Lake Shore Pet Hospital

Anticoagulant Rodenticide Poisoning

Basics

OVERVIEW

- An “anticoagulant” is something that prevents blood from clotting; a “rodenticide” is a product that kills rodents (such as mice and rats)—commonly known as “rat bait”
- Blood-clotting disorder (known as a “coagulopathy”) caused by reduced vitamin K1–dependent clotting factors in the circulation after exposure to anticoagulant rodenticides
- “Clotting factors” are components in the blood involved in the clotting process—the clotting factors are identified by Roman numerals I through XIII

SIGNALMENT/DESCRIPTION OF PET

Species

- Dogs
- Cats

Mean Age and Range

- Younger pets may be more likely to ingest rat bait than older pets

SIGNS/OBSERVED CHANGES IN THE PET

- Signs tend to occur about 3-5 days after intake
- May find broken packaging or evidence of missing bait
- Difficulty breathing (known as “dyspnea”), coughing, fast respirations (due to anemia/internal bleeding), and exercise intolerance are often the first signs noted; may vomit up or see in the bowel movements some dyed material (manufacturers often have dye in the products)
- Bleeding into joints, from nose, bleeding around the eye
- Localized mass of blood in a tissue or organ (known as a “hematoma”)—often along the lower areas of the body (known as the “ventrum”) under the skin and at sites where intravenous catheters were placed or blood was drawn (known as “venipuncture sites”); may have multiple hematomas
- Muffled heart or lung sounds
- Pale gums and moist tissues of the body (known as “mucous membranes”)
- Sluggishness (lethargy)
- Depression
- Distended abdomen due to blood released into the body cavity (internal bleeding)

CAUSES

- Exposure to anticoagulant rodenticide products (rat bait), dogs much more sensitive than cats, small doses over

several days may add up to a toxic dose
- Second-generation anticoagulants (such as brodifacoum, bromadiolone, diphacinone, and chlorophacinone)—are generally more toxic and tend to persist longer in the animal's body than first-generation agents, often requiring 3-4 weeks of therapy
- Range of toxicities for different active components of baits

RISK FACTORS
- Use of anticoagulant rodenticides
- Anticoagulant rodenticide poisoning may be slightly more likely in the spring and fall, when rodenticide products are used
- Small doses over several days more dangerous than a single large dose; either type of exposure may cause bleeding problems
- Secondary poisoning by consumption of poisoned rodents—unlikely

Treatment

HEALTH CARE
- Inpatient—sudden (acute) crisis—active bleeding, may need support for shock
- Outpatient—for those with no active bleeding, or once the blood-clotting disorder (coagulopathy) is stabilized
- Fresh whole blood or plasma transfusion—may be required if pet is bleeding; provides immediate access to vitamin K_1–dependent clotting factors; whole blood may be preferred with severely low red blood cell count (known as “severe anemia”) from sudden (acute) or long-term (chronic) blood loss
- Wean any nursing young of a poisoned female if possible or treat

ACTIVITY
- Confine the pet during the early stages; activity enhances probability of blood loss, minimize stress, trauma

DIET
- Feed high quality proteins, good quality diet to support coagulation factor replacement

SURGERY
- Procedure to tap the chest (known as “thoracocentesis”)—may be important for removing free blood in the space between the chest wall and lungs (known as the “pleural space”), which causes difficulty breathing (dyspnea) and breathing failure
- Must correct blood-clotting disorder (coagulopathy) before surgery

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 as all inclusive
- Vitamin K1—administered by mouth, as directed by your pet's veterinarian; length of treatment depends on the specific anticoagulant rodenticide product to which the pet was exposed; feeding of a small amount of fat, such as canned dog food with the vitamin assists with absorption of vitamin K_1

Follow-Up Care

PATIENT MONITORING
- Blood tests (prothrombin time [PT]) to evaluate clotting status—assess effectiveness of therapy; monitoring done 2–3 days after discontinuation of vitamin K1 treatment, if clotting time is prolonged, another round of vitamin K1 and re-testing will be recommended

PREVENTIONS AND AVOIDANCE
- Do not allow pets to have access to stored anticoagulant rodenticides (rat bait), use well secured bait stations

POSSIBLE COMPLICATIONS
- Secondary bacterial pneumonia after bleeding into the lungs

- Bleeding into or around the brain (known as “intracranial hemorrhage”), leading to nervous system signs (such as stupor or coma)
- Bleeding into the joints (known as “intra-articular hemorrhage”), leading to lameness
- Pregnant animals may abort due to placenta bleeding, the poison can pass to the babies while in the womb, or via the milk of the mother
- Death

EXPECTED COURSE AND PROGNOSIS

- If the pet survives the first 48-72 hours of sudden (acute) blood-clotting disorder (coagulopathy)—prognosis improves

Key Points

- Anticoagulant rodenticide (rat bait) poisoning is a common problem—many rodent baits are sold over the counter and widely used in homes
- Reexposure of the pet to anticoagulant rodenticides could be a serious problem
- Do not allow pets to have access to anticoagulant rodenticides