

In veterinary practice, small animal poisonings are common. Typically, it occurs when a cat or dog ingests a known or unknown toxin. The pet may present before onset of clinical signs, or may present with clinical signs of toxicity. It is important to know the most common toxins and how they are treated so that pet patients may be stabilized upon presentation. This PowerPage discusses the most commonly encountered toxins in small animal medicine with a focus on the key points that may be seen on boards.

Poisonous Plants

Oleander:

- May be **cardiotoxic**, contains cardiac glycosides
- May cause GI upset

Lilies:

- Ingestion of Lily of the Valley, **toxic to cats**
- Causes **acute renal failure** within 18-72 hours
- If known ingestion and less than 4 hours, induce vomiting, administer multiple doses of activated charcoal, provide IV fluid diuresis a minimum of 48-72 hours
- **Hemodialysis** is often indicated

Sago Palm:

- May cause weakness, seizures, and acute **liver failure**
- Treatment is supportive with emesis induction and activated charcoal, IV fluid diuresis, and liver protectants

Toxic Chemicals and Medications

Ethylene Glycol:

- Also known as **antifreeze**
- Causes acute **renal failure**
- Hemodialysis is often indicated
- Causes **metabolic acidosis**
- Antidote is 4-methylpyrazole (4MP) and may be given up to 36 hours post-ingestion

Rodenticide:

- Contains **anticoagulant** which is a **Vitamin K antagonist**
- Treated with emesis induction or gastric lavage if recently ingested; activated charcoal should be administered
- **Vitamin K1 (oral or subcutaneous) should be given daily for 21 days**
- **Clinical signs may not be evident for 4-5 days after ingestion**
- Causes **spontaneous bleeding**, pets may bleed from anywhere including gums, wounds, from the eyes, etc.
- ACT will become prolonged first, and then PT and PTT will become elevated (2-4 times normal)
- In pets with clinical disease, blood transfusions are often necessary along with continued supportive care and monitoring until the coagulation factors return to normal

Metaldehyde:

- Commonly found in **snail bait**
- Causes anxiety, ataxia, hyperesthesia, muscle twitching or seizures, tachycardia, dilated pupils, hypersalivation, and vomiting or diarrhea; pets often **present seizing** and have a high temperature; vomitus often contains green pellets which are usually snail bait
- Treatment with gastric lavage in these patients, control of seizures, monitoring, fluid support, and activated charcoal

Pyrethrin:

- Most often seen in kittens or cats that have recently had an over-the-counter **topical flea treatment**
- Causes **tremoring** which may lead to an elevated temperature
- Treatment is supportive by bathing the animal to wash off the toxin, IV fluid support, and often **methocarbamol** to control tremoring; phenobarbital may be used in severe cases
- Sometimes the mouth needs to be rinsed or wiped out if the animal has been inadvertently ingesting the toxin by grooming the skin and fur where the medication was applied

Acetaminophen:

- Tylenol is very toxic to cats as it causes methemoglobin formation; in dogs it may be primarily toxic to the liver at higher doses
- It causes Methemoglobinuria in cats and may cause the urine to appear brown, the gums to appear brown or cyanotic, and may cause peripheral edema
- Treatment involved emesis induction and gastric lavage when indicated, IV fluid diuresis, and **N-acetylcysteine** (antidote) administration
- Toxic dose in dogs 150 mg/kg, toxic dose in cats 50 mg/kg

Poisonous Foods

Chocolate:

- Toxic agents in chocolate are **theobromine and caffeine (methylxanthine compounds)**
- Causes **tachycardia, CNS excitability/tremoring**, excitement, and if severe enough can result in death within 6-24 hours
- Dark chocolate/baker's chocolate contains the most theobromine
- 1 ounce of milk chocolate contains 44 to 58 mg theobromine, baker's chocolate contains 393 mg theobromine
- The **LD50 of theobromine and caffeine is 100-200 mg/kg** (but some animals may exhibit signs of toxicosis by ingesting as little as 20 mg/kg; therefore, **always err on the side of caution**)
- Treatment is induction of emesis, fluid therapy, and activated charcoal; diazepam may be used to control the tremoring

Grapes and Raisins:

- Unknown toxic principle but are thought to contain oxalates that can damage the kidneys
- Can cause **renal failure** in some patients depending on genetic predisposition and quantity ingested, etc.
- Symptoms are vomiting, lethargy, decreased appetite, diarrhea
- Within 4 hours induce vomiting, multiple doses of activated charcoal are indicated
- **Fluid diuresis** for minimum of 48-72 hours
- **Hemodialysis** may be indicated

Onions:

- May cause **Heinz Body Anemia** from disulfides
- Can cause pale gums, vomiting/diarrhea, and intravascular hemolysis

Chewing Gum or goods containing Xylitol:

- **Xylitol** is found in many sugarless gums and candies, and sometimes in baked goods
- May cause **hypoglycemia**
- Treatment involves supportive care with IV fluids and treatment and monitoring of hypoglycemia

Emesis Induction and Gastric Lavage

Inducing Emesis for Ingested Substances in Dogs and Cats

- Inducing emesis is **most useful** when a toxic compound has been **ingested recently** (1-3 hours)
- Emesis-inducing agents include: **hydrogen peroxide** 3% orally (may be irritating to gastric mucosa), **Apomorphine** in dogs (can be given subconjunctivally), and **xylazine in cats**
- Induction of emesis is contraindicated in seizing or weak pets, pets with megaesophagus, and animals that have ingested a corrosive substance, a hydrocarbon, or a petroleum

Gastric Lavage:

- Performed under general anesthesia to lavage, or wash out the stomach of potential toxins
- The patient is in lateral recumbency, endotracheal tube is in place and properly cuffed
- Orogastric tube is measured from nose tip to last rib and the lubricated tube is advanced orally to that point
- 5-10 mL/kg warm tap water is pushed into the tube and then the fluid is allowed to drain from the tube; this is repeated until it runs clear. Most of the time a “double” stomach tube is placed so that as fluid is going in, fluid is coming out the other tube
- Activated charcoal is administered after the stomach has been emptied; the tube should be crimped and then removed

References

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Pet Poison Helpline website