

The Effect of Tranquilizers on Morphological Parameters of Chicken Blood

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Abstract: This study investigates the effects of the anti-stress drugs nozepam, enrofloxacin, and aliceryl on the morphological parameters of chicken blood. The objective was to evaluate changes in key hematological indicators under the influence of these preparations. Experimental groups of chickens were administered the respective drugs according to established veterinary dosage protocols, and blood samples were collected for laboratory analysis. Hematological parameters, including erythrocyte and leukocyte counts, hemoglobin concentration, and other morphological indices, were measured using standard diagnostic methods. The results demonstrated that the application of the tested drugs influenced blood morphology to varying degrees, indicating physiological responses associated with stress modulation and metabolic adaptation. The findings suggest that these preparations may affect hematological stability and should be used with consideration of their systemic impact. The study contributes to understanding the hematological effects of anti-stress pharmacological agents in poultry production.

Keywords: anti-stress, chickens, blood, erythrocyte, leukocyte, platelet, hemoglobin

Introduction

In intensive poultry farming, various stress factors significantly impact the safety and productivity of birds, including frequent vaccinations, diagnostic tests, dietary changes, transportation to new, unfamiliar environments, and others.

For example, in the egg-laying direction of birds, after veterinary treatments, the egg productivity of hens on the third day and in the following days decreases by more than 10-15%.

Testing chickens for pullorum disease using the blood drop agglutination test also results in a decrease in productivity for 10-15 days. In birds with latent disease of the egg-forming organs, harvesting can lead to yolk peritonitis and significant mortality.

When immunizing meat and egg-laying chickens against infectious diseases with reactogenic vaccines, live weight decreases by 9-10% or more compared to non-immunized chickens. In addition, the stressful state of Nur can be caused by the consumption of feed with insufficient amounts of protein, metabolic energy, vitamins, amino acids, macro and microelements, increased stocking density, and an unsatisfactory microclimate, excessive noise from operating mechanisms, capture, relocation, transfer to new technological conditions of maintenance, disruption of social order in the herd, transportation, beak trimming of pullets and comb removal in cockerels, techniques, forced moulting, as well as the use of low-quality toxic feed and the presence of infectious and non-infectious diseases in the flock.

In this regard, we were faced with the task of studying the effects of a bivalent vaccine against infectious bronchitis and Newcastle disease on the morphological parameters of bird blood.

Materials and methods. Laboratory experiments were conducted on Loman LSL Classic chickens raised in open-field conditions. The culled birds were formed into four groups of 20 birds each. On the first day after hatching, they were given bivalent vaccines against infectious bronchitis and Newcastle disease via water.

The first group of chickens served as controls. They received feed without medications. The second, third, and fourth experimental groups, after vaccination with feed, received the anti-stress medications nozepam 3.5 mg/ml with feed, enrofloxacin 10% 0.5 ml/l with water, and aliseril 1 mg/2 l with water for 5 days.

Morphological studies of the birds' blood were conducted on days 3, 5, 7, and 10 after vaccination and administration of the medications.

Blood for the study of the experimental and control groups of birds was collected from the axillary vein. The number of erythrocytes, leukocytes and platelets in 1 mm³ of blood was counted in a Goryaev chamber after staining them according to Romanovsky-Giemsa and methyl violet according to the method of I. A. Bolotnikov, Yu. V. Solovyov.

The leukocyte formula in blood smears was determined after two-moment staining according to Pappenheim with the three-field method of Filippchenko (I.A. Bolotnikov, Yu.Yu. Soloviev, 1980).

The digital data obtained from the experiments were processed biometrically using the method of variation statistics (P.F. Rokitsky, 1973). Differences were considered significant at P values < 0.05 (the probability of error was calculated using a Student's t-table).

Research results. Throughout the experiment, no significant changes were observed in the morphological and leukocyte counts of the blood in the test groups of birds receiving anti-stress medications at the prescribed doses. The main changes were observed in the first group of birds that did not receive anti-stress medications.

This was because the number of erythrocytes increased 3-5 days after vaccination, and leukocytes, segmented neutrophils, and monocytes increased from 7 to 10 days, while the number of lymphocytes decreased.

Conclusion. Antibiotics, vitamins, and tranquilizers have a positive effect on the prevention of vaccine-induced stress in birds. They do not adversely affect morphological parameters or the white blood cell count.

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