

Ethanol is used to competitively inhibit alcohol dehydrogenase in methanol and ethylene glycol exposures, preventing the production of toxic metabolites.

Indications

- *Methanol poisoning*
- *Ethylene glycol poisoning*

Adverse effects:

- IV solution may cause phlebitis
- Ethanol intoxication
- Hypoglycaemia may occur, especially in children

If available, Fomepizole is the preferred antidote for the treatment of methanol and ethylene glycol poisoning in children and pregnancy (please discuss with a clinical toxicologist)

Presentation

- Commercially available 40-43% preparations (e.g., Vodka) may be given orally (PO) or via a nasogastric tube
- 10 mL vial of 96% ethanol for dilution and administration via intravenous infusion

Dose and Administration

Oral or nasogastric administration:-

Loading dose: (over 30-60 minutes): 1.8 mL/kg of 40-43% ethanol (4 x 30 mL shots vodka in a 70 kg adult)

Maintenance: 0.4 mL/kg/hour of 40-43% ethanol (30 mL of vodka each hour in a 70 kg adult)

Intravenous ethanol administration:-

Preparation: add 100 mL of 96% ethanol to 1000mL of 5% dextrose

Loading dose: (over 30-60 minutes): 8 mL/kg

Maintenance: 1-2 mL/kg/hour

Therapeutic Endpoint:

- Maintenance of serum ethanol concentration of 0.1-0.15 g/dL (100-150 mg/dL OR 22-33 mmol/L)
(Use of a breathalyser is NOT reliable and may underestimate serum ethanol concentration)
- Alcohol dehydrogenase is not effectively blocked at serum ethanol concentrations < 0.1 g/dL (22 mmol/L)
- Ethanol pharmacokinetics are extremely variable and serum ethanol measurement should be monitored hourly until steady state is reached and then 2-3 hourly
- Ethanol dosing will need to be increased when haemodialysis is commenced for the treatment of toxic alcohol poisoning (double infusion rate initially and adjust according to hourly ethanol concentration)

Pregnancy: treatment with ethanol should NOT be withheld if fomepizole is not available