Compounded Alternatives for GI Ulcers

Feline megacolon is a devastating disease characterized by severe constipation. Untreated cats with megacolon become obtunded, vomit, and stop eating, and as the impaction worsens, fatal sepsis and/or colonic perforation develops. There are no approved drugs available to treat feline megacolon. Enemas and manual removal of feces are often used, but these procedures are very stressful to cats and also may result in bowel perforation or sepsis. The primary goal of treatment is keeping water in the bowel while maintaining colonic motility. The only therapeutic agent that has proven effective in stimulating feline colonic motility is cisapride administered orally 2 to 3 times daily at a dosage of 5 to 10 mg. Cisapride is not commercially available and must be compounded in any of several different dosage forms. Gelatin capsules, oral suspensions, and chewable treats are most commonly prescribed because oral administration ensures passage to the gastrointestinal tract where the drug exerts its action.

References on reverse.

Veterinarians have been requesting ronidazole from compounding pharmacists since a study performed by Jody L. Gookin, DVM, PhD, DACVIM–Internal Medicine, at the College of Veterinary Medicine at North Carolina State University in Raleigh, North Carolina, confirmed that it is an effective treatment for diarrhea caused by *Trichomonas foetus* in cats. Although ronidazole is not commercially available in the United States, it can be obtained from US chemical suppliers. Because it has carcinogenic properties, it is banned for use in food-producing animals. When compounding ronidazole, pharmacy personnel must wear a powder hood to minimize their exposure to the drug.

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References on reverse.
**TREATING PULMONARY HYPERTENSION WITH SILDENAFIL**

In dogs and foals (as in humans), pulmonary hypertension (PH) is a life-threatening condition that ultimately causes rightsided heart failure if untreated. Historically, the treatment of PH in veterinary patients has targeted only the cause of the disorder (heartworm disease, respiratory disease, acidosis, etc.) because no agents for the treatment of primary PH itself were available. Recently, researchers have determined that PH is mediated primarily by the enzyme phosphodiesterase type 5 (PDE 5) and that inhibition of that enzyme can significantly reduce pulmonary blood pressure. Given in a dosage of 0.5 to 1 mg/kg orally every 8 hours, sildenafil (Viagra; Pfizer, New York, NY) has emerged as the PDE 5 inhibitor most widely used to treat canine and equine PH. Because sildenafil is commercially available only in 25-, 50-, or 100-mg tablets (doses far too high to treat canine patients) and because the therapeutic window for sildenafil is quite narrow, compounding pharmacists are often requested to formulate this drug in the patient-specific doses required to titrate therapy for PH in dogs. A sildenafil oral suspension is ideal for that purpose. Sildenafil is stable in oral suspension at a concentration of 2.5 mg/ml for 30 days if refrigerated. After a maintenance dose has been established, a compounding pharmacist may be directed to compound sildenafil in capsules or chewable treats (if those dosage forms increase compliance) in the exact dose required.

**References**


Wilkins PA. Persistent Pulmonary Hypertension in the Neonate. In Proceedings of the 22nd Annual Forum of the American College of Veterinary Internal Medicine; June 9–12, 2004; Minneapolis, MN.


**COMPounding TRISTANtOANE FOR CANINE CUSHing’S DISEASE**

In some dogs, hyperadrenocorticism (Cushing’s disease) does not respond to conventional treatments such as deprenyl, ketoconazole, or mitotane. Deprenyl and ketoconazole are effective in only a small population of canine Cushing’s patients, and mitotane, an adrenal cell cytotoxin, is not tolerated well by some dogs. Those patients will sometimes benefit from therapy with trilostane, a 3-β-hydroxysteroid dehydrogenase inhibitor, which significantly decreases cortisol production in affected dogs without causing the adverse effects associated with mitotane. However, trilostane also inhibits the synthesis of progesterone and is likely to induce miscarriage in dogs (and potentially in humans). This agent is no longer available as an approved product in the US but is approved in other countries for the treatment of canine Cushing’s disease as Vetoryl (Arnolds Veterinary Products, Ltd. Shrewsbury, UK) in 30-, 60-, or 120-mg capsules. Because exposure to trilostane is hazardous to humans, the US Food and Drug Administration (FDA) prefers that approved forms of Vetoryl for use in the treatment of canine Cushing’s patients be imported from the manufacturer rather than compounded from the active pharmaceutical ingredient. A 13-question protocol must be completed and faxed by the sponsoring veterinarian to the FDA to obtain permission to import Vetoryl. If changes in the dosage form or dose are required after importation, the veterinarian may collaborate with a compounding pharmacist to customize an exact dose of Vetoryl for a given patient.

Because ronidazole is extremely bitter, must be stored at -20°C, and is unstable in aqueous solutions, compounders are preparing doses of that agent in gelatin capsules that can be stored in a freezer throughout therapy. The effective dosing range noted in the study by Dr. Gookin was 30 to 50 mg/kg administered orally twice daily for 2 weeks. Since completion of that study, however, she has received reports of neurotoxicity from ronidazole in doses given at the higher end of that dosing range. Dr. Gookin now recommends starting therapy at 30 mg/kg orally twice daily and observing the patient for any signs of neurotoxicity (e.g., nystagmus, ataxia). If neurotoxic signs are noted, she recommends that therapy with ronidazole be terminated immediately and that any feces produced by the patient during treatment with that agent be double-bagged and disposed of in the trash to prevent environmental contamination (JL Gookin, personal communication, October 22, 2005.)


**TREATING FELINE TRICHOMONIASIS WITH RONIDAZOLE**

Cont’d

**Additional References for Cisapride**


References


Wilkins PA. Persistent Pulmonary Hypertension in the Neonate. In Proceedings of the 22nd Annual Forum of the American College of Veterinary Internal Medicine; June 9–12, 2004; Minneapolis, MN.