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Renal Toxicities

PROBLEMS:

- Anorexia
- Depression
- Dehydration
- Vomiting
- Oral lesions
- Diarrhoea
- Hypothermia
- Urine output & specific gravity altered

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Renal Toxicities

Differential diagnoses:

- Aminoglycoside antibiotics
- **CHOLECALCIFEROL**
- **ETHYLENE GLYCOL**

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Renal Toxicities

Differential diagnoses:

- Heavy metals
- Ochratoxin

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Renal Toxicities
Differential diagnoses:

- Raisins & grapes
- NSAIDs



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Renal Toxicities
Differential diagnoses:

- Oxalates (plants)
- Easter Lily (cats)



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Renal Toxicities
CHOLECALCIFEROL-Sources

- Pesticides
- Plants
- Vitamin D₃

Toxicity:
2 mg/kg (low)
LD₅₀ 13 mg/kg



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Renal Toxicities
CHOLECALCIFEROL- Clinical Signs & Effects

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

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Renal Toxicities

CHOLECALCIFEROL - Diagnosis

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

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Renal Toxicities

Cholecalciferol Treatment Plan

depends on severity and Calcium levels

- Activated charcoal (repeat)
- Fluids - Saline diuresis
- Frusemide
- Prednisone
- salmon calcitonin (Miacalcic) OR
- *pamidronate disodium (Pamisol)
- Guarded to Grave Prognosis

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Renal Toxicities

ETHYLENE GLYCOL

- Antifreeze
- Clinical signs appear from 30 minutes to 12 hours post ingestion



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Renal Toxicities

ETHYLENE GLYCOL - Antifreeze

- Stage I - drunkenness (1-2 hours)
 - Vomiting, depression, ataxia
 - Metabolic Acidosis,
 - Cats - lethargy
- Stage I - (2-6 hours)
 - diuresis, dehydration, polydipsia

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Renal Toxicities

ETHYLENE GLYCOL - Antifreeze

▪Stage II - Cardiopulmonary Signs

- Hypocalcaemia
- Hypothermia,
- Muscle tremors (6 hours)
- Tachycardia,
- Pulmonary oedema
- ↑ phosphorus

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Renal Toxicities

ETHYLENE GLYCOL - Antifreeze

▪Stage III - Renal Failure

- Painful swollen kidneys
- Anuria, uraemia
- Increased BUN and Creatinine

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Renal Toxicities

ETHYLENE GLYCOL - Antifreeze

Clinical Pathology:

Metabolic Acidosis, ↑ anion gap

Urine specific gravity - isothermureic or dilute

Uraemia, ↑ creatinine (renal failure)

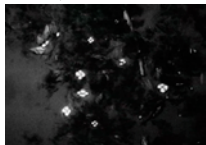
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Renal Toxicities

ETHYLENE GLYCOL - Antifreeze

Clinical Pathology:

Birefringent crystals in kidneys



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Renal Toxicities

ETHYLENE GLYCOL TREATMENT

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



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Renal Toxicities

SUMMARY

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

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