

# RODENTICIDES

There are three common types of rodenticides: anticoagulants, bromethalin and cholecalciferol

## ANTICOAGULANTS

### Source

There are many types of anticoagulant rat poisons. They are available as **pellets, blocks, packs or powders**, and are typically **green or blue** in color. Anticoagulant rodenticides can be classified either as *coumarins* or as *indanediones*, and are categorized as either *first* or *second* generation. First generation anticoagulants are toxic at high doses and are retained in the body for days. Second generation anticoagulants are toxic at low doses and are retained in the body for weeks.

### Coumarins

- *First Generation* - Warfarin, D-CON
- *Second Generation* - Brodifacoum, Bromadiolone

### Indanediones

- *First Generation* - Chlorphacinone, Valone, Pindone
- *Second Generation* - Diphacinone

### Symptoms

- Depression
- Weakness / collapse
- Pale or white gums
- Blood in stool, vomit or urine
- Bleeding from nose and gums
- Bruising
- Labored breathing
- Abdominal distension (from internal hemorrhage)

### Toxicity

Anticoagulant rodenticides cause bleeding and internal hemorrhage by interfering with the production of blood clotting proteins.

### Diagnosis

- Diagnosis is based on clinical signs and special blood tests to test the blood's

- ability to clot normally.
- Radiographs (x-rays) and ultrasound can show bleeding into the chest and abdomen.
- Urine and stool can be examined for blood.

## Treatment

Treatment initially consists of eliminating the rodenticide from the body. This is partially accomplished by making the animal vomit (if the ingestion was within 2 hours) to help remove any remaining rodenticide from the stomach. Your veterinarian may then give your pet an activated charcoal suspension to help prevent further absorption of any compound that is still in the intestinal tract. Vitamin K<sub>1</sub> is helpful for some anticoagulant rodenticides and may be given to your pet. Transfusions with plasma are often needed and can replenish blood clotting proteins. Transfusions with whole blood or packed red blood cells may be indicated. Hospitalization for supportive care and monitoring may be necessary.

## Prognosis

Prognosis is good if treatment is early and aggressive. Prognosis is worse if there is active bleeding or hemorrhage.

# BROMETHALIN

## Source

Bromethalin is found in pelleted rodent baits and blocks.

## Symptoms

- Progressive depression
- Weakness and/or incoordination
- Vomiting
- Tremors
- Seizures
- Coma

## Toxicity

Bromethalin rapidly inhibits the ability of cells to use oxygen for energy. Cats are much more sensitive to this form of rodenticide than are dogs. Exposure to low doses may not result in onset of symptoms for 3-4 days. Acute exposure to high doses typically cause signs within 12-24 hours.

## Diagnosis

Although special blood tests can be used to detect bromethalin in the blood, such tests are not frequently used in veterinary medicine due to the length of time it takes to get the results.

## Treatment

The priority is to remove the poison by inducing vomiting (within four hours of exposure in an asymptomatic animal), pumping the stomach, and administering multiple doses of activated charcoal to absorb any remaining drug.

## Prognosis

The prognosis for low dose ingestions is guarded, and the prognosis for high dose ingestions is poor.

# CHOLECALCIFEROL

## Source

- This kind of rodenticide is available in packs, or is mixed with seeds or grain.
- Brand names include: Ortho Mouse-B-Gone, Rampage, Rat-Be-Gone

## Symptoms

- Depression
- Increased drinking and urination
- Anorexia
- Vomiting
- Weakness
- Slow heart rate

## Toxicity

Cholecalciferol rodenticides disrupt calcium balance in the body and cause a dangerous increase of calcium in the blood. This leads to heart problems, mineral deposits in soft tissue, and soft tissue death.

## Diagnosis

Diagnosis is based on clinical signs and blood tests to test the calcium level in the blood.

## Treatment

The priority is to remove remaining poison via induction of vomiting, pumping the stomach, and administering activated charcoal to absorb any remaining drug. Aggressive

therapy is aimed at lowering the high blood calcium level via diuretics, steroids, IV fluids, and calcitonin- a hormone that regulates calcium balance in the body.

## **Prognosis**

Poor to grave. Less than one packet and a single exposure to cholecalceferol is lethal to small dogs despite aggressive therapy. Prognosis is poor to grave for large dogs based on amount ingested and time elapsed before therapy is initiated.