Clostridial Enterotoxicosis in Rabbits
(Diarrhea Related to an Intestinal Toxin Produced by a Bacteria, Clostridium perfringens)

Basics

OVERVIEW

• A complex syndrome characterized by severe, life-threatening diarrhea, weakness, and lethargy associated with overgrowth of a particular bacteria, Clostridium perfringens, and the toxins that the bacteria produce.
• Young, weanling-aged rabbits (5–8 weeks old) are more susceptible to sudden, often fatal disease, causing death in 1–3 days. This is because young rabbits usually do not have established colonies of normal, protective bacteria in their intestines.
• Older rabbits require one or more predisposing factors to allow intestinal colonization of clostridial species. These include stress, inappropriate diet, and inappropriate antibiotic use. Colonization may cause sudden, often fatal disease, or a milder form of disease that is more amenable to treatment.
• In any aged rabbit, diets containing high carbohydrate concentrations (simple sugars, starches) promote overgrowth of intestinal clostridia organisms.
• In any aged rabbit, antibiotic usage can cause severe, acute, often fatal diarrhea due to overgrowth of clostridial species. Diarrhea follows the oral administration of antibiotics such as lincomycin, clindamycin, erythromycin, ampicillin, amoxicillin, cephalosporins, and penicillins. These antibiotics should not be orally administered to rabbits.

SIGNALMENT

• Weanling-aged rabbits—sudden, severe diarrhea; often fatal disease
• Older rabbits—variable severity of disease
SIGNS
• Most common—sudden onset of watery diarrhea, depression, lack of appetite, and listlessness; often a foul-smelling diarrhea; may contain mucus or blood
• Diarrhea may be described as soft and sticky, mucus covered or watery in adults; may be intermittent
• With severe diarrhea, rabbits become listless, appear painful (hunched posture, teeth grinding), and eventually become shocky.

CAUSES
• Certain strains of clostridia produce an intestinal toxin that causes diarrhea, depression, and in severe cases, death.

RISK FACTORS
• Low-fiber, high-carbohydrate diet
• Bottle-feeding orphaned baby rabbits
• Improper antibiotic use
• Stress

TREATMENT
APPROPRIATE HEALTH CARE
• Some adult rabbits with mild diarrhea that are otherwise bright and alert can be treated as outpatients. These patients can usually be successfully treated with oral or subcutaneous fluid therapy, dietary modification, and antibiotics.
• Rabbits with signs of lethargy, depression, dehydration, or shock are hospitalized, even if diarrhea is mild or absent.
• Rabbits with profuse diarrhea and rabbits under 5 months of age, regardless of the severity of diarrhea, require hospitalization for aggressive treatment.
• Aggressive IV fluid therapy and IV antibiotics are required in hospitalized patients. Even with aggressive treatment, the prognosis for recovery is poor.

ACTIVITY
• Restricted during sudden (acute) disease

DIET
• It is imperative that the rabbit continue to eat during and following treatment. Not eating will cause gastrointestinal motility disorders, further derangement of the gastrointestinal bacteria, and overgrowth of clostridia and other dangerous bacteria.
• Offer a good-quality grass hay and a large selection of fresh, moistened greens such as cilantro, romaine lettuce, parsley, carrot tops, dandelion greens, spinach, collard greens, etc. Many rabbits will begin to eat these foods, even if they were previously anorectic.
• If the patient refuses these foods, syringe-feed a gruel such as Critical Care for Herbivores (Oxbow Pet Products) or Emeraid Herbivore (Lafeber Company, Cornell, IL). Alternatively, pellets can be ground and mixed with fresh greens, vegetable baby foods, water, or juice to form a gruel. If sufficient volumes of food are not accepted in this manner, nasogastric intubation is indicated.
• High-carbohydrate, high-fat nutritional supplements are contraindicated.
• The diet should be permanently modified to include sufficient amounts of roughage and long-stemmed hay. Offer high-quality, fresh hay (grass or timothy preferred; commercially available hay cubes are not sufficient) and an assortment of washed, fresh leafy greens. These foods should always constitute the bulk of the diet. Pellets should be limited (¼ cup pellets per 5 lb body weight, if offered at all) and foods high in simple carbohydrates prohibited or limited to the occasional treat.

MEDICATIONS
• Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered all-inclusive.
• Antibiotics—Metronidazole is the most common antibiotic used. It is given IV in hospitalized rabbits or orally in rabbits with mild disease.
• Cholestyramine is an oral medication that binds clostridial toxins.
• Pain medications are used to control intestinal pain from gas formation and dilation.

**FOLLOW-UP**

**PATIENT MONITORING**
• Monitor body temperature, appetite, and fecal production for a positive response to therapy.

**PREVENTION/AVOIDANCE**
• Feed a diet consisting of good-quality grass hay, fresh leafy greens, and minimal pellets. Avoid fruit-, vegetable-, or cereal-based treats.
• Do not administer oral antibiotics unless directed by your veterinarian.
• Prevention in baby or weaning-aged rabbits is generally not possible, especially if they are being bottle-fed.

**EXPECTED COURSE AND PROGNOSIS**
• The prognosis is fair to grave in rabbits with acute, severe watery diarrhea, depending on the extent of infection and time elapsed to treatment.
• The prognosis is poor to grave in rabbits demonstrating signs of shock (hypothermia, bradycardia, lethargy) and young rabbits (<6 months old), even with treatment.

**KEY POINTS**
• Clostridal enterotoxiosis can cause severe, sudden, watery diarrhea. This can be life threatening, even with aggressive treatment.