

capsules

THE CURRENT LITERATURE IN BRIEF

Vitamin B12 & Intestinal Health

The absorption of cobalamin (vitamin B12) entails a complex, receptor-mediated mechanism that occurs exclusively in the ileum of dogs and cats. Cobalamin deficiency may, therefore, develop in cats with small intestinal disease due to reduced uptake of this vitamin. This study assessed the impact of parenteral cobalamin supplementation on biochemical markers and clinical signs in cats with severe cobalamin deficiency secondary to gastrointestinal disease.

Nineteen cats (mean age, 12.3 years) with undetectable serum cobalamin concentrations (<100 ng/L) were used in the study. The cats were given 250 mg cobalamin SC once weekly for 4 weeks, with no alterations made to other medications being given or to diet. Biochemical indices of cobalamin availability (e.g., methylmalonic acid [MMA], homocysteine, and cysteine), serum feline trypsin-like immunoreactivity (fTLI), and serum folate concentrations as well as clinical signs were recorded at the beginning and end of the study.

Serum MMA concentrations were found to be dramatically decreased. The study also found that serum cysteine concentrations were significantly higher after cobalamin supplementation, whereas there was no significant change in homocysteine concentrations. Serum folate concentrations were also noted to decrease significantly after cobalamin supplementation—a change the authors noted could affect interpretation of these concentrations when used as a diagnostic test for small intestinal disease. Overall, the mean body weight of these cats increased significantly and a linear correlation could be made between the magnitude of change in the serum MMA and fTLI concentrations and the percentage of body weight change. As for clinical signs, many of the cats' owners noted a reduction in vomiting or diarrhea or improvements in fecal consistency, although lack of a control group made statistical analysis impossible.

The authors concluded that there were significant changes in the clinical and biochemical status of cats with severe cobalamin deficiency after parenteral supplementation. They recommended that cats undergoing diagnostic assessment for gastrointestinal disease have serum cobalamin and folate concentrations measured and that all cats with gastrointestinal disease and serum cobalamin concentrations less than 300 ng/L receive cobalamin supplementation.

COMMENTARY: The importance of specific nutrients to the health of enteric cells is becoming increasingly well documented. Previously, deficiency of cobalamin (vitamin B12) had been reported to develop in some cats with small intestinal disease caused by decreased absorption. This report showed that cobalamin supplementation in 19 cobalamin-deficient cats with gastrointestinal disease improved clinical signs (mean weight gain of 8.2% in 1 month and reduced frequency of vomiting and/or diarrhea in most cats) and normalized biochemical indices of cobalamin availability. Measurement of serum cobalamin concentration, and parenteral supplementation when hypocobalaminemia is present, may be important adjuncts to the medical evaluation and management of cats with gastrointestinal disease.—*P. Jane Armstrong, DVM, MS, MBA, Diplomate ACVIM*

Early biochemical and clinical responses to cobalamin supplementation in cats with signs of gastrointestinal disease and severe hypocobalaminemia. Ruaux CG, Steiner JM, Williams DA. J VET INTERN MED 19:155-160, 2005.