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Evaluation of Anamnestic and Clinicopathologic Factors That Might Explain the Poor Correlation Between Pancreatic Lipase Concentrations (DGGR-Lipase and Spec cPL) and Ultrasonographic Evidence of Pancreatitis in Dogs

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Pancreatic lipase concentrations and pancreatic ultrasound (US) are the two cornerstones for a clinical diagnosis of pancreatitis in dogs. Multiple studies have shown that results of both modalities are poorly correlated, which complicates the diagnosis of pancreatitis.

We therefore investigated which anamnestic and clinicopathologic factors affect the pancreatic US evaluation, and which clinicopathologic parameters correlate best with an ultrasonographic diagnosis of pancreatitis in dogs.

In this retrospective study, data from dogs presenting with gastrointestinal clinical signs between 2016–2020 were included if a DGGR-lipase and a full abdominal ultrasound examination were performed within 24 h of each other. Spec cPL results were included when taken from the same blood sample as the DGGR-lipase. Dogs pretreated with corticosteroids were excluded. Spearman correlation was used for measuring relationships. Cohens kappa (k) was used as measure of agreement of two categorical variables. Mann-Whitney U test was applied to compare metric variables between US categories. Differences between pancreatic US diagnosis and categorical variables were assessed using Chi-square Test. All tests were performed two-tailed at a 5% level of significance.Data from 234 dogs were available for analyses, of which 102/234 dogs also had a Spec cPL measured. DGGR-lipase and Spec cPL correlated significantly ($\rho=0.916$, $p<0.001$). There was only a slight agreement for Spec cPL>400 mcg/l and US positivity (k=0.147, 95% CI+/- 0.190, and fair agreement for DGGR-lipase >216 U/l and US positivity (k=0.251, 95% CI +/- 0.125).

Median DGGR-lipase, segmented neutrophils, alkaline phosphatase, and alanine aminotransferase values were significantly higher in dogs with US positivity compared to dogs with a normal pancreas; however, the results of the latter 3 laboratory values were within reference range. If the radiology submission form contained “suspicion of pancreatitis” or “increased lipase,” the final US diagnosis was significantly more often positive than expected. The presence of irregular or rounded contours, a hypoechoic, mixed-echoic or hyperechoic pancreas, an enlarged pancreas, hyperechoic mesentery, peripancreatic effusion, gastric wall thickening, corrugated duodenum, a painful pancreatic area, and patient age >6 years were also significantly associated with US positivity. DGGR-lipase and Spec cPL were significantly higher when rounded contours, an enlarged pancreas, hyperechoic mesentery, and peritoneal effusion were present. Only DGGR-lipase was significantly higher when a hypoechoic pancreas, and significantly lower when a normal pancreatic echogenicity was present.

Our findings might be useful when designing future studies assessing diagnostic performances of lipase assays in the absence of a gold standard.

Disclosures

No disclosures to report.

Speaker Information

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