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DETERMINATION OF CHANGES IN HEMATOLOGICAL INDICATORS OF THE BLOOD OF COWS WITH ENDOMETRITIS

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Abstract
This article examines the examination of blood samples taken from cows with endometritis, the levels of erythrocytes, leukocytes, monocytes, eosinophils, neutrophils in the blood, and biochemical parameters of blood serum, and provides practical conclusions.

Keywords: White blood cell count, erythrocyte, leukocyte, monocyte, eosinophil, neutrophil, acid, alkali, carotene, albumin, gammaglobulin, monocytopenia, resistance, phagocytosis.

Introduction

Today, infertility and gynecological diseases, including endometritis, are widespread among productive cows worldwide. One of the problems hindering the development of livestock farming in our republic is infertility and gynecological diseases in farm animals, which cause significant economic damage to livestock farms. “Every year, 20-30% of cows and 30-40% of fertile-age cows remain infertile in livestock farms of our republic. Symptomatic infertility of cows is 18.3%, alimentary infertility is 15.5%. Based on this, one of the urgent tasks is to study the process of the spread of infertility and postpartum gynecological diseases in the livestock sector, to develop highly effective treatment and preventive measures.

In most countries of the world, infertility and postpartum gynecological diseases among productive cows are common, due to the lack of improved feed rations, metabolic disorders in the body, various stress factors and unsanitary conditions, which lead to a decrease in the body's natural resistance, significant changes in blood composition, which leads to an increase in the pathological properties of microorganisms and the appearance of secondary diseases in the body.

In our republic, the implementation of large-scale measures aimed at reducing, treating and preventing infertility and postpartum gynecological diseases in livestock, especially in productive cows, remains one of the important issues in the veterinary field. In the development and improvement of cattle breeding, which is the main branch of animal husbandry, it is important to increase the number of cows in farms and private farms, increase their productivity, properly care for them and protect them from various infectious, invasive and non-infectious diseases in order to obtain healthy calves.

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Materials and Methods

As the materials for our research, 5-10 ml of blood was taken from the jugular vein of experimental and controlled cows kept at the "Siyob Shavkat Orzu" farm in the Tayloq district of the Samarkand region, into heparinized test tubes, and the morphological and serum biochemical parameters of the blood were examined during treatment.

During the tests, it was found that the number of erythrocytes in the blood of cows in the experimental group was higher than that of cows in the control group. The experiments revealed a decrease in hemoglobin, a complete absence of leukocytes and monocytes, and a decrease in eosinophils and neutrophils. The hemoglobin content in a sick animal was 10.53 g%, and in a healthy animal it was 9.70 g%. It was observed that the number of erythrocytes in the blood of sick animals was 6.82 million, and in a healthy animal this figure was 5.53 million. The number of leukocytes in the blood of sick animals was 8.60 thousand, and in the blood of a healthy animal was 5.38 thousand. The main reason for the increase in the number of eosinophils and lymphocytes in the leukoformula is that eosinophils increased in order to neutralize protein toxins formed as a result of inflammation in the uterus; lymphocytes increased in order to produce antibodies to microorganisms in the body. The increase in monocytes in the blood, in turn, can be explained by their participation in the replacement and restoration of dead tissues. The number of rod-shaped and segmented neutrophils in the blood of sick animals is 2.70-18.20, while in the blood of healthy animals it reaches 7.0-25.83, that is, they are less in the blood of sick animals (Table 1).

The low number of rod-shaped and segmented neutrophils in the blood of sick animals indicates that an inflammatory process is taking place in the body and that their decrease is due to the fact that most of them are destroyed during the process of phagocytosis of microorganisms in the inflammatory focus.

Hematological parameters of bovine blood 1- table

Indicators	herds of cattle	
	Cattle with endometritis	Clinically healthy cattle
Hemoglobin, g %	10,53±0,7 9,80 ± 0,40	9,70 ± 0,30
Erythrocytes million.	8,60 ± 0,92 5,10 ± 0,52	5,38 ± 0,54
Leukocytes spindle	6,82 ± 1,49 5,91 ± 0,68	5,53 ± 0,56
Lymphocytes %	70,10 ± 9,20 73,20 ± 6,04	58,08 ± 8,38
Monocytes %	-	-
Eosinophils %	9,00 ± 1,40 5,00 ± 0,12	7,35 ± 2,61
Young neutrophils	-	-
Rod-shaped	2,70 ± 1,70 14,60 ± 4,10	7,00 ± 2,01
Segment core	18,20 ± 7,80 7,20 ± 3,40	25,83 ± 6,60

Note: The top line is before treatment; the bottom line is after the animal has recovered clinically..

Biochemical parameters of blood and serum of cows with endometritis indicate to some extent the course of the disease, the metabolism of proteins and carbohydrates in the animal's body, the ratio of digestible carotene and acid-base environment. In the initial period of the disease, a decrease in total protein and albumin, an increase in beta and gamma globulins indicate the restoration of immunological processes in the body. During this period, an increase in blood sugar levels and high bioenergetic processes indicate good protective activity of the body. A decrease in the amount of carotene contributes to the accumulation of ferments in the body's metabolism, and an increase

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in the acidosis process, in turn, increases the inflammatory process in the body (Table 2). In the leukoformula, a proportional increase in eosinophil leukocytes and lymphocytes (lymphocytosis) and a decrease in monocytes (monocytopenia) are explained.

Some biochemical parameters of cow blood serum

2- table

Indicators	number of cattle	
	Cows with endometritis	**Clinically healthy cattle**
Inorganic phosphorus	**6,55 ± 0,33** **5,81 ± 0,26**	**5,48 ± 0,36**
Calcium, mg %	**11,05 ± 0,49** **10,80 ± 0,39**	**7,30 ± 0,22**
Carotene, mg %	**0,32 ± 0,08** **0,28 ± 0,05**	**0,64 ± 0,07**
Alkaline reserve SO_2	**39,29 ± 2,07** **42,44 ± 2,16**	**42,30 ± 4,08**
Total protein	**7,09 ± 1,39** **7,71 ± 0,31**	**7,29 ± 0,21**
Albumins %	**37,11 ± 2,28** **31,32 ± 7, 39**	**40,02 ± 4,01**
Alpha – globulins %	**10,20 ± 1,05** **10,77 ± 3,33**	**10,82 ± 2,11**
Beta – globulins %	**13,33 ± 2,17** **15,64 ± 1,45**	**12,00 ± 2,35**
Gamma – globulins %	**39,36 ± 2,22** **42,27 ± 3,02**	**37,16 ± 4,19**
Sugar, mg %	**91,66 ± 8,87** **48,24 ± 8,89**	**60,70 ± 5,87**

Note: Top row – before treatment; bottom row – after the animal has recovered clinically.

When the treatment process is effective, that is, during the period of clinical recovery, protein metabolism returns to normal, and only an increase in lymphocytes (lymphocytosis) is observed in the leukogram, which, in turn, increases the body's resistance and indicates a positive course of the inflammatory process. Analysis of the metabolic processes in the body of cows with endometritis shows that the course of the disease depends on the course of metabolism in the body. Therefore, it is necessary to organize the treatment and prevention of this pathological process based on the above data.

Results and their analysis:

During our studies, the following results were obtained from morphological examinations of the blood of cows with endometritis and healthy cows; hemoglobin in the blood of sick animals was 10.53 g%, while in healthy animals it was 9.70 g%, erythrocytes in sick animals were 8.60 million, in healthy animals 5.38 million, and leukocytes in healthy cows were 6.82 thousand, and in healthy animals 5.53 thousand. The amount of these indicators in the blood of sick animals was somewhat higher than in the blood of healthy animals, but an increase in lymphocytes and eosinophils was observed in the leukoformula, while a decrease in rod-nucleated and segmented-nucleated neutrophils was observed. It was also found that the biochemical parameters of the blood serum of a clinically healthy animal were average and below average, and the acidity level was below the physiological norm.

Conclusion:

During our research, many changes were found in the blood composition of cows with endometritis. In addition, it was found that currently, in many livestock farms in our country, healthy cows have some biochemical indicators and blood acidity levels that are not at the normal

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level, which are factors that cause cows to become ill with endometritis in the winter and spring seasons. Based on this, when choosing a method of treating endometritis, it is necessary to aim to use drugs that increase the body's resistance.

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