BROMETHALIN TOXICOSIS

Bromethalin is a lipid-soluble chemical, meaning it dissolves in oil or fat, not water. It is rapidly absorbed from the gastrointestinal tract and readily crosses the blood brain barrier. The brain is mostly made of fat, so the bromethalin is absorbed into the cells where it causes brain swelling. This leads to increased intracranial pressure and death.

As of 2015, all rodent bait sold on the US consumer market must meet regulations set forth by an Environmental Protection Agency (EPA) policy aimed at reducing rodenticide exposure to humans and companion animals. This policy resulted in the removal of all anticoagulant rodenticides from the consumer market (agricultural and restricted use by licensed operators is still permitted). As a direct consequence, there has been a dramatic increase in the production and sales of non-anticoagulant rodenticides, specifically bromethalin and cholecalciferol. While there has been an overall decrease in rodenticide exposure in human beings, the number of bromethalin exposures has increased. Unlike the earlier anticoagulant baits, bromethalin does not have an antidote. The EPA has plunked us out of the pot and into the fire.

Acute Toxicosis: This is what you see after a single large dose of bromethalin has been ingested. Clinical signs of brain swelling from eating a deadly amount of bromethalin typically, develop within 8–12 hours following ingestion but can be observed as soon as 2 to 4 hours. Experimentally, dogs developed clinical signs within 6 to 8 hours and died between 15 to 63 hours following oral administration of 6.25mg/kg of bromethalin. Signs include hyperexcitability, seizures, diffuse fine tremors, pelvic limb ataxia and weakness, anisocoria, blindness, abnormal nystagmus, coma, and death from respiratory arrest. Seizures tend to occur in the later stages of intoxication and are more commonly seen in cats than dogs. Furthermore, cats appear to have a lower tolerance than dogs, and are therefore at greater risk of developing clinical signs.

Chronic Toxicosis: This means the pet has eaten several small doses of bait that have accumulated over time. Signs manifest later, usually 12 to 24 hours following ingestion of a toxic dose. Experimentally, cats develop clinical signs between 4 and 7 days following administration of 0.45mg/kg orally. Signs include lethargy, pelvic limb weakness which progresses to paralysis, and absent mentation – not responding to sights or sounds. Experimentally, cats may survive up to 20 days following ingestion of a lethal dose. Experimentally, with mild, chronic toxicosis dogs can return to normal in 10 days following the onset of signs.

Is there any specific or non-specific therapy for bromethalin toxicosis?

Despite our best efforts, most animals will succumb, as there is no specific antidote for bromethalin. Intravenous lipid emulsion therapy have been suggested to reduce blood concentrations of bromethalin in animals that have recently consumed bromethalin. For those animals demonstrating neurological signs, treatment centers on support care measure such as osmotic diuretics and corticosteroids, although animals showing clinical signs rarely improve with these treatments. Elimination of residual chemical in

the gastrointestinal tract using activated charcoal. Bromethalin toxicosis is **not** treated with vitamina K1, because bromethalin does not affect coagulation.