Renal Toxicities

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Renal Toxicities

PROBLEMS:

- Anorexia
- Depression
- Dehydration
- Vomiting
- Oral lesions
- Diarrhoea
- Hypothermia

Renal Toxicities

Differential diagnoses:

- Aminoglycoside antibiotics
- **CHOLECALCIFEROL**
- **Ethylene Glycol**

Renal Toxicities

Differential diagnoses:

- Heavy metals
- Ochratoxin? – raisins & grapes
- NSAIDs
- Oxalates (plants)

Renal Toxicities

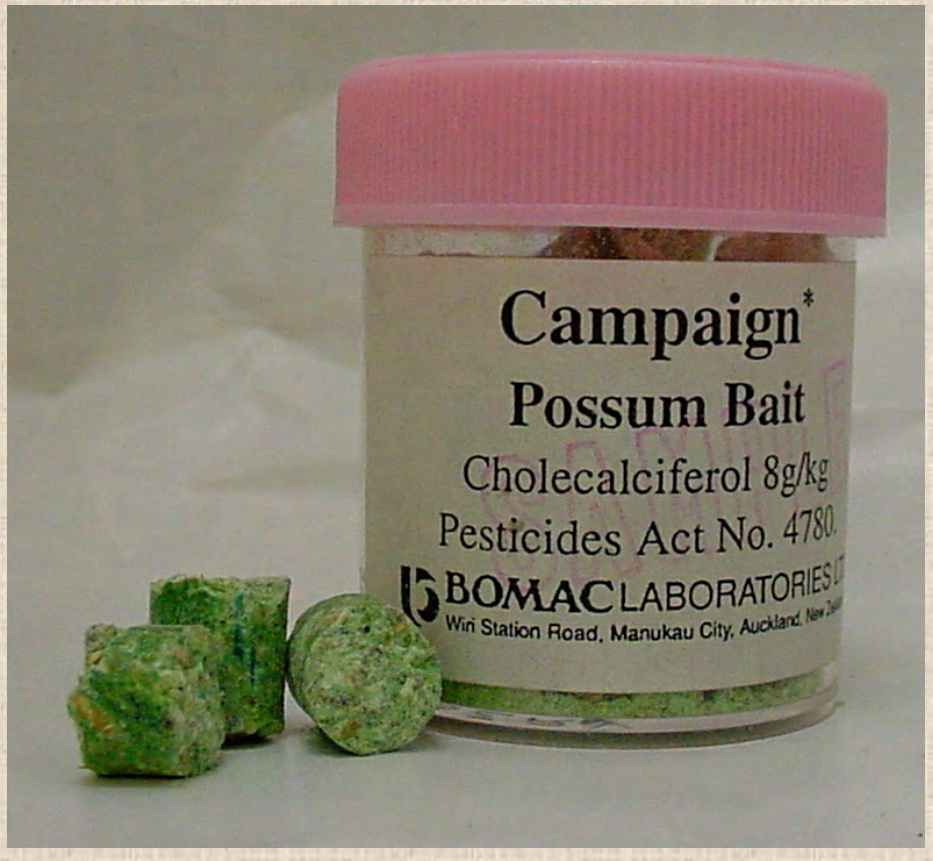
CHOLECALCIFEROL-Sources

- Pesticides
- Plants
- Vitamin D_3

Toxicity:

2 mg/kg (low)

LD_{50} 13 mg/kg



Renal Toxicities

CHOLECALCIFEROL- Clinical Signs

- Initially – lethargy & anorexia
- Vomiting, PU, PD
- Dehydration
- Cardiac – PR ↑, QT↓
- Azotaemia

Renal Toxicities

CHOLECALCIFEROL - Diagnosis

- Hypercalcaemia
- Hyperphosphataemia
- Ca:P
- ECG: ↑ PR interval, ↓ QT
- Histo: Tissue Mineralisation

Renal Toxicities

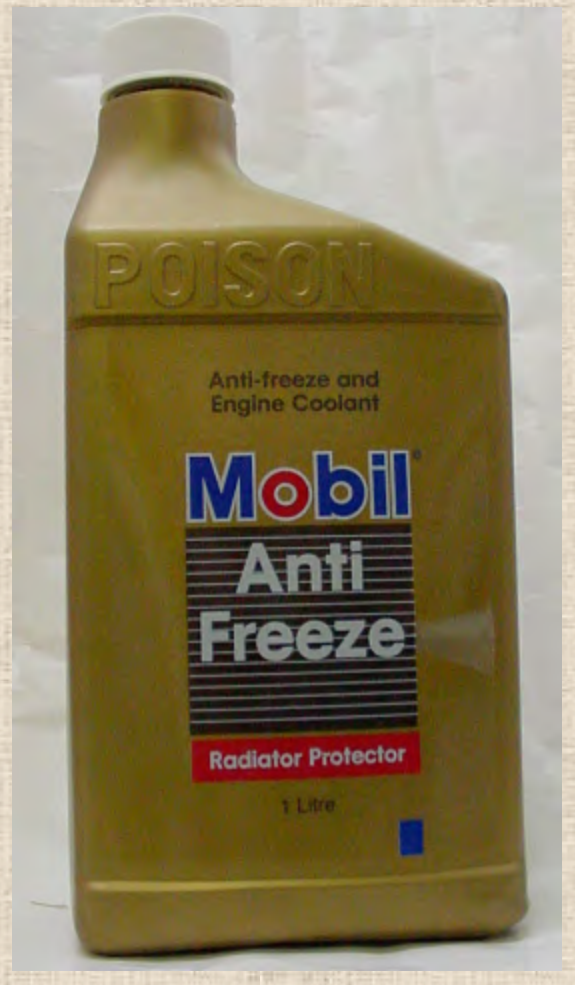
Cholecalciferol Treatment

- Activated charcoal (repeat)
- Fluids – Saline diuresis
- Frusemide
- Prednisone
- Salmon calcitonin (Miacalcic) OR
  - pamidronate disodium (Aredia)
- Guarded to Grave Prognosis

Renal Toxicities

ETHYLENE GLYCOL

- Antifreeze



Renal Toxicities

ETHYLENE GLYCOL - Antifreeze

- Stage I – drunkenness (1-2 hours)
  - Vomiting, depression, ataxia
  - Metabolic Acidosis
- Stage II – Cardiopulmonary Signs
  - hypocalcaemia
  - hypothermia, muscle tremors (6 hours)

Renal Toxicities

ETHYLENE GLYCOL - Antifreeze

- Stage II – Cardiopulmonary Signs
  - Tachycardia,
  - Pulmonary oedema
- Stage III – Renal Failure
  - Painful swollen kidneys
  - Anuria, uraemia

Renal Toxicities

ETHYLENE GLYCOL - Antifreeze

Clinical Pathology:

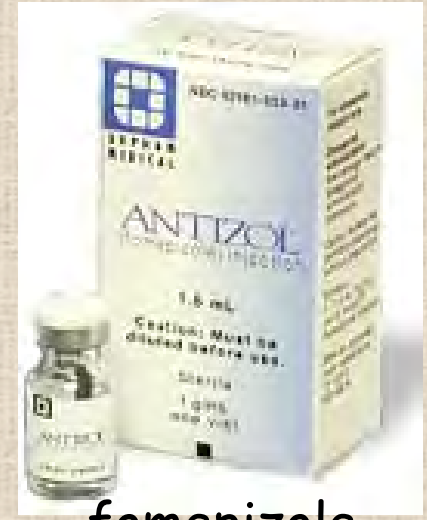
Metabolic Acidosis, ↑ anion gap

Urine specific gravity – isothenuric or dilute

Uraemia, ↑ creatinine (renal failure)

Birefrigent crystals in kidneys

Renal Toxicities
ETHYLENE GLYCOL TREATMENT



fomepizole

- Ethanol (dogs and cats)
- Dogs: 4-methylpyrazole (fomepizole)
- Symptomatic and supportive care
  - fluid therapy
  - sodium bicarbonate (acidosis)
  - electrolyte correction

Renal Toxicities

SUMMARY

- Clinical Signs of Renal Failure
- Hypothermia
- Activated charcoal (cholecalciferol)
  - Reduce hypercalcaemia
- Metabolic Acidosis (ethylene glycol)
  - Ethanol or 4-Methylpyrazole