

Miscellaneous Toxicities

Kathy Parton, IVABS



Miscellaneous Toxicities

Abortion:

- *Macrocarpa* and *Cupressus* spp
- Ponderosa pine
 - isocupressic acid



Miscellaneous Toxicities

Cupressus species

- History - exposure to trees
- Pregnant cattle - third trimester

Miscellaneous Toxicities

Cupressus species

Clinical Signs:

- third trimester abortions
- weak late term calves
- retained placentas
- death if large quantities ingested

Miscellaneous Toxicities

Cupressus species

Treatment:

- Good nursing care
- Antihistamines?

SEE

<http://calve.massey.ac.nz/pharm/toxSite/poisonplants/index.html>

for more poisonous plants

Miscellaneous Toxicities

Boric acid

- Mechanism of Action Unknown
- Suspected to be cytotoxic
- Concentrates in the kidney and lesser degree in brain and liver
- 2-5g/kg LD₅₀ in rats
- dogs require a higher dose for toxicity

Miscellaneous Toxicities

Boric acid - Clinical Signs

- Variable depending on the dose ingested
- Young and old animals are more susceptible
- Acute toxicity - boric acid is NOT caustic
- Hypersalivation
- Vomiting
- Retching
- Depression
- Anorexia
- Diarrhoea, Abdominal pain

Miscellaneous Toxicities

Boric acid - Clinical Signs

- HIGH Doses cause:
- Weakness
- Ataxia
- Tremors
- Focal, generalised seizures
- Oliguria or anuria
- Depression
- Coma, Death
- Other effects: metabolic acidosis, renal tubular nephrosis

Miscellaneous Toxicities

Boric acid - Postmortem

- Gastrointestinal tract inflammation/ congestion, oedema and mucosal exfoliation
- Brain - congestion and oedema
- Renal changes variable

Miscellaneous Toxicities

Boric acid - Postmortem

- Gastrointestinal tract inflammation/ congestion, oedema and mucosal exfoliation
- Brain - congestion and oedema
- Renal changes variable

- Diagnosis with history and clinical signs

Miscellaneous Toxicities

Boric acid - Treatment:

- Emesis, if appropriate
- NO activated charcoal as poor binding
- Isotonic IV fluids
- GIT protectants
- Antiemetics if protracted vomiting
- Acute renal failure 2 times maintenance dose of 0.9% saline diuresis
- Sodium bicarbonate for metabolic acidosis
- Diazepam for seizures
- Prognosis is GOOD unless LARGE ingestion

Miscellaneous Toxicities

Zinc Phosphide

- Zinc, aluminium or magnesium phosphide
- Zinc phosphide (expected to be licensed pesticide in New Zealand)
- Al and Mg already licensed pesticides/
insecticides

Miscellaneous Toxicities

Zinc Phosphide

- **Mechanism of action**
- Zinc phosphide bait is hydrolysed in the stomach to phosphine gas
- Mechanism thought to be blocked cytochrome oxidase i.e. blocks energy production in mitochondria
- Reactive oxygen species = peroxidation

Miscellaneous Toxicities

Zinc Phosphide

- 20-40 mg/kg is usually lethal for many animals
- Veterinarians are at risk of phosphine gas poisoning from postmortem exposure

Miscellaneous Toxicities

Zinc Phosphide

- Clinical Signs
- Rapid onset (15 minutes to 4 hours)
- Ingestion on an empty stomach will delay signs
- No specific signs
- Anorexia and depression early
- Rapid, deep respirations (wheezy)
- Vomit

Miscellaneous Toxicities

Zinc Phosphide

- Clinical Signs
- Horses: colic
- Ruminants: tympany and bloat
- Ataxia, weakness recumbency hypoxia and struggling
- Possible convulsions and hyperaesthesia

Miscellaneous Toxicities

Zinc Phosphide

- No specific clinical pathology
- No specific postmortem changes:
- Liver and kidney congestion
- Yellow mottling of liver
- Gastritis, enteritis
- Pulmonary congestion

- Diagnostic testing
- Put samples in airtight containers on ice

Miscellaneous Toxicities

Zinc Phosphide

- Treatment
- Time is critical
- Early decontamination very helpful
- Central acting emetic like apomorphine used
- Increase gastric pH to slow conversion to gas
- Activated charcoal and laxatives
- Symptomatic care as no antidotes exist

RECENT TOXICITIES of NOTE

- Raisins and grapes (DOGS)
- Macademia nuts (DOGS)
- Easter Lily (*Lilium longiflorum*) (CATS)
- Avocado (dogs, horses and others)