

Effects of antibiotics on intestinal immunity in broilers ⁽¹⁾

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Abstract

This study was to investigate the effect of antibiotics on intestinal immune response. One hundred and ninety-two broilers were randomly allocated to 4 treatments with 4 replicates of 12 birds each. The 4 treatments were: control, bacitracin 55 ppm, nosiheptide 2.5 ppm, and oxytetracycline 55 ppm supplements. Intestinal mucosal immunity was measured at 3 and 6 wk of age. In the intestinal mucosal immunity, the nosiheptide supplemented group significantly decreased the expression of mucosal antimicrobial lysozyme level at 3 weeks of age ($P < 0.05$), but had no effect on the bacitracin and oxytetracycline groups. The three antibiotic supplements had no significant differences in T cell receptor $\gamma\delta$, ileum and lymphocyte proliferation of blood. The nosiheptide supplementation group had lower blood IgA levels ($P < 0.05$) at 6 wk of age, but did not affect the bacitracin and oxytetracycline groups. Antibiotic administration did not alter plasma IgG and IgM at 6 wk of age. In conclusion, different antibiotics may be inconsistent in immune regulation. Supplementation of nosiheptide in chicken diets modulates the immune response of chickens by downregulating lysozyme and IgA.

Key words: Antibiotics, Broilers, Intestinal immunity, $\gamma\delta$ T cell receptor.

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