Abstract

The aim of this study was to assess stress response of broilers to different periods of shackling. Stress effects of shackling were monitored in a group of male Ross 308 broilers (total number: 400) aged 42 d. Three shackling treatments were used in our experiment: shackling of broilers for 30 s (group T30), 60 s (group T60), and 120 s (group T120). Corticosterone plasma concentration was elevated in T60 broilers ($P < 0.05$) and in T120 birds ($P < 0.01$); glucose plasma concentration was increased ($P < 0.05$) in both T60 and T120 broilers when compared with nonshackled control. Lactate concentrations increased in T30 birds ($P < 0.05$) and in both T60 and T120 birds ($P < 0.01$). Furthermore, T120 broilers exhibited an increase ($P < 0.01$) in heterophil counts and heterophil:lymphocyte ratio. Duration of tonic immobility was increased ($P < 0.05$) in T60 and T120 broilers. Number of attempts to induce tonic immobility decreased ($P < 0.01$) in all test groups (T30, T60, T120). Duration of shackling period was positively correlated ($P < 0.001$) with corticosterone, glucose and lactate level, tonic immobility duration, and heterophil:lymphocyte ratio. The number of inductions was negatively correlated ($P < 0.001$) with duration of the shackling period. According to the results of our study, the act of shackling is a considerable traumatic procedure for broilers, and its stress effect is markedly dependent on duration of shackling period that the broiler chickens experience. It follows from our study that the optimal shackling period should be less than 60 s.

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