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EVALUATION OF THE EFFECTIVENESS OF THERAPEUTIC METHODS IN THE TREATMENT OF RESPIRATORY TRACT DISEASES IN LAMBS THROUGH BLOOD ANALYSIS

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Abstract: The complex treatment regimens for lambs diagnosed with bronchitis and bronchopneumonia included novocaine blockade of the stellate ganglia and autochemotherapy. The effectiveness of the improved treatment methods was monitored based on morphological (significant decrease in leukocyte count) and biochemical (reduction in globulin levels, increase in albumin and hemoglobin levels) blood indicators.

Introduction: Inflammatory respiratory tract diseases are widespread among young lambs, and their treatment does not always yield the expected outcomes [1,2]. Therefore, it is crucial to evaluate the effectiveness of treatment not only based on clinical signs but also through laboratory tests, particularly by analyzing the morphological and biochemical parameters of the blood [3].

Research Objective: To assess the impact of therapeutic regimens applied to lambs suffering from bronchitis and bronchopneumonia by evaluating changes in blood parameters through laboratory testing.

Materials and Methods: The study was conducted on a farm in the Republic of Uzbekistan. Diseased lambs were divided into the following three experimental groups:

1st experimental group: Novocaine blockade of the stellate ganglion

2nd experimental group: Autochemotherapy

3rd experimental group: Combination of both methods

Each group included 15 lambs aged between 14 days to 2 months. All animals exhibited clinical signs characteristic of bronchitis or bronchopneumonia. Upon completion of treatment and clinical recovery, blood samples were collected from all groups for morphological (erythrocytes, leukocytes, hemoglobin) and biochemical (total protein, albumin, globulin) analysis. Globulin levels were calculated as the difference between total protein and albumin. Statistical analysis included mean value (X), standard deviation (σ), and reliability of differences (p-value).

Results:

Table 1. Erythrocyte, leukocyte, and hemoglobin levels in lambs' blood

Indicators	**Control group**	**1st experimental group**	**2nd experimental group**	**3rd experimental group**
Erythrocytes ($\times 10^{12}$/l)	12,84±1,203	14,36±2,612	13,65±1,983	13,11±2,442
Leukocytes ($\times 10^{9}$/l)	14,70±2,459	12,78±1,787	13,52±1,814	12,10±2,120*
Hemoglobin (g/l)	96,09±5,19	108,20±11,91	107,97±10,72**	110,42±16,61*

(*) – $p<0.05$ compared to control group; (**) – $p<0.01$ compared to control group

Analysis: In the 3rd experimental group, the leukocyte count decreased by 21.5% ($p<0.05$). In the 2nd and 3rd groups, hemoglobin levels increased by 12.4% and 14.9%, respectively ($p<0.01$ and $p<0.05$). This indicates a reduction in inflammation and activation of hematopoiesis[4].

Table 2. Total protein, albumin, and globulin levels in lambs' serum

Indicators	Control group	1st experimental group	2nd experimental group	3rd experimental group
Total protein (g/l)	74,44±7,80	71,84±5,79*	67,51±6,67	70,52±3,40
Albumin (g/l)	21,62±2,24	23,74±2,57	25,72±2,36**	24,94±2,17**
Globulin (g/l)	52,83±7,81	48,11±6,57**	41,79±6,90*	45,58±4,61*

(*) – $p<0.05$; (**) – $p<0.01$ compared to control group

Analysis: The globulin fraction in all three experimental groups significantly decreased compared to the control group (1st group: −9.8%, 2nd group: −26.4%, 3rd group: −15.9%). This indicates that the inflammatory processes were alleviated [4].

Conclusion: The results of the study show that in the treatment of respiratory tract diseases in lambs, the use of novocaine blockade of the stellate ganglion and autochemotherapy not only leads to clinical recovery but also ensures the complete elimination of inflammation in the body. This is evidenced by positive changes in key morphological and biochemical blood parameters: decreased leukocyte count, increased hemoglobin and albumin levels, and reduced globulin content.

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