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A new test for canine intestinal mucosa permeability

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Introduction

Increases in mucosal intestinal permeability may cause pathological leakage of bacterial products, inducing inflammation. Low-grade systemic inflammation has been reported in overweight humans. Probes used for permeability evaluation in humans have not yet been evaluated in dogs.

Objective

To determine suitability of human permeability probes (riboflavin, lactulose, mannitol and sucralose) for canine obesity models.

Methods

Fourteen healthy dogs were examined as baseline group. They were given all four probes *per os* using human doses corrected for weight and reported to be harmless for dogs. Urine samples were collected 2, 4 and 6 h after ingesting probes. Urinary excretion was quantified.

Results

The least squares means of mannitol proportion (excreted/ingested ± SE) was 15.6 % (± 2.0), 11.0 % (± 2.1) and 5.5 % (± 2.1) for urine sampled 2, 4 and 6 h after ingestion ($p<0.0001$). Hence, the majority of mannitol absorption and secretion representing upper gastrointestinal leakage was completed by 4 h. Riboflavin followed a similar temporal profile, defining 4 h as a cutoff for upper vs lower gut permeability. Probes were well tolerated.

Conclusions

Data obtained in the study indicates that probes used for humans can be used for intestinal permeability evaluation in dogs.

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