

# Anticoagulant Rodenticide Toxicosis

## ABOUT THE DIAGNOSIS

A rodenticide is a product used for killing rodents such as rats and mice. Rodenticides are commonly referred to as rat or mouse bait, rat poison, or mouse poison. Rodenticides are poisonous to cats and dogs. The effects depend on the type of rodenticide that is ingested. Most rodenticides contain anticoagulants, which are poisons that work by causing the animal to bleed internally. The poison interferes with the blood's ability to clot (coagulate). Symptoms of accidental ingestion of anticoagulant rodenticides include sluggishness and mental dullness, weakness, bloody vomit and/or diarrhea, bleeding from the nose, bleeding into joints that can cause limping (lameness), hematomas (pockets of blood that collect under the skin), excessive bruising on the skin, breathing difficulty caused by bleeding into the chest and lungs, coughing, collapsing, and even death. The earliest symptoms only start to occur about 2 days after a dog or cat eats the poison. Therefore, if you see your pet consume anticoagulant rodenticide, do not panic, but bring him/her promptly to the veterinarian to receive the antidote that neutralizes rodenticides.

Warfarin is one type of anticoagulant. It has been used in rodenticides for many years and is still found in some products. However, newer anticoagulant rodenticides are available that are even more potent. These include fumarin, diphacinone, bromodiolone, brodifacoum, and others. The names of these poisons are found on the package, and bringing the package and/or name of the rodenticide with you to the veterinarian will help greatly: it confirms that the active ingredient in the poison is a rodenticide (so the right antidote can be used) and it tells the veterinarian which kind of rodenticide. This is important for deciding the optimal duration of treatment.

**DIAGNOSIS:** Your veterinarian will perform a thorough physical examination and take a complete history, inquiring especially about the active ingredient in the rodenticide. Several tests may be performed to help make the diagnosis. Some tests are important to rule out certain problems that mimic anticoagulant rodenticide poisoning. They have nothing to do with anticoagulant rodenticide poisoning, but the symptoms they produce can be virtually identical. For example, immune-mediated hemolytic anemia and immune-mediated thrombocytopenia are diseases in which the pet's own immune system inappropriately destroys its own red blood cells and platelets, respectively. Some dogs can be born with hemophilia, which is a bleeding disorder. Liver or kidney diseases can cause bleeding disorders. The tests are necessary to tell rodenticide poisoning apart from all these other disorders because the symptoms of all of them are the same.

To test for these and other problems, blood and urine samples may be taken. The veterinarian may take x-rays of the chest to look for potential causes of any breathing problem. The ability of the blood to clot can be measured from a blood sample.

## LIVING WITH THE DIAGNOSIS

When the diagnosis of anticoagulant rodenticide poisoning is made, treatment must begin immediately (see [Treatment](#) below). It is important to identify the type of rodenticide that was ingested because some have longer-lasting effects and may require a longer course of treatment. If possible, bring the package to your veterinarian so that the toxic ingredient can be identified. It is safest to seal the package in a zip-type plastic bag or

watertight plastic container to reduce the risk of any more of it being eaten.

Pet owners can prevent future exposure to these poisons by placing them in areas that are inaccessible to cats and dogs. Dogs should be kept in a fenced-in yard and on a lead during walks to reduce the possibility of ingesting rodenticides on the neighbors' properties.

## TREATMENT

Treatment depends on the type of anticoagulant, how much was consumed, and how long ago. If you know that your pet ingested the poison within the last few hours, some or all of it may still be in the stomach. Your veterinarian may give your pet a medicine to induce vomiting. The pet's stomach may be further emptied by gently passing a tube into it and flushing it with warm water to "pump the stomach" (gastric lavage). A liquid called activated charcoal can be given through this tube or by mouth. Activated charcoal is a "universal antidote" that binds any poison remaining in the intestines to help prevent it from being absorbed. The activated charcoal containing the poison is then eliminated from the body when the pet has a bowel movement. The antidote, vitamin K1, is also given because the poison works by depleting the body of vitamin K1. Vitamin K1 is needed for normal blood coagulation. Vitamin K1 works slowly: depletion takes 2 days to produce bleeding and hemorrhage, but likewise giving vitamin K1 will take 1-2 days to work. Therefore, if the pet is having a severe bleeding crisis, a plasma or blood transfusion may need to be given to immediately help with blood coagulation (normal blood clotting). Depending on the type of anticoagulant rodenticide ingested, you may need to give vitamin K1 at home as tablets or liquids for up to six weeks. Your veterinarian can determine the effectiveness of treatment by periodically performing a blood test to measure how well the blood coagulates.

It is important that the pet rests during the 3 to 6 weeks of oral medication treatment because even minor trauma (bumping into objects, chewing on anything that scratches the gums, and similar mild trauma) can cause bleeding.

## DOs

- Call your veterinarian or the local emergency clinic immediately if your pet has eaten any type of poison.
- Give medication exactly as directed.
- Inform your veterinarian if your pet has ever been diagnosed with a medical condition and is taking medication, as some medications may interact with the antidote (vitamin K1).
- Bring any remaining rodenticide packaging to the veterinary clinic.
- Be sure to avoid re-exposure: dispose of any remaining rodenticide in a safe manner (seal in a plastic container before putting in the trash) so the same pet, or other pets, cannot be poisoned by it.

## DON'Ts

- Do not stop giving medicine without instructions to do so from your veterinarian. When vitamin K1 works, you should see no difference from your pet in a normal state. Stopping it just because "he/she looks normal now" is a potentially catastrophic mistake because anticoagulant rodenticides can become reactivated for up to 6 weeks after the day they were ingested, and

2-3 days after premature discontinuation, a bleeding crisis can occur again. Fortunately, after 6 weeks post-ingestion it is safe to stop vitamin K1 regardless of the type of anticoagulant rodenticide that was ingested.

- Do not leave rodenticides in places accessible to your pets.

### **WHEN TO CALL YOUR VETERINARIAN**

- If you cannot keep an appointment.
- If you are unable to give medicine as directed.
- If your pet may have eaten any type of poison, or if you are not sure if something is poisonous.
- If your pet is not improving after starting treatment.

### **SIGNS TO WATCH FOR**

- Weakness, decreased appetite, bloody vomit or diarrhea, constipation, hives (bumps under the skin), excess salivation, or seizures, as indicators of poisoning 2 days earlier or as a result of premature discontinuation of vitamin K1 treatment 2-3 days earlier.

### **ROUTINE FOLLOW-UP**

- Typically, a blood sample is taken 2 days after vitamin K1 therapy ends to monitor the pet's response to treatment. This test is important to help determine if treatment needs to be continued.

*Other information that may be useful: "How-To" Client Education Sheet:*

- How to Puppy-Proof a Home

Practice Stamp or Name & Address