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THE EFFECT OF FASTING PERIOD LENGTH AND EARLY FEEDING ON IMMUNOLOGICAL RESPONSES OF BROILER CHICKS

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Introduction: Broiler chicks are lack of proper immunological performance during first week after hatching; thereby, they are very susceptible to involve infections. Since the immune system develop the first week after hatching, early feeding leads to rapid immunological development via immune cells development and production of various immunoglobulins in Bursa of Fabricius. So, the present study was undertaken to compare the effect of early feeding after hatching with traditional methods on immunological responses of broiler chicks.

Materials and Methods: A total of 420 ROSS 308 broiler chicks were randomly attributed into 6 dietary treatments with 5 replicates of 14 birds each. Dietary treatments consisted of starter diet, unavailability to feed for 24 and 48 hours, feeding only with corn for 24 and 48 hours and feeding prestarter diet for 5 days. Two birds of each cage were slaughtered and measured spleen and Bursa of Fabricius weight at 6 and 42 d of age. 1 ml of sheep red blood cell (SRBC) suspension were injected at 25 d of age and bled 5 days later to evaluate the antibody titer. At 30 d of age, two birds of each cage were bled to assess the differential leukocyte counts.

Results and Discussion: Results showed that the relative spleen weight was unaffected by dietary treatments, whereas the relative Bursa of Fabricius weight was affected by experimental treatments at 6 ($P<0.01$) and 42 ($P<0.05$) d of age. The highest relative Bursa of Fabricius weight was related to starter diet. Moreover, antibody titer against NDV and influenza were highly significantly ($P<0.01$) increased by pre starter diet. This might be attributed to providing energy and protein required for immune system development (Dibner et al., 1998). However, treatments had no effect on antibody titer against SRBC. Additionally, pre starter diet revealed the lowest heterophile, the highest lymphocyte and consequently the lowest heterophile to lymphocyte ratio. In general, results indicated that feeding starter for 48 hours led to improved immunological responses.

Key words: Fasting period, early feeding, immunological responses, broiler chicks

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