HAPTOGLOBIN CONCENTRATIONS IN DAIRY COWS WITH INFLAMMATORY DISEASES

P. Mudroň
pavol.mudron@uvlf.sk

University of Veterinary Medicine and Pharmacy in Košice, Košice, Slovak Republic

Haptoglobin is an acute phase protein produced primarily in the liver in response to pro-inflammatory cytokines. The objective of this field study was to determine if common inflammatory diseases like mastitis and claw inflammatory disorders are associated with increased serum haptoglobin. Moreover, the sensitivity and specificity of haptoglobin levels were tested.

237 Holstein dairy cows were included in the study; farm feeding management was based on TMR and the dairy cows were housed in free stalls with cubicles. Health condition of mammary gland and claws was examined in the crush. The subclinical mastitis was diagnosed by using California mastitis test. Blood samples were obtained from the jugular vein at the time of the clinical examination and treatment. Serum haptoglobin concentration was measured by colorimetric assay (*Tridelta Development*, Ireland). For statistical analyses the dairy cows were divided into two groups: INFLA (cows with inflammation) and control (no inflammation found). Differences in serum haptoglobin levels were tested by *t*-test. The threshold level of haptoglobin for calculation of sensitivity and specificity was 0.05 g/L.

Clinical mastitis, subclinical mastitis, and inflammatory claw disorders, including digital dermatitis, interdigital dermatitis, pododermatitis, interdigital hyperplasia, and subclinical laminitis were found in 204 dairy cows (INFLA). 33 dairy cows were found to be free of inflammatory changes (control). Cows with inflammation had higher serum haptoglobin than controls (INFLA: 0.21 g/L; control: 0.06 g/L; $P<0.01$). The sensitivity detecting dairy cows with inflammatory disorders by serum haptoglobin levels was 84 %, whereas the specificity in the control group of 33 clinically unsuspicious cows was 68 %.

Results of the study show that the inflammatory disorders in dairy cows are associated with increased concentrations of the serum haptoglobin. However, sensitivity and specificity of the serum haptoglobin are rather low for detection of inflammatory processes in dairy cows. Therefore, a use of serum haptoglobin for monitoring of inflammatory diseases on the dairy farm level can be recommended only with limitation.

Keywords: DAIRY COWS, HAPTOGLOBIN, INFLAMMATION