inflammatory bowel disease (IBD) or lymphoma. Alpha$_1$-proteinase inhibitor (α_1PI) is a protease-resistant protein that can be measured in serum and fecal samples. The concentration of fecal canine α_1PI (cα_1PI) has been shown to be increased in dogs with severe IBD or lymphangiectasia. This study aimed to evaluate serum and fecal cα_1PI concentrations in relation to the severity of histologic findings in dogs with IBD.

Serum and fecal samples were collected from 98 dogs with IBD at the time of histologic diagnosis. Serum and fecal cα_1PI concentrations were measured, and were compared between IBD dogs with *vs*. without crypt abscesses and/or lacteal dilation, and with the severity of histologic disease severity (based on the WSAVA GI histopathology grading system) using a Wilcoxon rank sum test. Receiver-operating characteristic (ROC) curve analysis was performed for sensitivity and specificity calculations. A Spearman rank sum correlation coefficient was used to test the relationship between serum and fecal cα_1PI concentrations with serum concentrations of albumin.

Serum cα_1PI and albumin concentrations were significantly lower in IBD dogs with crypt abscesses and/or lacteal dilation (n = 43) than in those without (n = 55; both $p < 0.0001$). The severity of lacteal dilation was significantly associated with the concentration of cα_1PI in serum ($p < 0.0001$) and fecal samples ($p = 0.0136$ for the mean and $p = 0.0249$ for the maximum cα_1PI concentration in fecal samples collected from 3 consecutive days), and also with serum albumin concentrations ($p < 0.0001$). Serum albumin and histologic disease severity were negatively correlated (ρ=-0.29, $p = 0.0033$), but neither serum nor fecal cα_1PI concentrations were associated with the severity of histologic lesions. A serum cα_1PI of 1,168 mg/L, a 3-day mean fecal cα_1PI of 11.0 µg/g, and a 3-day maximum fecal cα_1PI of 25.5 µg/g distinguished dogs with moderate/severe GI crypt abscesses and/or lacteal dilation (n = 17) from those without crypt abscesses and only mild/without lacteal dilation (n = 81) with a sensitivity of 79%, 80%, and 67%, respectively, and a specificity of 70%, 65%, and 73%, respectively. Serum albumin and serum cα_1PI were moderately correlated (ρ=0.67, $p < 0.0001$), especially if lacteal dilation was moderate to severe (ρ=0.76, $p = 0.0016$).

This study showed that serum and fecal cα_1PI concentrations are associated with the severity of GI crypt abscesses and/or lacteal dilation in dogs with IBD, suggesting that both are valuable non-invasive markers of GI protein loss in dogs. Due to its specificity for the GI tract, measurement of fecal cα_1PI appears to be superior to that in serum for the diagnosis of GI protein loss in dogs.

GI-26
EVALUATION OF TWO DRY THERAPEUTIC DIETS FOR DOGS WITH ACUTE DIARRHEA.

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Acute diarrhea is a common cause of morbidity in both client-owned dogs and those housed in animal shelters. Additionally, the development of acute diarrhea may delay the time to adoption in shelter dogs, which negatively impacts both the individual dog and shelter resources. The purpose of this study was to compare the use of two diets, Purina EN® and Hills Science Diet i/d®, in a population of young, otherwise healthy shelter dogs with acute diarrhea.

Dogs estimated to be 3 months to 3 years of age and heavier than 10 pounds were eligible for inclusion in the study if diarrhea (7 = watery puddles; 6 = texture but no shape; 5 = moist piles; 4 = moist log shape) without blood or tenesmus had been noted for at least 2 days. In addition, there could be no evidence of systemic illness including fever or inappetance and the dog had to be deemed behaviorally suitable for adoption once diarrhea was resolved. All dogs were evaluated for gastrointestinal parasites using fecal flotation by zinc sulfate centrifugation and fecal immunofluorescence assay for *Giardia* and *Cryptosporidium* (Meridian Diagnostics) on entry to the study and all were administered Drontal Plus® (Bayer Animal Health) for the first 3 days of the study, starting on Day -2 or Day -1. Qualifying dogs were randomly assigned to be fed EN or i/d beginning on Day 0 with fecal scores, appetite, and overall health status monitored daily for the next 14 days.

To date, 13 dogs fed EN (n = 13) and 9 dogs fed i/d (n = 9) met the entry criteria and completed the study through at least Day 11. No dog was pulled from the study for refusing to eat a diet and complete portions were ingested by all dogs. Dogs fed EN had a mean fecal score of less than 3 by Day 2 and dogs fed i/d had a mean fecal score less than 3 by Day 5, but these findings were not statistically different. Of the dogs fed i/d, 44.4% had a recurrence of a fecal score greater than 3 after Day 7 versus 15.4% of the dogs fed EN ($p = 0.18$). The proportions of fecal samples with a score greater than 3 after the dogs were fed the respective diet were stratified into Days 1 - 7, Days 8 - 14, and Days 1 -14. Dogs fed EN had significantly greater ($p = 0.02$) proportion of normal stools between Days 1 – 7 (81.7%) than dogs fed i/d (63.2%). Parasites were detected in the feces of 38.4% of dogs fed EN and 55.4% of dogs fed i/d but these results were not significantly different. *Giardia* (8 dogs) or *Ancylostoma caninum* (2 dogs) were most common and both respond to Drontal Plus®.

Both diets were well tolerated and apparently effective in this study design, with dogs fed Purina EN® having a greater proportion of normal stools than those fed Hills Science Diet i/d®.

GI-27
CORRELATION OF SERUM CATALYTIC LIPASE ACTIVITY AND PANCREATIC LIPASE IMMUNOREACTIVITY IN CLINICALLY ABNORMAL DOGS WITH AND WITHOUT ULTRASONOGRAPHIC EVIDENCE OF PANCREATITIS.

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Pancreatic lipase immunoreactivity (PLI) and abdominal ultrasound are considered the best tests for noninvasive diagnosis of pancreatitis in dogs. Lipase activity may be considered weaker than PLI, but methods vary. A catalytic lipase assay using the substrate 1,2-O-dilauryl-rac-glycero-3-glutaric acid–(6-methylresorufin) [DGGR-lipase] has reportedly substantial agreement and good correlation with PLI in cats (*JVIM* 2013:27:708,1077-1082). To examine if DGGR-lipase has a similar relationship to PLI in dogs, all records from 2007-2013 were retrieved where: 1) Spec cPL® had been ordered (IDEXX Laboratories, Inc, Markham, ON, Canada); and 2) DGGR-lipase had been measured (Animal Health Laboratory, Guelph), on the same sample, using the LIPC lipase assay (Roche Diagnostics), with reference interval (RI) of 25-353U/L based on 86 mature dogs. Ultrasound exams performed by board-certified radiologists within 24 hr of lipase tests were reviewed for findings supportive of pancreatitis as previously described (*JVIM* 2013:27:707-708).

There were 177 dogs (median age 8 yrs, range 0.5-16, various breeds) with 205 evaluations. All dogs presented for variable lethargy, vomiting and diarrhea. Median (range) for Spec cPL® were 443 (<30 to >1000) ug/L, and for DGGR-lipase were 296 (17 to >78,520) U/L. Comparisons of DGGR-lipase and Spec cPL® (overall and stratified by ultrasound) are in Table 1. The two were strongly correlated within Spec cPL® analyzable range. Agreements between DGGR-lipase >RI and Spec cPL® > 200 or 400ug/L were examined with kappa - agreements were moderate to very good. Elevated DGGR-lipase strongly predicted elevated Spec cPL®. DGGR-lipase value < 52U/L ruled-out Spec cPL® > 200ug/L; DGGR-lipase < 113U/L ruled-out Spec cPL® > 400ug/L. Values were trended in 25 dogs - DGGR-lipase and Spec cPL® always changed in the same direction. Agreements between ultrasound findings and Spec cPL® > 200ug/L, Spec cPL® > 400ug/L, and DGGR-lipase >RI were fair (kappa ± SE: 0.44 ± 0.05, 0.36 ± 0.06, 0.31 ± 0.07, respectively).

If DGGR-lipase is below or above the RI, measuring PLI has limited diagnostic utility. For DGGR-lipase values within the RI, PLI may be elevated; it is not known if this represents increased sensitivity and/or reduced specificity of PLI for pancreatitis compared to DGGR-lipase.