

RELATIONSHIP BETWEEN HAPTOGLOBIN, FIBRINOGEN AND CLINICAL STATUS IN HORSES

Oukacha F¹, Bertrand P², Bustin J¹, Humblet M¹, Amory H², Godeau J¹

¹Department of Functional Sciences, ²Department of Clinical Sciences, University of Liege, Liege, Belgium Email: fouzia.oukacha@ulg.ac.be

Introduction

Haptoglobin (Hp) and fibrinogen (Fb) are positive acute phase proteins (APPs) that increase in cases of infections, inflammatory or trauma conditions (Conner and al., 1986 ; Skinner and al., 1991). These proteins measurements have been used to identify clinical and subclinical diseases in horses (Hulten et al., 2002). Elevated concentrations are not specific to a disease, but are rather the outcome of tissue damage resulting from infection or inflammation (Eckersall and Conner, 1988).

The aim of this study was to compare Hp with Fb in horses. Hp and Fb reference values were also determined in healthy horses.

Material and Methods

Blood samples were collected from clinically healthy and diseased horses, on the first day of clinical examination, for the determination of Hp and Fb concentrations. They were measured in order to assess their ability to identify horses suffering from acute inflammation. None of these horses was pregnant. The animals were classified according to clinical examination : they were healthy or diseased horses. Diseased horses were gathered on the basis of the category of pathologies: digestive, circulatory, musculoskeletal, genital, nervous, respiratory, cutaneous and cardio-pulmonary.

Results

Hp reference intervals were from 0 to 600 mg/L and Fb reference values from 0.00 to 2.50 g/L and Fb mean concentrations in healthy horses, 375±194 mg/L and 1.78±0.36 g/L respectively, were significantly lower than diseased horses, respectively, 946±748 mg/L and 2.74±1.49 g/L, (P≤0,001). When all diseased animals were considered together, Hp sensitivity reached a 60.0% value against 48.0% for Fb. Meanwhile, respectively 84.0%, 77,3% and 73.0% of musculoskeletal, respiratory and digestive diseases presented a positive response in Hp. On the other hand, Fb mean concentrations were significantly higher in 80.0% of cutaneous and 72,7% of musculoskeletal pathologies. Hp and Fb were not significantly correlated.

Discussion

Hp was well in agreement with the clinical status of disease in case of musculoskeletal, respiratory and digestive pathologies. Meanwhile, the presence of an inflammation process was better confirmed by Fb in case of cutaneous and musculoskeletal pathologies. Considering all diseased horses, it appeared that Hp presented a better sensitivity than Fb. In conclusion, serum haptoglobin concentration seemed to be more sensitive than Fb in the detection of various inflammatory diseases in horses.