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Citation	Japanese Journal of Veterinary Research, 48(1), 84-84
Issue Date	2000-05-31
Doc URL	http://hdl.handle.net/2115/2840
Type	bulletin (article)
File Information	KJ00003408174.pdf



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A study on the significance of serum trypsin-like immunoreactivity
in experimentally induced acute pancreatitis in dogs

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Acute pancreatitis may result in death if not diagnosed and treated in a timely fashion.

However, diagnosis of acute pancreatitis is difficult because clinical and clinicopathological abnormalities are often nonspecific. In addition, the diagnostic utility of amylase and lipase activities is limited.

To study the significance of serum trypsin-like immunoreactivity (TLI) in the diagnosis of canine acute pancreatitis, time-dependent changes in the serum TLI concentration were compared with those of serum amylase and lipase activities in two different models of experimental acute pancreatitis. In addition, clinical and clinicopathological findings were examined. Hemorrhagic necrotizing pancreatitis was induced by 30% deoxycholic acid infusion directly into the accessory pancreatic duct, and edematous pancreatitis was induced by cerulein (5 µg/kg/h, iv infusion for 4 h) in three dogs, each.

Clinical and clinicopathological findings in dogs with cerulein-induced pancreatitis (CiP) were milder than those in dogs with

deoxycholic acid-induced pancreatitis (DiP). Ascites, hemolysis and leukocytosis with a left shift were only observed in dogs with DiP.

Serum concentrations of TLI increased markedly and tended to peak and decrease more rapidly than amylase and lipase activities in both models. At the peak time, the rate of increase in the serum TLI concentration was the highest among these three enzymes. In dogs with DiP, the mean peak concentration of serum TLI was lower than that in dogs with CiP, but serum TLI concentrations remained high for longer periods than those in dogs with CiP.

These findings suggest that the serum TLI concentration may provide an early indication in the diagnosis of acute pancreatitis in dogs. Furthermore, it is possible that a high concentration of serum TLI may indicate the existence of pancreatitis and improve the diagnostic accuracy. As for comparing the two experimental pancreatitis models, the concentration of serum TLI may not reflect the pathology and severity of pancreatitis in dogs.