs of disease during the study in 10% sterile ram or bull blood, 0.4% glucose solution in Marten broth, 5-10% sterile ram or bull blood, 2% glucose, 0.2% cystine with the addition of semi-liquid Muromtsev, as well as Kita-Tarossi was cultivated in food environment. 1% glucose, 10-20% serum agar and glucose-blood agar was used in the research. The results of laboratory tests showed that in 72% of broth cultures, intense nausea, and in 75% of semi-liquid and solid nutrient media, ash colonies were formed. During microscopy (smearing of smears by Gram and Muromtsev methods), *Fusobacterium necrophorum* was found in the form of thin filaments and cocci, typical of microorganisms.

Antibodies to *Fusobacterium necrophorum* were high in blood serum from clinically healthy dairy cattle.

Examination of the susceptibility of isolated cultures of *Fusobacterium necrophorum* to amoxicillin -150, norsulfazole, trisulfone, sulfodimethoxine and azithronite by standard discs and in the testing of antibiotics by sequential rinsing methods, turned out that they are only sensitive to amoxicillin -150, azitronite, trisulfone, sulfadimethoxine and norsulfazole.

As the causative agent, Subject is severely anaerobic. Pure cultures of *Fusobacterium necrophorum* were obtained using glucose-blood agar food environment. Then the pathogenicity of the isolated *Fusobacterium necrophorum*

was tested in various laboratory animals, rabbits and white mice. The isolated agent was diluted 1:10 in saline and injected subcutaneously in a volume of 0.5-1.0 ml into 1/3 of rabbits' ears and 0.2-0.4 ml subcutaneously into the tail area of white mice. The laboratory operator/specialist controlled the animals for 10 days. On the 4th day of the experiments, skin necrosis was observed at the injection sites. However, as a result of experiments, the pathogenicity of these perpetrators was confirmed.

The therapeutic efficacy of drugs sensitive to these pathogens was tested experimentally on rabbits infected with them individually. For this purpose, we divided the experimental rabbits into 2 groups for each culture, provided that there were 5 heads in each group, and 3 rabbits were kept in the control group. 4 different therapeutic agents were used for treatment. All experimental rabbits were infected with *Fusobacterium necrophorum* cultures by subcutaneous injection of 1 ml (2 billion ml) with 1-day broth cultures. Twelve hours after infection, all rabbits in the control group were treated, except for the rabbits in the control group. Therapeutic animals were treated with therapeutic doses of amoxicillin-150 and azithronite. The effectiveness of the treatment was assessed on the basis of their maintenance and general condition.

In order to prevent necrobacteriosis in farms at risk of infection, new blood samples were taken from the mother herd with high titers of antibodies against *Fusobacterium necrophorum* in animal blood samples. The blood serum was mixed and filtered through special filters (Zeitz filter) and packed in sterile conditions. After checking the sterility and harmlessness of blood serum, it was used according to a special scheme.

Thus, on the first day, 10 ml of serum was injected intramuscularly into calves, with an interval of 10 days, the same animals were injected intramuscularly again with 10 ml of serum, and on the third day, with an interval of 10 days, 5 ml of serum was injected intramuscularly.

Animals in the control group were vaccinated against necrobacteriosis.

All animals were kept under control for six months, during which no signs of disease were observed in the animals.

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