

THEOBROMINE AND CAFFEINE POISONING

Theobromine and caffeine are the **main toxic components in chocolate (also coffee beans and cocoa beans)**. **The amounts of each vary depending on the type of chocolate** (i.e. milk, unsweetened baking, semisweet chocolates). The lethal dose ranges between 100-200mg/kg; although, moderate signs can be seen with ingestion of as little as 20mg/kg. Thus, **treatment may be indicated when ingestion approaches 20mg/kg**. Both dogs and cats are susceptible.

The **main signs** of theobromine and caffeine toxicity are **referable to the heart and central nervous system**, through both direct and indirect affects on the heart muscle cells and the neurons/nerves. Theobromine causes **nervousness/anxiety, excitable behavior, tremors, seizures and coma due to CNS stimulation. High blood pressure, a slowed or increased heart rate and heart arrhythmias (which may be manifested as disorientation, weakness, collapse and loss of consciousness)** result from the cardiac/heart effects. In addition, caffeine causes **increased respiratory/breathing rate and increased body temperature (hyperthermia)**.

Initial treatment revolves around stabilizing the patient and decreasing absorption of the toxic substances from the GI tract into the blood stream. When a comatose animal is presented, intubation and ventilation may be necessary. Oxygen supplementation is usually applied. Seizuring is controlled with injectable Valium or barbiturates. Attempts at bringing down the body temperature in hyperthermic patients are made. Severe cardiac arrhythmias are treated as necessary. If the situation is caught within 1-2 hours of ingestion, induction of vomiting can be effective. Activated charcoal substances with a cathartic are administered to help bind and hold the toxic agents in the GI tract and promote evacuation. Gastric lavage (washing out the stomach essentially) may be utilized, as well. **No known antidotes exist.**

On-going treatment involves continued administration of activated charcoal every 4-6 hours, IV fluid support and diuresis (high fluid rates to flush toxic substances from the blood), anti-arrhythmic constant rate infusions for continued arrhythmias and control of vomiting and diarrhea.

A good prognosis is obtained by early identification and presentation to a veterinary hospital and aggressive treatment. Animals that present comatose, seizing and with severe heart arrhythmias have a worsened prognosis. Hospitalization time depends on the severity of signs at presentation.

The most important things for owners to do when a pet ingests chocolate (coffee beans or cocoa beans) are: to estimate how much was ingested, to bring packaging to the hospital so the type(s) of chocolate and relative doses of the toxic ingredients can be identified/estimated and to not delay the trip to the hospital. It can not be overemphasized that early identification and presentation to the hospital yield the best outcomes.