

Diagnostic Value of Canine Fecal Pancreatic Elastase (E1) for the Diagnosis of Subclinical Exocrine Pancreatic Insufficiency in Dogs

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Aim: To assess the diagnostic value of canine fecal E1 measurement for the diagnosis of subclinical exocrine pancreatic insufficiency, (subclinical EPI; SEPI).

Materials and Methods: SEPI-group was included 13 dogs (11 German shepherd dogs, GSD, and 2 rough coated collies, RCC). Criteria for SEPI was repeatedly low serum trypsin-like immunoreactivity, TLI, concentrations (<5.0 µg/L) with the clinically normal dog. Partial pancreatic acinar atrophy had been confirmed in 5 of the dogs by laparotomy (1.) Control-group was included 50 dogs (24 GSD and 3 RCC, and 23 beagles) with TLI concentrations > 5.0 µg/L. Canine fecal E1 were measured from 3-consecutive day samples.

Results: In the SEPI-group the median; min/max of 3-day fecal E1 concentrations were significantly lower (28.3 µg/g; 1.8 to 225.0 µg/g) when compared to the control-group /175.20 µg/g; 1.9 to 1721.0 µg/g) (p=0.0013). When the control-group was split by the breed, the significant difference was still found when SEPI-group was compared to control beagles (410.30 µg/g; 111.0 to 1721.0 µg/g) (P<0.05), but not when compared to GSD/RCC-controls (49.0 µg/g; 1.9 to 567.0 µg/g) (p=0.5).

Individual day to day variations of fecal E1 concentrations were remarkable. Among SEPI-group day to day variation was accounted for 33.6% and among control-group for 44.3%. The diagnostic value for fecal E1 was evaluated by the receiver operating characteristic (ROC) curve. The area under ROC curve was 0.754 (SE 0.059) indicating significant diagnostic value of fecal E1 (p=0.001). With the cutoff value 60 µg/g the sensitivity was 68.4% and specificity 68.0%, and with cutoff value 150 µg/g the sensitivity was increased (89.5%) but specificity decreased (54.0%).

Conclusions: The statistical analysis indicated that the fecal E1 measurement was able to discriminate between the dogs with SEPI and healthy control dogs. However, the remarkable day to day variation and the overlap of the results with SEPI and the control dogs indicated that practical value of fecal E1 for the diagnosis of SEPI is questionable.

References: 1 Wiberg et al. JVIM 1999; 13; 426-432.

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