

Characteristics of GI Tract Dysfunction in Rabbits

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In the Literature

Oparil KM, Gladden JN, Babyak JM, Lambert C, Graham JE. Clinical characteristics and short-term outcomes for rabbits with signs of gastrointestinal tract dysfunction: 117 cases (2014–2016). *J Am Vet Med Assoc.* 2019;255(7):837-845.

FROM THE PAGE ...

One of the most common presentations in exotic animal medicine is rabbit GI stasis (RGIS), which may be primary or secondary. Despite its frequency, this syndrome is not well-identified, and etiologies range widely and can include toxicosis, infections, dental disease, neoplasia (GI or nonGI), diet, and environmental conditions.

This study retrospectively examined commonalities in history, clinical, and laboratory findings in an effort to correlate them with etiologies and outcomes. Approximately 24% ($n = 117$) of the total rabbit caseload seen over a 2-year period was included in the study.

Ultimately, 43 rabbits were diagnosed with RGIS without mechanical obstruction; only 1 was confirmed to have a physical obstruction (impaction of the distal descending colon). Radiographs identified medical issues that were not related to the GI tract in 23 (46%) patients.

Hematologic and serum chemistry values had no statistically relevant associations with short-term outcomes. However, 4 of 7 rabbits with moderate to severe serum creatinine levels, 2 of 3 rabbits with abnormal elevations of serum ALT activity, and 4 of 6 rabbits with marked serum lactate elevations died or were euthanized, suggesting a prognostic association with outcomes despite small sample sizes.

The most significant correlation to short-term outcomes was hypothermia. Thirty-four rabbits

(29%) were hypothermic on presentation, with rectal temperatures <97.9°F (<36.6°C). These patients experienced an ≈4.6 times greater likelihood to die or be euthanized than were rabbits that were not hypothermic on presentation.

Overall, outcomes and short-term prognoses for rabbits presented and treated for RGIS are good; in this study, 72% (84/117) of rabbits survived to hospital discharge, with 15 euthanized and 18 dying prior to discharge.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1 GI dysfunction is common in rabbits but has a good short-term outcome.
- 2 Radiography is valuable but not necessary for determining GI obstruction. Mechanical obstruction causing RGIS appears to be uncommon, based on data from this study, and diagnosis is often challenging; for 18 of 50 rabbits for which abdominal radiography was performed, a boarded radiologist could not differentiate whether radiographic abnormalities noted were caused by functional ileus or mechanical obstruction.
- 3 Clinical pathology findings have little correlation to outcome except in cases of significant abnormalities.
- 4 Hypothermia at presentation is a negative prognosticator.

Suggested Reading

- DiGirolamo N, Toth G, Selleri P. Prognostic value of rectal temperature at hospital admission in client-owned rabbits. *J Am Vet Med Assoc.* 2016;248(3):288-297.
- Harcourt-Brown FM, Harcourt-Brown SF. Clinical value of blood glucose measurement in pet rabbits. *Vet Rec.* 2012;170(26):674.
- Huynh M, Boyeaux A, Pignon C. Assessment and care of the critically ill rabbit. *Vet Clin North Am Exot Anim Pract.* 2016;19(2):379-409.
- Lichtenberger M, Lennox A. Updates and advanced therapies for gastrointestinal stasis in rabbits. *Vet Clin North Am Exot Anim Pract.* 2010;13(3):525-541.
- Ritzman TK. Diagnosis and clinical management of gastrointestinal conditions in exotic companion mammals (rabbits, guinea pigs, and chinchillas). *Vet Clin North Am Exot Anim Pract.* 2014;17(2):179-194.

Advantage Multi® for Dogs and for Cats (imidacloprid + moxidectin)

BRIEF SUMMARY: Before using Advantage Multi® for Dogs (imidacloprid+moxidectin) or Advantage Multi® for Cats (imidacloprid +moxidectin), please consult the product insert, a summary of which follows:

CAUTION: Federal (U.S.A.) Law restricts this drug to use by or on the order of a licensed veterinarian.

Advantage Multi for Dogs:

WARNING

- DO NOT ADMINISTER THIS PRODUCT ORALLY.
 - For the first 30 minutes after application ensure that dogs cannot lick the product from application sites on themselves or other treated animals.
 - Children should not come in contact with the application sites for two (2) hours after application.
- (See Contraindications, Warnings, Human Warnings, and Adverse Reactions for more information.)

INDICATIONS:

Advantage Multi for Dogs is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis* and the treatment of *Dirofilaria immitis* circulating microfilariae in heartworm-positive dogs. Advantage Multi for Dogs kills adult fleas and is indicated for the treatment of flea infestations (*Ctenocephalides felis*). Advantage Multi for Dogs is indicated for the treatment and control of sarcoptic mange caused by *Sarcoptes scabiei var. canis*. Advantage Multi for Dogs is also indicated for the treatment and control of the following intestinal parasites species: Hookworms (*Ancylostoma caninum*) (*Uncinaria stenocephala*), Roundworms (*Toxocara canis*) (*Toxascaris leonina*) and Whipworms (*Trichuris vulpis*).

Advantage Multi for Cats is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis*. Advantage Multi for Cats kills adult fleas (*Ctenocephalides felis*) and is indicated for the treatment of flea infestations. Advantage Multi for Cats is also indicated for the treatment and control of ear mite (*Otodectes cynotis*) infestations and the intestinal parasites species Hookworm (*Ancylostoma tubaeforme*) and Roundworm (*Toxocara cati*). **Ferrets:** Advantage Multi for Cats is indicated for the prevention of heartworm disease in ferrets caused by *Dirofilaria immitis*. Advantage Multi for Cats kills adult fleas (*Ctenocephalides felis*) and is indicated for the treatment of flea infestations in ferrets.

CONTRAINDICATIONS: Do not administer this product orally. (See WARNINGS). Do not use the Dog product (containing 2.5% moxidectin) on Cats.

WARNINGS:

Advantage Multi for Dogs: For the first 30 minutes after application: Ensure that dogs cannot lick the product from application sites on themselves or other treated dogs, and separate treated dogs from one another and from other pets to reduce the risk of accidental ingestion. Ingestion of this product by dogs may cause serious adverse reactions including depression, salivation, dilated pupils, incoordination, panting, and generalized muscle tremors. In avermectin sensitive dogs*, the signs may be more severe and may include coma and death†.

* Some dogs are more sensitive to avermectins due to a mutation in the MDRI gene. Dogs with this mutation may develop signs of severe avermectin toxicity if they ingest this product. The most common breeds associated with this mutation include Collies and Collie crosses.

† Although there is no specific antagonist for avermectin toxicity, even severely affected dogs have completely recovered from avermectin toxicity with intensive veterinary supportive care.

Advantage Multi for Cats: Do not use on sick, debilitated, or underweight cats. Do not use on cats less than 9 weeks of age or less than 2 lbs. body weight. Do not use on sick or debilitated ferrets. **HUMAN WARNINGS:** Not for human use. Keep out of the reach of children. Dogs: Children should not come in contact with the application sites for two (2) hours after application. Cats: Children should not come in contact with the application site for 30 minutes after application.

Causes eye irritation. Harmful if swallowed. Do not get in eyes or on clothing. Avoid contact with skin.

Wash hands thoroughly with soap and warm water after handling. If contact with eyes occurs, hold eyelids open and flush with copious amounts of water for 15 minutes. If eye irritation develops or persists, contact a physician. If swallowed, call poison control center or physician immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or physician. People with known hypersensitivity to benzyl alcohol, imidacloprid, or moxidectin should administer the product with caution. In case of allergic reaction, contact a physician. If contact with skin or clothing occurs, take off contaminated clothing. Wash skin immediately with plenty of soap and water. Call a poison control center or physician for treatment advice. The Safety Data Sheet (SDS) provides additional occupational safety information. For a copy of the Safety Data Sheet (SDS) or to report adverse reactions call Bayer Veterinary Services at 1-800-422-9874. For consumer questions call 1-800-255-6826.

PRECAUTIONS: Do not dispense dose applicator tubes without complete safety and administration information. Use with caution in sick, debilitated or underweight animals. The safety of Advantage Multi for Dogs has not been established in breeding, pregnant, or lactating dogs. The safe use of Advantage Multi for Dogs has not been established in puppies and dogs less than 7 weeks of age or less than 3 lbs. body weight. Advantage Multi for Dogs has not been evaluated in heartworm-positive dogs with Class 4 heartworm disease.

Cats may experience hypersalivation, tremors, vomiting and decreased appetite if Advantage Multi for Cats is inadvertently administered orally or through grooming/licking of the application site. The safety of Advantage Multi for Cats has not been established in breeding, pregnant, or lactating cats. The effectiveness of Advantage Multi for Cats against heartworm infections (*D. immitis*) after bathing has not been evaluated in cats. Use of this product in geriatric cats with subclinical conditions has not been adequately studied. Ferrets: The safety of Advantage Multi for Cats has not been established in breeding, pregnant, and lactating ferrets. Treatment of ferrets weighing less than 2.0 lbs. (0.9kg) should be based on a risk-benefit assessment. The effectiveness of Advantage Multi for Cats in ferrets weighing over 4.4 lbs. (2.0 kg) has not been established.

ADVERSE REACTIONS: Heartworm Negative Dogs: The most common adverse reactions observed during field studies were pruritus, residue, medicinal odor, lethargy, inappetence and hyperactivity. **Heartworm Positive Dogs:** The most common adverse reactions observed during field studies were cough, lethargy, vomiting, diarrhea (including hemorrhagic), and inappetence. **Cats:** The most common adverse reactions observed during field studies were lethargy, behavioral changes, discomfort, hypersalivation, polydipsia and coughing and gagging. **Ferrets:** The most common adverse reactions observed during field studies were pruritus/scratching, scabbing, redness, wounds and inflammation at the treatment site; lethargy; and chemical odor.

For a copy of the Safety Data Sheet (SDS) or to report adverse reactions call Bayer Veterinary Services at 1-800-422-9874. For consumer questions call 1-800-255-6826.

Advantage Multi is protected by one or more of the following U.S. patents: 6,232,328 and 6,001,858. NADA 141-251,141-254 Approved by FDA V-03/2016

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