

Chocolate poisoning in dogs

(By Fiona Linnane RVN, Glenina Veterinary Clinic, Galway)

Poisoning is relatively common in dogs because of their habit of rapid consumption, particularly puppies and young dogs as they may be more likely to ingest large amounts of unusual foods. While many substances are recorded as being poisonous to dogs, owners are generally not aware of one potential killer; chocolate. It is a substance which pet owners may think of as a treat, both for them and for their pet, but even small amounts can be potentially fatal.

Chocolate intended for human consumption contains the chemical theobromine. This belongs to a chemical group known as the methylxanthines, of which caffeine is also a member. The theobromine content, and hence the toxicity, of chocolate varies according to the type of product; dark chocolate and cocoa contain a much higher concentration than milk chocolate and drinking chocolate.

The toxicity of theobromine

Lethal dose

A standard measurement of the toxicity of a chemical is its LD50 value. The LD50 is the mean lethal dose, the LD50 value of theobromine is 250 to 500mg, which is comparable to a dog eating between 19 and 38g/kg of unsweetened cooking chocolate.

The relative concentration of theobromine

Dark chocolate (approximately 10g/kg) - 1g dark chocolate contains 13.7mg of theobromine

Milk chocolate (1-5g/kg) - 1g milk chocolate contains 1.5mg of theobromine

Half life

The half life of theobromine is particularly long in the dog, at 17.5 hours, with clinical symptoms often persisting for up to 72 hours.

As a result dark chocolate is far more toxic to dogs per unit weight or volume than milk chocolate and once absorbed it takes a long time for the chemical to leave the body.

Clinical signs

In dogs the stimulant and irritant actions of theobromine cause adverse effects throughout the body. Once ingested it causes an increase in gastric secretions with possible mucosal ulceration thus resulting in acute vomiting, which is often followed by diarrhoea. If large numbers of filled chocolate sweets are consumed another serious danger is posed by the fat and sugar in the fillings which can sometimes trigger life threatening pancreatitis days later

Theobromine enters into the bloodstream rapidly,



Directly affecting the myocardium - resulting in tachycardia (increased heart rate) and extra systole (a premature cardiac contraction independent of the normal rhythm)



Increased cardiac output results in diuresis, which causes thirst and may result in the dog drinking excessively, which may, in turn, result in further vomiting.



Increased respiration and skeletal muscle contractions are strengthened, which may be followed by convulsions.

The clinical depiction is one of great distress, and death can occur as a result of cardiac and respiratory arrest.

Care plan and Treatment

General patient monitoring SOAP (subjective, objective, assessment, plan) will help to identify and utilise information and recognise the interrelationship among the individual components of a care plan for the patient to promote the best possible care and outcome for the patient. There is no known antidote to theobromine poisoning, so early detection and gastric lavage is essential within two hours of ingestion to remove the chocolate before it is absorbed. Activated charcoal may be given every 3-4 hours to reduce the serum half life of methylxanthines. Once clinical signs are apparent, the prognosis is guarded and treatment is symptomatic; administration of barbiturates or benzodiazepines can be used to control convulsions and intravenous fluid therapy, oxygen and artificial respiration will be required in severe cases.

Prevention

As chocolate is generally considered a treat a vast number of dogs are fed small quantities frequently. The fact that chocolate poisoning can occur in the dog is not general knowledge, but owners should be made aware of the dangers at every opportunity or in general whenever nutritional advice is given and especially at high risk times such as Easter and Christmas. Keep Easter eggs out of sight because prevention is best.

For more information please contact the clinic on 091-752014

