Serum concentrations of PIIINP aminopeptide in dogs with liver fibrosis

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Abstract

The aim of the study was to evaluate the serum concentration of the type III procollagen aminopeptide in dogs, and to assess its utility in the diagnosis of liver fibrosis. The study was carried out on 20 dogs of different breeds and of both genders, between 7 and 15 years old. Based on the results of the histopathological examination and the evaluation of the degree of liver fibrosis, the dogs were divided into five groups. The mean serum PIIINP concentration in the group of dogs with stage 1 and 2 liver fibrosis (groups 2 and 3) was five-fold higher than in healthy dogs (group 1). In turn, the mean PIIINP concentration in the group of dogs with stage 3 (group 4) and stage 4 (group 5) fibrosis was 10-fold higher than that of the control group (group 1). Based on the results, we found that the serum PIIINP concentration correlated with the degree of liver fibrosis, assessed based on a histopathological examination. Therefore, PIIINP serum concentration tests may be a promising non-invasive diagnostic technique that could be used in veterinary hepatology to assess the degree of liver fibrosis.

Key words: dog, serum PIIINP, liver fibrosis

Introduction

Currently, liver diseases in veterinary medicine pose a serious diagnostic challenge for the clinician. The most common causes of liver damage are viral and bacterial infections as well as toxic substances. The liver suffers from damage, remodelling and fibrosis in response to a toxic and infectious agent.

The term „liver fibrosis” refers to a constant, excessive deposition of components of the extracellular matrix (ECM) and a change in the proportion of its components, leading to tissue hypertrophy, hardening and scarring (Kruś 2007, Guarino et al. 2009, Pinzani and Macias-Barragan 2010).

In most cases, a core needle biopsy is performed to correctly assess the degree of liver inflammation and fibrosis. Currently, in human medicine, there are numerous studies under way aimed at developing a panel of non-invasive markers, which may be used to assess the degree of liver fibrosis. These markers are required to have high liver specificity, a high sensitivity to fibrinolysis and synthesis of components of the ECM, and are expected to give repeatable results (Gutkowski et al. 2007). Based on those studies, we attempted to...