Enterotoxemia (Antibiotic-associated Enteritis) in Hamsters, Rabbits, and Guinea Pigs

Drs. Foster & Smith Educational Staff

Rabbits, guinea pigs, and hamsters are susceptible to an inflammation of the intestine, diarrhea, and toxemia, which often develops as a result of the improper use of antibiotics in these species. This condition is often termed "enterotoxemia," "antibiotic-induced enteritis," or "antibiotic-associated enteritis," and is a life-threatening disease. Because of the risk of this disease, antibiotics should only be used in these species under direct supervision of a veterinarian.

What causes this enteritis and toxemia?

Rabbits, guinea pigs, and hamsters rely, to a large part, on the normal bacteria in their digestive system for the digestion of their food. These bacteria are usually in the group of bacteria called gram-positive. These beneficial and necessary bacteria break down the food, even diets high in fiber, so that both the bacteria and the animal can absorb the nutrients.

There are often harmful, disease-causing bacteria, such as *Clostridium*, in the digestive system as well. These bacteria usually can not break down the more complex carbohydrates in foods, but live on simple carbohydrates and sugars. These harmful bacteria are usually kept at low numbers by the presence of the beneficial bacteria. This is especially true in rabbits and guinea pigs if the diet is high in fiber and low in sugars and starches.

The beneficial bacteria can be killed by a number of antibiotics that do not kill the harmful bacteria. If these antibiotics are given to a rabbit, guinea pig, or hamster, the beneficial bacteria die. The harmful bacteria overgrow and release toxins. These toxins can cause severe illness and death. Signs usually begin 3-5 days after the start of the antibiotic therapy.

Antibiotics, which are known to cause enterotoxemia, are usually those that are more likely to kill gram-positive bacteria. These antibiotics include:

- Penicillin and similar-acting drugs such as ampicillin and amoxicillin
- Erythromycin
- Vancomycin
- Gentamicin
- Cephalosporins such as cephalexin and cefazolin
- Lincomycin
- Bacitracin
- Clindamycin
- Tetracyclines
- Streptomycin
- Spiramycin

Not all animals will develop enteritis or toxemia with the use of these antibiotics. Why this occurs is not totally understood. The number of *Clostridium* bacteria in the digestive system prior to antibiotic use may be a factor, as well as the dose of antibiotic and length of treatment. Antibiotics given orally are more likely to cause a problem than those given by injection. Animals on high fiber diets are less likely to be affected.

Antibiotics, which are generally considered safe include chloramphenicol, trimethoprim/sulfa, and members of the family of fluoroquinolones, e.g.; Baytril.

What are the signs of antibiotic-associated enteritis and enterotoxemia?

Diarrhea, which may contain blood or mucus, is a common sign. It may be brown, watery, and have a foul odor. With toxemia, the animal may become very listless, dehydrated, have a swollen abdomen and abdominal pain, and not eat. If the condition worsens, a low body temperature, collapse, coma, and death usually occur.

How are antibiotic-associated enteritis and enterotoxemia treated?

Antibiotic therapy is discontinued or changed. Fluids are given to correct the dehydration. Probiotics such as those containing *Lactobacillus* are given to return beneficial bacteria to the digestive system. Metronidazole is given. Medications to stimulate the motility of the intestine are given and include cisapride or metoclopramide. Cholestyramine, which can bind the toxins, may also be given. If the animal will not eat, he must be force-fed. If the rabbit or guinea pig will eat, a high fiber diet is given. Other supportive care including providing a warm environment (incubator) and reducing any other stress on the animal should be included in the treatment.

How can antibiotic-associated enteritis and enterotoxemia be prevented?

The need for very careful and judicious use of antibiotics in rabbits, hamsters, and guinea pigs can not be overstated. These species of animals should only be treated if a bacterial infection has been accurately diagnosed, and preferably a culture and sensitivity performed. Closely follow the directions from your veterinarian when administering antibiotics. Rabbits and guinea pigs should receive a diet high in fiber (pellets no less than 18-20%, plus hay), especially if they are being medicated with antibiotics.

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