The serum protein electrophoretic pattern and acute phase protein concentrations in calves with chronic respiratory diseases

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Abstract

The aim of this study was to evaluate the serum protein electrophoretic pattern and the concentrations of acute phase proteins (haptoglobin, serum amyloid A, and fibrinogen) in 28 calves with clinical signs of chronic respiratory diseases and 36 healthy calves as a control group. In sick calves we found significantly higher serum concentrations of total proteins (P < 0.001), lower concentrations of albumin (P < 0.001) and marked shift in the concentrations of the most of protein fractions with significantly higher values of α₁-, β₁-, β₂-, and γ-globulins (P < 0.001 and P < 0.01). The affected calves had significantly higher values of haptoglobin, serum amyloid A, and fibrinogen as well (P < 0.05, P < 0.001 and P < 0.001, respectively).

Key words: calves, electrophoresis, respiratory diseases, protein fractions

Introduction

In veterinary medicine many reports described the serum protein electrophoretic pattern in small animals, goats, and horses (Janků et al. 2011, Tappin et al. 2011). The serum protein electrophoresis and identification of serum protein fractions in cattle with various organ diseases is less well documented. Diagnostically the most important acute phase proteins in cattle are haptoglobin and serum amyloid A. These proteins have been found to increase in the serum of cattle with many different diseases (Gänheim et al. 2003). This study evaluates the effect of chronic respiratory diseases in calves on values of the serum protein electrophoretic pattern and the concentrations of selected acute phase proteins, and their possible usefulness in the assessment of bovine respiratory diseases.

Materials and Methods

28 calves at the age ranged from 4 to 6 months with clinical signs of chronic respiratory diseases were included into this study. At the clinic, the calves were housed individually, fed twice a day with free access to water. After the arrival to the clinic, all the calves were thoroughly examined using standard clinical examination procedures. Into the evaluation we included calves with clinical signs of the disease mani-