

Crating and heat stress influence blood parameters and heat shock protein 70 expression in broiler chickens showing short or long tonic immobility reactions

ABSTRACT

Two hundred thirty-five 1-d-old broiler chickens showing short or long tonic immobility responses were classified as low fear (LF) or high fear (HF) responders, respectively. On d 41, they were subjected to either crating or heat challenge ($34 \pm 1^\circ\text{C}$) for 3 h and its effect on plasma corticosterone concentration, heterophil/lymphocyte ratios, and heat shock protein (HSP) 70 expression in brain tissue were determined. Crating and heat exposure elevated heterophil/lymphocyte ratios in both LF and HF birds. Circulating corticosterone, however, was greater in HF than LF birds after crating and heat challenge. Although differences between fear responder group for HSP 70 were negligible before heat challenge, after 3 h of heat exposure, the response was greater for the HF than the LF group. Both LF and HF showed similar increases in HSP 70 after crating.

Keyword: Heat shock protein 70, corticosterone, heterophil:lymphocyte ratio, tonic immobility, chicken