PAW HEALTH NETWORK INC.

ANTIFREEZE INTOXICATION

ABOUT THE DISEASE

Most **antifreeze** products contain the active ingredient **ethylene glycol** which is toxic to both canine and feline patients. Highest risks of exposure occur to patients who have free access to garages, farm equipment, or vehicles with mechanical problems.

In its unmetabolized form, (before the body breaks it down,) **ethylene glycol** is not toxic but may cause drunken symptoms. However, once the liver metabolizes (breaks it down) **ethylene glycol**, the metabolites form crystals in the kidneys and causes severe renal (kidney) failure.

Initially, within the first few hours of symptoms, patients may show signs of:

- Drunken stupor
- Stumbling
- Nausea
- Loss of coordination (ataxia)

Following the first few hours, patients may appear to have improved as the drunken symptoms subside. However, approximately 12-72 hours after ingestion, patients will decline as they enter into renal failure. These symptoms may include:

- Weakness
- Depression
- Not eating (anorexia)
- Seizures or other neurological symptoms (in severe cases)

Prognosis is typically better if caught immediately, but grave if caught after renal failure is diagnosed.

OBTAINING A DIAGNOSIS

A thorough clinical history and physical examination will yield a presumptive diagnosis.

A specialty blood test exists that determines the presence of alcohols within the blood stream.

Routine laboratory and urine testing will help determine the extent of renal damage and/or presence of urinary crystals.

TREATMENT

As with most toxicities, if caught within the first two hours, vomiting can be induced to evacuate the stomach. However, activated charcoal is not an effective measure to bind remaining toxin.

It is typically recommended that patients are hospitalized, receive IV (intravenous) fluid support, and some level of antidote administration.

A specific antidote has been made, called Fomepizole (4-MP), which helps counteract the liver's metabolism of **ethylene glycol**. This helps reduce the number of toxic metabolites and allows **ethylene glycol** to be urinated unchanged.

Aside from Fomepizole, standard liquor alcohol serves the same function in the liver to reduce **ethylene glycol** metabolism. Liquor alcohol is administered intravenously with balanced fluids and is seen as the less expensive alternative therapy to Fomepizole.

TIPS FOR SUCCESS

- Contact the Pet Poison Helpline (855.764.7661) for immediate triage of toxicities.
- Seek immediate care for interventional therapies.
- Liquor alcohol can only be administered by a veterinarian.