

**Deliberate self-poisoning with MeOH is often lethal without early antidotal intervention. CONSULT A CLINICAL TOXICOLOGIST EARLY.**

**Sources:** model airplane fuel, car racing fuel, home brew.

*Domestic methylated spirits do NOT contain MeOH*

### Toxicity / Risk Assessment

- Deliberate self-poisonings or ingestions > 0.5 mL/kg of 100% MeOH can be lethal
- Ingestions of > 10 mL 100% MeOH can cause toxicity
- Dermal + inhalational exposure can cause toxicity (rare)

### Clinical features:

- Early features are similar to ethanol intoxication
- MeOH metabolism produces acids resulting in severe metabolic acidosis, coma, and visual impairment (latent period 12-24 hours before this is apparent)
- Initial high osmolar gap (OG) & low anion gap (AG): as MeOH is metabolized, the OG ↓ and the AG ↑
- A severely poisoned patient can present early with normal AG and pH but the OG will usually be high
- A normal OG, however, does not exclude MeOH toxicity
- Co-ingestion of ethanol delays onset of toxicity
- Up to 1/3 patients suffer permanent visual impairment

### Management

Any delay in commencing treatment with an antidote (ethanol)= more severe toxicity= worse prognosis

**Decontamination:** Activated charcoal does not adsorb MeOH and is not indicated.

**Labs:** MeOH concentrations are generally not readily available; use surrogate markers (pH/AG/OG)

Obtain U&E/VBG/ethanol/glucose/AG/measured osmolality **at the same time.**

**Calculated osmolarity** =  $2[\text{Na}^+] + \text{urea} + \text{glucose} + 1.25[\text{ethanol}]$  (concentrations in mmol/L)

**Osmol Gap (OG) = Measured osmolality - Calculated osmolarity**

**Antidote:** Alcohol dehydrogenase blocker such as *Ethanol* or *Fomepizole (4-MP)*

See separate *Ethanol* or *Fomepizole* guideline

***Indications for discussion with clinical toxicologist for consideration of Rx with an antidote:***

Documented history of ingestion **AND** OG>10 OR raised AG

**OR** suspicion of ingestion **AND** at least 2 of: pH <7.30, HCO<sub>3</sub> <20, OG >10, visual disturbance

**OR** MeOH concentration of > 20 mg/dL

**Na Bicarbonate:** correct acidaemia if pH <7.30 (commence with bolus of 1-2 mL/kg 8.4% solution)

**Enhanced elimination:** Intermittent haemodialysis is the preferred modality.

***Indications:*** acidosis /coma / ARF / haemodynamic instability / requirement for antidotal Rx

**Methylprednisolone** indications: coma, visual impairment, serum pH<7.2 - 1 gram IV daily for 3 days

**Cofactors:** IV folinic acid 30 mg q6h for 48 hours may aid MeOH metabolism to non-toxic metabolites.

**Disposition** - Discharge pending mental health assessment if well + normal pH + HCO<sub>3</sub> >20 + OG <10 + ethanol is undetectable at least 8 hours post ingestion