

capsules

THE CURRENT LITERATURE IN BRIEF

Hypercalcemia—Tracking It Down

Clinical signs of hypercalcemia are insidious and nonspecific, often presenting as the result of a blood workup. Calcium is an important electrolyte that maintains tooth and bone structure and controls many cellular processes, including muscle contraction, nerve function, blood coagulation, enzyme activity, cell secretion, and cell adhesion. Serum calcium exists in 3 forms: 50% ionized (physiologically active form), 45% protein-bound (primarily albumin and to a lesser extent, globulin), and 5% complexed anions (citrate, bicarbonate, phosphate, or lactate). Ionized calcium is regulated by parathyroid hormone and the active form of vitamin D, calcitriol.

An accurate measure of serum calcium (measuring ionized calcium eliminates potential inaccuracies from measuring the other serum calcium components) and a detailed history should be obtained. Causes of hypercalcemia in dogs and cats are cancer, hypoadrenocorticism, chronic renal failure, and urolithiasis (in cats). Correctly identifying these causes often takes patience and thoroughness. Primary disease caused by hypervitaminosis D or parathyroid hyperplasia, adenoma, and adenocarcinoma is rare in dogs and cats. Rodenticides and human medications containing vitamin D are sometimes implicated.

Common clinical signs are excessive urination combined with excessive thirst—a direct effect of hypercalcemia on the concentrating ability of the kidney. Once hypercalcemia has been established, underlying causes must be ruled in or out. A physical examination, biochemical workup, and urinalysis results will inform the decision of whether to investigate further. An adrenocorticotropic hormone–stimulation test for hypoadrenocorticism, hormone tests for cancer, and imaging studies for metastatic disease may be performed to reveal the cause of disease. In some cases, surgical exploration may be needed.

Treatment—including intravenous saline diuresis and Lasix—can be pursued during diagnosis, and calcitonin can be effective in lowering serum calcium levels. Glucocorticoids can be used after lymphoma has been ruled out.

COMMENTARY: This overview lists common clinical signs and the details of evaluating the patient for an accurate diagnosis of hypercalcemia.

Hypercalcemia: Where do I look now? Ward CR. IVECCS PROC 9:169-172, 2003.