

capsules

THE CURRENT LITERATURE IN BRIEF

Use of Biphosphonates to Treat Hypercalcemia

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A common calcium disorder in dogs and cats, hypercalcemia may be associated with cholecalciferol toxicosis, lymphoma and other tumors (hypercalcemia of malignancy), hypoadrenocorticism, chronic renal failure, primary hyperparathyroidism, and occasionally other conditions. Most clinicians rely on serum ionized calcium tests to diagnose hypercalcemia. Short-term treatment consists of IV saline diuresis (1 to 2x maintenance needs), sodium-wasting diuretics (furosemide, but only in well-hydrated patients), and corticosteroids (prednisone, 1 mg/kg Q 12 H), which can help until a comprehensive care plan is undertaken. Treatments advocated in human medicine (calcitonin or gallium nitrate) are expensive, are of only brief clinical efficacy, or need further evaluation in animals. Recently, bisphosphonates, such as pamidronate disodium, have been described in hypercalcemic dogs and cats as safe and effective. Pamidronate disodium inhibits normal and pathologic bone resorption and reduces serum calcium by inhibiting osteoclasts, retarding deposition of hydroxyapatite in bone collagen, increasing unmineralized osteoid, and inhibiting formation of calcium phosphate crystals. Definitive doses have not been established for dogs or cats but have been reported for dogs (0.65 to 2.0 mg/kg IV; one dog with hypercalcemia secondary to adenocarcinoma successfully received 1.3 mg/kg in saline IV over 2 hours). Cats can be safely treated with pamidronate using the same dose as for dogs. Relief from hypercalcemia in dogs with lymphoma may last for weeks following treatment. Concurrent diuresis is suggested in hypercalcemia of malignancy in human adults and children, but electrolyte abnormalities are recognized complications (such as hypomagnesemia) that have been observed in dogs. Full-Day Veterinary Cancer Society Symposium

COMMENTARY: The authors point out that pamidronate is an effective drug to manage hypercalcemia caused by several conditions, including cancer and vitamin D toxicosis. This drug can be used to enhance patient quality of life in palliative settings by reducing the pain and suffering associated with bone metastases and hypertrophic osteopathy. There is evidence that the drug may have measurable anticancer effects in some types of cancer. Fluid diuresis is essential to reduce drug- or disease-induced nephrotoxicity. The authors wisely point out the potential for other adverse effects, such as electrolyte disturbances. —Gregory K. Ogilvie, DVM, Diplomate ACVIM – Small Animal Internal Medicine & Oncology