

Summary

The aim of the study was to evaluate the effects of early-life antibiotic therapy and the administration of monensin on the development of the immune and antioxidant systems in young turkeys, with particular emphasis on maternal antibody transfer and the development of immunity. It was hypothesized that early antibiotic administration may impair the utilization of passive immunity and disturb the redox balance of the organism.

The study was conducted on Hybrid Converter turkey hens in two experiments with a two-factorial design. Antibiotics (enrofloxacin and doxycycline) were administered during the first 5 days of life, while monensin was included in the diet throughout the rearing period. The evaluation included the levels of maternal and post-vaccination antibodies, lymphocyte subpopulations, gene expression, oxidative stress parameters, and the activity of antioxidant enzymes. Histological analysis of lymphoid organs and determination of residues of the tested substances in the liver were also performed.

The results showed that the applied factors did not affect yolk sac resorption; however, they reduced the levels of maternal antibodies and impaired the humoral immune response, indicating a direct effect of antibiotics on immune system function. Changes in lymphocyte subpopulations and in the expression of genes related to inflammatory responses were also observed.

It was demonstrated that antibiotics, particularly enrofloxacin, may induce oxidative stress and disrupt redox balance. Doxycycline showed a partial adaptive effect, whereas monensin administration did not intensify oxidative reactions.

The obtained results indicate that early antibiotic therapy and the use of coccidiostats may lead to adverse changes in immune system function in young turkeys, highlighting the need for rational use of these substances in poultry production.

Keywords: turkeys, antibiotics, monensin, immunomodulation, maternal antibodies