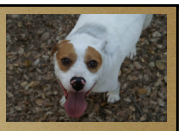

Common Household Toxins

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Scope of the Problem

- The Animal Poison Control Center received over 140,000 calls in 2008.
- Regional Poison Control Centers in the US reported 131,744 animal poisonings in 2007.
- Many, many more are seen by Veterinarians without a call to a poison center.

Scope of the Problem

- Our households, yards, and gardens are filled with potentially toxic substances.
- Dogs, by their very nature, are curious, especially with anything with an odor or smell.
- Dogs, and especially puppies, like to explore their world with their mouths.

First Aid for Poisoned Pets

- First, remain calm
- Survey the environment to discover **what** may have been eaten, and **how much** is the **maximum** that could have been eaten
- Collect any empty or partially eaten containers
  - Pill containers, boxes of rat poisons, candy wrappers, etc.

First Aid for Poisoned Pets

- Assess your pet
- Are they conscious, awake, alert?
- Are they breathing normally?
- Are they able to stand and walk?

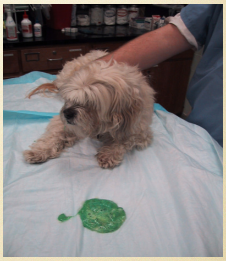
First Aid for Poisoned Pets

- Make decisions
- Do I need to take my pet to the nearest Veterinarian, Emergency Clinic, or stay at home?
- Should I first call the Animal Poison Control Center?
- Should I call my Regional Poison Control Center?

Taking Action

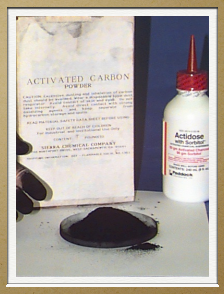
- Assess the pet
- Decontamination
- Diagnostic Testing
- Antidotes
- Supportive measures and care
- Client Education

Decontamination



- Decontamination
  - Inducing vomiting
  - Activated Charcoal
  - Brushing, bathing
  - Dialysis

Activated Charcoal



Activated Charcoal

Hemodialysis

Diagnostic Testing

- Collect appropriate samples
  - Whatever was eaten
  - Stomach contents - vomit
  - Feces
  - Blood/serum
  - Urine

Antidotes

- Specific to whatever toxin was ingested
- There are some specific antidotes that make a huge difference in outcomes
- There aren't antidotes for everything

Supportive Measures and Care

- Hospitalization
- IV fluids
- Antibiotics
- Antiemetics
- Sedatives
- Seizure/tremor control

Client Education

- How to avoid further poisonings
- How to poison-proof your home and garden
- How to support your pet until full recovery
- Instructions for follow-up care

Top Ten

- 1. Human Medications
- 2. Insecticides
- 3. People Food
- 4. Rodenticides
- 5. Veterinary Medications
- 6. Plants
- 7. Chemical Hazards
- 8. Household Cleaners

Human Medications

- Dogs will often snatch and chew on plastic pill bottles.
- They also may quickly eat any pills that drop accidentally on the floor.

Pain Medications

- Acetaminophen (ie, Tylenol)
- Aspirin
- Ibuprofen
- Narcotic analgesics (ie, opioids like vicodin, morphine, etc.)

Acetaminophen

- Active ingredient in Tylenol
- Can cause liver failure and death within a few days of ingestion
- Any accidental ingestion in dogs should be seen by a Veterinarian immediately
  - Requires careful decontamination and an antidote

Acetaminophen

- Very deadly in cats
- Causes a change in their red blood cells that prevents the effective transport of oxygen
- If the cat survives the blood damage, they usually also develop liver failure within a few days.
- Any exposure in cats is an extreme emergency.

Aspirin

- Dogs can tolerate low doses very well.
- But large doses interfere with cellular processes and lead to altered respirations, fever, and neurological damage.
- Any large dose ingestion should be seen by a Veterinarian immediately.

Ibuprofen

- Ibuprofen is a “Non-steroidal anti-inflammatory” medication (NSAID)
- There are many other OTC and prescription NSAID’s
- Dogs are particularly sensitive to many, even those that are considered very safe in people

Ibuprofen

- Even small doses can cause severe stomach upset and irritation
- Dogs have been known to perforate their stomachs after a single dose
- It also can interfere with kidney perfusion and alter kidney function, especially if the dog is dehydrated

Ibuprofen

- It is important to have a thorough assessment of dogs after any ibuprofen ingestion
- Dogs should be assessed for hydration level, and kidney function
- IV fluids are often used to help eliminate the drug and protect the kidneys
- Dogs may also need stomach protectants

Opioids

- Large dose ingestions may result in CNS and respiratory depression
- Effects can be reversed with an antidote - naloxone
- Additional effect may include vomiting
- Carefully check label or call Poison Center to find out whether drug also includes acetaminophen

Blood Pressure Meds

- There are several classes; some only produce mild effects in dogs, while others can have profoundly critical effects
- Always treat these as an emergency, even if only 1 pill is missing
- Treatment may require IV fluids, and specific antidotes

Diabetes Meds

- Can result in hypoglycemia, seizures, coma, and death
- The effects can last several hours to several days, and require ongoing IV fluids with dextrose
- Even a single pill ingestion can be lethal

Anti-depressants

- Not usually a big problem unless other drugs are ingested at the same time
- Very important to tell your Veterinarian what other drugs your dog is taking therapeutically
- Complications may include “Serotonin Syndrome”

Antibiotics

- Not likely to cause any problems at all, with just a few exceptions like aminoglycosides

Insecticides

- Topical exposures - wrong product applied to the wrong species
- Cats are particularly sensitive to certain pyrethrins labeled for dogs
- Brush pet thoroughly before bathing

Insecticides - Pyrethrins

- Three types of reactions:
  - Allergic, Idiosyncratic, and Neurotoxic

People Food

- Grapes/raisins
- Macadamia nuts
- Moldy Walnuts and Dairy Products
- Chocolate
- Onions/garlic

Grapes/Raisins

- May be toxic to some dogs - no apparent dose response
- Associated with development of renal disease (first reported in mid-1990's)

Grapes/Raisins - Mechanisms

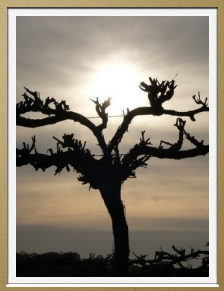
- Mechanism not known at this time
- Appears to involve a nephrotoxic agent or idiosyncratic reaction leading to hypovolemic shock and renal ischemia
- Ochratoxin, flavonoids, tannins, polyphenolics, and monosaccharides have all been hypothesized

Grapes/Raisins - Clinical Signs

- Vomiting within 24 hours of exposure
- Diarrhea, anorexia, lethargy, and abdominal pain for days to weeks after ingestion
- One - several days, dogs may appear dull and dehydrated with oliguria or anuria, with or without isostenuria
- Acute renal failure may progress to severe metabolic abnormalities and anuria

Grapes/Raisins - Diagnosis

Based on history of exposure and clinical signs



Grapes/Raisins - Treatment

- Any ingestion should be treated aggressively
- GI decontamination - emesis and activated charcoal
- Fluid therapy for minimum of 48 hours
  - Careful monitoring of central venous pressure and urine output to prevent fluid overload
- Monitor serum chemistry values for at least 72 hours for indications of acute renal failure

Grapes/Raisins - Treatment

- Other potential treatments to combat potential renal failure:
  - Furosemide, dopamine, mannitol
  - Consider hemodialysis or peritoneal dialysis

Macadamia Nuts

- *Macadamia integrifolia* and *Macadamia tetraphylla*
- Reported only in dogs after ingestion of nuts, or products made from them

Macadamia Nuts - Mechanisms

Not currently known

Macadamia Nuts - Clinical Signs

- Develop within 6 to 24 hours after ingestion
- Weakness (55%), depression (32%), vomiting (21%), ataxia (18%), tremors (18%), and hyperthermia (7%)
- Joint and muscle pain have also been reported
- Weakness generally peaks at 12 hours, and resolves by 48 hours

Macadamia Nuts - Diagnosis

Based on evidence of exposure and clinical signs

Macadamia Nuts - Treatment

- GI decontamination - emesis and activated charcoal
- Most can be safely managed at home with supportive care
- Fluid therapy and antiemetics if vomiting is severe or prolonged

Walnuts and Dairy Products

- Moldy food items such as walnuts, cheese, and breads may contain the molds *Penicillium crustosum*, *P. roquefortii*, or other species known to produce **Penitrem A** or **Roquefortine**
- Penitrem A and Roquefortine are tremorgenic mycotoxins

Walnuts and Dairy Products

- Mechanism is unknown, but thought that they may act as antagonists to CNS glycine production, or they may influence presynaptic transmitter release

Walnuts and Dairy Products

- Clinical signs typically begin within 30 minutes of ingestion
- Restlessness, panting, and excessive salivation are followed by mild to moderate whole body muscle tremors
- In high-dose exposures tremors may become severe and progress to seizures

Walnuts and Dairy Products

- May display hyperresponsiveness to external stimuli
- Untreated tremors may lead to hyperthermia, exhaustion, dehydration with possible metabolic acidosis, and rhabdomyolysis

Walnuts and Dairy Products

- Both Penitrem A and Roquefortine can be chemically detected in suspect food items and GI contents

Walnuts and Dairy Products

- GI decontamination - emesis and activated charcoal
- Benzodiazepines to control agitation, muscle tremors, or seizures
- Muscle relaxants and barbiturates can be in addition to benzo's
- Fluid therapy for the first 24 hours to prevent metabolic acidosis and control hyperthermia

Chocolate

What is chocolate?

- The cacao seeds are the fruit of the cacao tree, *Theobroma cacao*.

What is Chocolate?

- Chocolate liquor is the liquid that results from grinding the hulled cacao beans.
- Cocoa butter is the fat that is extracted from the chocolate liquor.

Chocolate

- Cocoa powder is the solid that remains after the cocoa butter is removed from the chocolate liquor.

The Differences:

- Unsweetened chocolate is chocolate liquor that is 50-60% cocoa butter.
- Semisweet chocolate is chocolate liquor that is 35% chocolate liquor (the rest being sugar etc.).
- Milk chocolate is chocolate that is at least 10% chocolate liquor, the rest being milk solids, sugar, vanilla etc.

What Makes Chocolate Toxic ?

- Methylxanthines
- Specifically **Theobromine** and **Caffeine**
  - Bronchodialator
  - Aminophylline – (86% Theophylline)

Species Affected:

- Dogs (dogs often)

- Cats (rare – discriminating taste)

- Cows (food-cocoa waste products)
- Pigs (food-cocoa waste products)

- Horses (bedding)
- Mice and Rats (experimental)

Clinical Signs

- Vomiting
- Diuresis - Urinary incontinence
- Hyperactivity
- Cardiac arrhythmias
- Incoordination
- Seizures/tremors

Diagnostic Tests

- The methylxanthines and their metabolites can be measured by high performance liquid chromatography in:
  - serum
  - plasma
  - tissue
  - urine
  - stomach contents

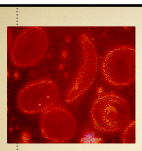
- Animals are treated based on history and clinical signs while waiting for the lab results.

Treatment

- Decontamination
- Attend to potentially life threatening signs first
  - Cardiac issues, seizures/tremors
- Sedatives for hyperactivity/irritability

How Much Chocolate is toxic?

- Mild signs (GI) at 20mg/kg
- Severe signs (tachycardia, muscle tremors) at 40-50mg/kg
- Seizures at 60mg/kg
- The half-life for theobromine is 17.5 hrs and for caffeine is 4.5 hrs.



Onions/Garlic

- *Allium* species contain sulfides, and other substances that can damage red blood cell membranes.
- Results in bloody urine, anemia, weakness, and depression.
- Best to avoid any onions or garlic in dogs, and most especially cats

Animal Poison Control Center

888-426-4435

California Poison Control System

800-222-1222

Resources

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Any Questions?