

Inorganic mercury salts are highly toxic. Ingestion may lead to airway / upper GI corrosive injury, GI haemorrhage, circulatory collapse and multi-organ failure.

Toxicity / Risk Assessment

Inorganic Hg primarily exists as monovalent or divalent salts, which include mercuric oxide + mercuric chloride

Historically, inorganic Hg salts were used in various products including topical antiseptics, skin-lightening creams, diuretics, and tattoo dyes. Mercuric oxide remains a common component of car batteries

Mercuric chloride is highly toxic. An ingested dose of > 30 mg/kg is potentially fatal

Repeated dermal exposure to creams containing Hg may produce chronic Hg toxicity

Clinical features:

Acute toxicity following ingestion

- Airway swelling / upper GI corrosive injury
- Abdominal pain, haematemesis, bloody diarrhoea
- Rhabdomyolysis, renal injury, multi-organ failure

Chronic toxicity (repeated dermal / oral exposure)

- Neurological - tremor, neuropathy, deafness, emotional lability, insomnia, cognitive decline, tunnel vision
- Other – renal injury, hypersalivation, acrodynia (pink discoloration of digits), desquamating rash

Management

Intubation to secure the airway may be required following ingestions producing corrosive injury

Acute exposures may produce significant fluid loss and haemorrhage requiring aggressive resuscitation

Decontamination: Activated charcoal binds poorly and should not be administered in cases where corrosive injury is suspected

- Removal of inorganic Hg salts via endoscopy should be considered in large ingestions where radio-opaque material is visible on AXR. This also allows assessment of corrosive injury.

Investigations: (see separate “*Mercury Investigations*” guideline)

- Whole blood Hg concentration obtained within hours of suspected exposure may confirm exposure, but may overestimate body burden (raised blood concentration prior to redistribution)
- Serial 24-hour urine analysis may inform the response to chelation therapy

Chelation therapy: (please discuss with a clinical toxicologist)

- Chelation therapy should be considered following large acute exposures, or in cases with clinical features of Hg poisoning and a whole blood Hg concentration suggestive of a large body burden
- DMPS is preferred in acute symptomatic exposures and should be commenced within 24 hours
- DMSA may be utilised in chronic poisoning and as a step-down treatment in cases of acute poisoning

Enhanced elimination: Haemodialysis does not increase elimination of Hg to a clinically significant degree

- Renal replacement therapy may be indicated in patients with Hg induced renal failure

Disposition:

- The majority of patients with chronic inorganic Hg poisoning can be managed in an outpatient setting
- Patients with severe toxicity should be admitted to a ward or critical care environment