7S fragment of type iv collagen as a serum marker of canine liver fibrosis

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Abstract

The aim of this study was to assess whether the serum levels of the 7S fragment of type IV collagen may aid in diagnosing liver fibrosis in dogs. The study was carried out on 20 dogs with liver disease. Serum levels of the 7S fragment of type IV collagen were measured in all dogs. The analysis showed that healthy dogs and dogs with type 1, 2 and 3 liver fibrosis had low serum concentrations of the 7S fragment of type IV collagen compared to dogs with type 4 liver fibrosis. The study revealed that the assessment of serum levels of the 7S fragment of type IV collagen is useful in the diagnosis of advanced liver fibrosis and cirrhosis.

Key words: liver, dog, serum 7S fragment of type IV collagen, liver fibrosis

Introduction

Hepatic fibrosis is a wound-healing process in chronic liver injury, and is characterized by the activation of hepatic stellate cells (HSC) and excess production of collagen components of the extracellular matrix together with a change in the ratio between extracellular matrix and cellular components. Liver fibrosis is the process of activation of HSC, a progressive deposition of collagen components of the extracellular matrix (ECM) and a change in the ratio between extracellular matrix components and cellular components. Direct liver remodeling marker is the 7S fragment of type IV collagen (PIVNP) (Tsutsumi et al. 1993, Friedman 2000). To date, the correlation between the extent of liver fibrosis and serum levels of the 7S fragment of type IV collagen (PIVNP) has not been studied in veterinary medicine.

The aim of this study was to assess the usefulness of measuring serum levels of the 7S fragment of type IV collagen in the diagnosis of liver fibrosis in dogs.

Materials and Methods

The study was carried out on 20 dogs of different breeds and sex, aged 7 to 15 years, with suspicion of chronic liver disease. In all the dogs the blood tests (AST, ALT, ALP, GGT, total bilirubin) and liver biopsy was performed. Serum PIVNP concentrations were measured in duplicate using the Human N-terminal procollagen IV propeptide Elisa Kit.