

Salicylate (Aspirin, Methyl salicylate, Choline salicylate)

Initial management includes fluid replacement + oral activated charcoal. Urinary alkalinisation is indicated in patients with symptoms of toxicity.

Toxicity / Risk Assessment

- Toxicity is dose-dependent. Delayed absorption may occur with enteric-coated formulation or gastric bezoar formation
- 1 mg of methyl salicylate is equivalent to 1.5 mg aspirin (1 mL Oil of Wintergreen is equivalent to 1400mg aspirin)
- 1 mg of choline salicylate is equivalent to 0.75 mg aspirin

Risk assessment based on ingested aspirin dose

- 150-300 mg/kg:** tinnitus, nausea, vomiting, resp. alkalosis
- 300-500 mg/kg:** possible seizures, metabolic acidosis with mixed acid-base disturbance, multi-organ failure
- >500 mg/kg:** potentially lethal

Clinical features:

- **GI:** nausea, vomiting, haemorrhagic gastritis
- **Metabolic:** primary respiratory alkalosis followed by metabolic acidosis, ↓glucose, electrolyte disturbance
- **CNS:** tinnitus, restlessness, seizures, cerebral oedema
- **Other:** hyperthermia, pulmonary oedema, renal failure

Chronic salicylate toxicity is uncommon – occurs in ingestions > 100 mg/kg/day, usually in the elderly or when repeatedly applying topical salicylate creams

Management - Fluid resuscitation + urinary alkalinisation are indicated for symptomatic patients

Decontamination: Activated charcoal 50 g (1 g / kg in children) should be given for any acute ingestion >150 mg/kg once vomiting is controlled or airway secured. Repeat dose, 50g 4-hourly, until decreasing serum salicylate concentration.

Salicylate concentration correlates poorly with toxicity BUT serial concentrations (2-4 hourly) will assist in guiding ongoing treatment.

Airway management – significant metabolic derangements and respiratory compensation make intubation very high risk in salicylate toxicity. If required, pre-treat with 1-2 mL/kg 8.4% NaHCO₃ IV bolus. Hyperventilate post intubation to maintain respiratory compensation.

Fluid (crystalloid) - replace losses and maintain urine output 1-2 mL/kg/hour

Urinary Alkalinisation:

Indication: symptomatic patients with any acid-base disturbance (see Urinary Alkalinisation guideline)

Haemodialysis Indications: (discuss with clinical toxicologist)

- Severe toxicity: altered mental state, seizures, renal failure, serum pH<7.2, pulmonary oedema OR
- Rising serum salicylate concentration despite decontamination and urinary alkalinisation OR
- Salicylate concentration >7.2 mmol/L (1000 mg/L) OR > 6.5 mmol/L (900 mg/L) with renal failure

Disposition

- HDU/ICU with expected severe toxicity or multi-organ involvement
- Continue Rx until clinical features + acid-base disturbances resolve
- Symptomatic patients, ingestion >150 mg/kg or deliberate self-harm: observation for at least 6 hours