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Veterinary Emergency
& Specialty Center of New England
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Calcipotriene Intoxication

Calcipotriene, the active ingredient in the human psoriasis medication Dovonex, is a vitamin D analog that can cause hypercalcemia, and secondary acute renal failure. Clinical signs can include depression, anorexia, vomiting, weakness, polyuria, polydipsia, constipation, and abdominal pain. Dovonex, is 0.005% calcipotriene.

The minimum LD50 of calcipotriene is 36 mg/kg. Calcipotriene intoxication can sometimes require 2-3 weeks of intensive treatment and monitoring. Some animals initially recover but can die weeks to months later. Postmortem examination has shown myocardial calcification in addition to other tissue mineralization.

MINIMUM DATABASE:

Prior to starting therapy, initial diagnostics are necessary to get baseline values.

- CBC and chemistry screen: most importantly to investigate azotemia, hypercalcemia, and hyperphosphatemia
- Urinalysis: to evaluate urine concentrating ability and evidence of renal tubular disease
- Blood pressure: look for hypertension
- Abdominal radiographs: to rule out other causes of vomiting

PROGNOSIS:

While the prognosis for calcipotriene intoxication is guarded, aggressive and prompt medical therapy is imperative and can result in a positive outcome. In the past 2 years, VESCONE has treated two dogs for calcipotriene intoxication. In both cases, pamidronate was used. The dogs are 1.5 years and 1 month post-ingestion, respectively. As of this publication, both dogs are healthy and their renal and calcium values have remained normal.

AT VESCONE, WE PERFORM IN HOUSE CLOTTING PANELS, CBCs, PLATELET COUNTS AND HAVE PLASMA AND PACKED RED CELLS FOR DOGS AND CATS AVAILABLE FOR YOUR PATIENTS THROUGH OUR BLOOD BANK.

PLEASE CALL US SHOULD YOU NEED TO HAVE US PERFORM ANY OF THESE TESTS FOR YOUR PATIENTS. WE ARE OPEN 24 HRS A DAY, 365 DAYS A YEAR.

References: 1) The ASPCA National Animal Poison Control Center Recommended Management of Calcipotriene (Dovonex.) Ingestion in Dogs; available by calling 1-888-426-4435.

TREATMENT:

- 1 Initial decontamination is similar to other toxins. Induction of emesis is recommended if it less than 4 hours post-ingestion, followed by activated charcoal. Repeated doses of activated charcoal are recommended due to enterohepatic recirculation.
- 2 Normal saline, at rates of twice maintenance and sometimes higher, is the crystalloid of choice as it enhances calciuresis. Furosemide and glucocorticoids can be used to promote calcium excretion. However, pamidronate (Aredia,) can decrease hypercalcemia faster than furosemide and glucocorticoids, and may be effective when these two, even combined, are not.
- 3 Pamidronate is a bisphosphonate used in human medicine for hypercalcemia of malignancy and metastatic bone lesions. It is believed to block bone resorption by inhibiting osteoclasts. Possible mild, transient side effects include fatigue, skeletal pain, and gastrointestinal upset.
- 4 Use of pamidronate in veterinary medicine is often limited by availability and expense. Most human hospitals should be able to provide pamidronate, but the cost for one dose for a 20 kg dog can run several hundred dollars. Pamidronate is given as an intravenous infusion in normal saline over 2 hours, at a dose of 1.3-2 mg/kg. After infusion, normocalcemia is typically reached in 1-2 days. Occasionally a second dose is needed in 5-7 days because calcium levels increase.
- 5 Daily monitoring of renal values, calcium, and phosphorus is important to assess improvement. If hyperphosphatemic, oral aluminum hydroxide can be used to bind PO₄. Once hypercalcemia has resolved, intravenous fluids can slowly be tapered while monitoring renal values and electrolytes closely. Calcium and phosphorus should be monitored every few days for 3 weeks once intravenous fluids have been discontinued and then finally at one month post exposure.