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EXPERIENCE IN HEALING FARMS FROM LEUKEMIA OF CATTLE

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Abstract
This article presents the experience of rehabilitating two farms with initial infection with the bovine leukemia virus of 17.72% and 33.48%. A scheme for improving the health of a farm using the method of serological and hematological research, with the isolation of sero-positive animals and the subsequent elimination of animals with hematological leukemia, is described. This also shows the prevalence and incidence of oncornavirus infection in an uncontrolled epizootic process.

Keywords Leukemia; virus; cattle; serology; hematology; health improvement; IDR; ELISA.

INTRODUCTION

The fight against bovine leukemia is a complex veterinary, sanitary, organizational and economic process, which is complicated by the lack of specific means of prevention and treatment, insufficient knowledge of the features of infectious and epizootic processes and the length of time required to improve the health of a farm unfavorable for bovine leukemia [1 ,2,3,4].

In No. PD-4576 dated 01.29.2020 On additional measures of State support for the livestock industry, No. PD-5017 03.03.2021. About additional measures for further State support of livestock industries, in recent years, highly productive breeding heifers, Holstein-Friesians and other red-and-white dairy breeds of cattle have been imported into the Republic.

And this increases the risk of the spread of bovine leukemia on farms if import and quarantine rules for newly imported animals are not followed. [5,6,7,8].

Before the use of serological methods to control the infection of animals with the virus, the fight against leukemia was based on clinical, hematological and pathomorphological diagnostic methods, which included:

- clinical and hematological examinations of animals older than two years, twice a year, followed by removal of patients;

- isolated rearing of young animals;

- carrying out general veterinary and sanitary measures;

Prevention of bovine leukemia in healthy farms was achieved by protecting such farms from the importation of animals and semen of sires obtained from farms unaffected by this disease. [9,10,11].

MATERIALS AND METHODS

Currently, the fight against bovine leukemia in the territory of the republic is carried out on the basis of the “Instructions on measures to combat bovine leukemia” approved by the State Committee for Veterinary and Livestock Development of the Republic of Uzbekistan (CVLDRU.) dated 16.06. 2018.

Epizootological studies were carried out on the basis of the "Methodological recommendation for epizootological research for leukemia in cattle", approved by the State Committee for Internal Medicine and the Russian Journal of Journalism of the Republic of Uzbekistan. from 25.09. 2019.

Serological studies (IDR, ELISA) were carried out in accordance with the "Methodological recommendations for the serological diagnosis of bovine leukemia" approved by the State Clinical Committee and the Russian Journal of the Republic of Uzbekistan. from 12/29/2020.

To conduct serological studies to detect virus-specific precipitating antibodies to the bovine leukemia virus in animal sera, immunodiffusion reactions in agar gel were used as modified by H.S. Salimov (2018). The reaction took place in a 1% agar gel in an 8.5% sodium chloride solution in a humid chamber in a thermostat at a temperature of 370 C. The agar was applied to photographic plates measuring 9x12 cm, and the thickness of the agar gel layer was 3-4 mm. To punch holes in the agar gel, standard stamps with 7 punch tubes with an outer diameter of 6 mm, with a distance between the side and central holes of 3 mm, were used. After filling the wells with antigen and sera, the photographic plates were placed in a humid chamber. The reaction results were recorded after 18-24 hours.

The antigen used was the leukemia virus antigen obtained from the continuous cell culture line FLK (Fetal Lamb Kidney) in the laboratory of virology of Uzbek Scientific Research Institute and the antigen from the Kursk biofactory.

In order to establish early morphological changes in the blood and in the dynamics of the infectious process, clinical and hematological studies of animals seropositive for BLV (bovine leukemia virus) were carried out.

RESULTS AND DISCUSSIONS

To develop a scientifically based system of measures to combat leukemia in cattle in 2 farms of the Navoi region, where red breeds of cattle are mainly zoned, multiple serological and hematological studies of cattle for leukemia were carried out. When identifying animals infected with the leukemia virus and hematologically sick with leukemia, a complex of veterinary, sanitary, organizational and economic anti-leukemia health measures was carried out. When developing and implementing a system of anti-leukemia measures, the specific epizootic situation and the economic conditions of each farm were taken into account. It should be noted that the effectiveness of health measures depended on the degree of spread of leukemia in the herds.

Thus, as a result of a complete clinical, hematological and serological study of animals of the Red Estonian breed in the Adiz Bobo farm in Navoi region, it was established that virus-specific precipitating antibodies to Bovine Leukemia Virus (BLV) were detected in the blood serum of 4.52% of cows and 18.92% of animals.

The moderate number of sick and infected animals on the farm is explained by the short period of time the herd was unwell with leukemia and the extremely limited movement of cows between farmyards. Such defeat (of moderate degree) and the conscientious attitude of the farm workers to the problem contributed to the improvement of the farm in a short time.

According to the epizootic situation regarding leukemia, restrictive, health-improving, anti-leukemia measures were carried out on this farm, which included the following:

All farm livestock were divided into two groups:

the first – healthy animals, serologically negative in IDR; the second – animals positive for IDR (infected with the leukemia virus).

Animals with hematological leukemia were isolated and then sent for slaughter; the calves obtained from them were transferred to the fattening group. It was prohibited to regroup animals on the farm without the consent of the veterinarian serving the farm. Animals of the second group were kept strictly isolated from healthy livestock in order to avoid contact, with separate maintenance personnel. Milk from animals in this group was not fed to calves, but was handed over to a dairy plant and, after

pasteurization, was used on a general basis. The infected group was subjected to clinical and hematological studies every 6 months. Sick animals, in order to avoid the appearance of tumor lesions, and cows that had lost productivity and reproductive function, were slaughtered. The remaining cows and heifers were inseminated, kept according to economic needs, receiving milk and offspring from them in isolation, and were gradually replaced over the course of 1-2 years. Calves obtained from two groups were kept with their mother until 10 days of age, and from 10 days to 6 months they were kept isolated from their mothers' cows in a separate room. During this period, they were given milk from animals of the first group (serologically negative in the IDR).

Animals in the recovery group were examined serologically every 6 months for the first 2 years, and every 3 months in the third year. All animals reacting positively to BLV were transferred to the second group. Young animals over 6 months of age were also examined serologically in the RID. If they received negative results for BLV, they were used on a general basis for breeding use, and if positive results were obtained, they were excluded from breeding use and transferred to the second group.

During the entire period of health-improving activities, infection precautions were observed. Newly identified infected animals were immediately removed from the herd. Calving of cows and heifers was carried out in a maternity ward with a dispensary, separately for healthy and infected groups of animals.

Heifers and cows were inseminated with sperm obtained from bulls free from BLV infection. We strictly observed the veterinary and sanitary requirements for carrying out therapeutic and specific activities with animals (taking shelter, administering medications, vaccination, tagging, rectal examinations, etc.). To prevent attacks by blood-sucking insects in the summer, weekly baths were carried out with appropriate acaricidal and insecticidal (0.1% neocidol solution, 2% creolin solution, 0.5% aqueous emulsion of trichlorometaphos-3) preparations.

As a result of the measures taken, after 6 months of repeated serological testing, the number of animals infected with Bovine Leukemia Virus decreased and amounted to 10.96%. Further serological studies made it possible to sharply reduce the number of newly identified infected animals: 9.79, 4.95, 1.78 and 0.44%, and in the last study, conducted 2.5 years after the initial one, oncornavirus infection was not detected in any one animal. As a result of a complete clinical, hematological and serological study in the Khadicha farm, 34.61% of animals infected with BLV and 7.17% of hematologically sick animals with leukemia were identified. Sick animals were immediately sold for meat. All seropositive animals were kept in a separate isolation room and hematological studies were carried out regularly (2 times a year). When hematologically sick animals were identified, they were sent for slaughter. Every 3-4 months, a serological study of apparently healthy cattle was carried out with isolation of the animals.

Repeated serological studies made it possible to sharply reduce the number of newly identified infected animals: 20.83, 11.47, 4.76 and 1.47%, and in a subsequent double study conducted 3 years after the initial one, oncornavirus infection was not established.

The success of improving the health of farms was achieved through the constant implementation of a set of mandatory conditions: compliance with the requirements for veterinary and zootechnical treatment of animals, organization of proper primary registration (numbering) of animals and regular (every 3-4 months) serological testing of heifers (starting from 6 months), as well as heifers and cows whose blood serum was gray negative.

CONCLUSIONS

1. An essential condition for increasing the effectiveness of anti-leukemia measures is a clear plan for their implementation on individual farms, as well as on a district scale. In addition to fulfilling the requirements of the instructions on measures to combat leukemia, each health-improving anti-epizootic plan

must provide for specific organizational and economic measures taking into account the epizootic situation and the economic capabilities of farms.

2. At present, the serological diagnosis and prevention of leukemia in cattle in the republic should be given the most serious attention, because the situation may become even more complex and the recovery of farms, districts, regions and the republic as a whole from leukemia will take a long time.
3. Thus, the recovery of the herd from leukemia through the use of complex serological and hematological methods, with the division of animals into two separate groups (if it is moderately affected), with the introduction of a complex of veterinary, sanitary, organizational, economic and health measures, followed by removal of patients and gradual elimination of animals infected with BLV is the most acceptable and economically justified method.

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