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First Aid for Suspected Methanol Poisoning

Prevention is the most effective measure to counter methanol poisoning, which may occur from drinking bootleg spirits or from accidental ingestion. Non-commercially distilled ethanol (without regulated quality and safety controls) poses a potentially lethal risk for anyone who ingests it.

The World Health Organization (WHO) indicated in its July 2014 bulletin on methanol poisoning that, "The main principles of treatment [for methanol poisoning] are to prevent further metabolism of methanol, correct metabolic abnormalities and provide other supportive care. Metabolism can be blocked by the administration of ethanol or Fomepizole. Supportive measures may include the correction of acidosis with sodium bicarbonate, intubation and mechanical ventilation and the use of extracorporeal elimination such as haemodialysis."

The only definitive treatment for methanol poisoning is haemodialysis. Haemodialysis is a way of cleansing the blood of toxins, extra salts and fluids through a dialysis machine sometimes known as an "artificial kidney." Haemodialysis helps to maintain the body's chemical balance – including substances like potassium, sodium and chloride – and helps to keep a patient's blood pressure under control.

For poisoned patients without immediate access to haemodialysis/medical attention -- or for those awaiting haemodialysis/medical attention -- the following is a step-wise guide to management.

1. **When to suspect methanol poisoning?**
   Severe headaches, blurred vision, rapid or deep breathing, drowsiness and /or confusion after drinking illicit alcohol or from accidental ingestion of methanol are all warning signs of poisoning. These symptoms can occur 12-24 hours after exposure, and these patients require tertiary hospital care.

2. **Arrange transfer to a major hospital with dialysis facilities**

3. **Give the patient ethanol to drink –** this blocks toxicity from methanol and can prevent further poisoning. If IV ethanol is available, it can be used as a substitute for oral ethanol, so long as it is administered under medical supervision.

   For adults, give them an initial "loading dose" of 1.8 mL of spirits (spirits with a minimum of 43% (86-proof) ethanol content) per 1 kg of body weight (i.e., for a 70 kg adult, administer three 40 mL shots) of spirits such as vodka, gin, or whisky, with a maintenance dose of 0.40 mL/kg per hour. (i.e., for a 70 kg adult, one 40 mL shot per hour). **To simplify: for an average-sized adult weighing 70kg, administer a loading dose of 120mL up-front, and 40ml/hour thereafter.**

   In the U.S., this would equate to giving an adult patient an initial loading dose of 0.06 ounces of spirits (spirits with a minimum of 43% (86-proof) ethanol content) for each 2.2 lbs of body weight (i.e., for an adult

who weighs 154 lbs, administer three shots of spirits at 1.35 oz per shot), with a maintenance dose per hour of 0.01 oz/lb (i.e., for a 154 lb adult, administer one 1.54 oz shot per hour). **To simplify: for an average-sized adult weighing 154 lbs, administer a loading dose of 4.06 ounces up-front, and 1.54 ounces/hour thereafter.** This will stop the poisoning from getting worse while transferring for haemodialysis.

Incremental Dose Chart

Body Weight (kg)	Initial Dose (mL)	Hourly Dose (mL)		Body Weight (lbs)	Initial Dose (ounces)	Hourly Dose (ounces)
40	72	16		88	5.28	0.88
50	90	20		110	8.80	1.1
60	108	24		132	7.92	1.32
70	126	28		154	9.24	1.54
80	144	32		176	10.56	1.76
90	162	36		198	11.88	1.98
100	180	40		220	13.20	2.20
110	198	44		242	14.52	2.42
120	216	48		264	15.84	2.64
130	234	52		286	17.16	2.86
140	252	56		308	18.48	3.08
150	270	60		330	19.80	3.30

If the patient is drowsy or unconscious, airway protection with intubation should be performed where possible. If not possible, the patient should be administered oral ethanol in the safest way possible, which would include sitting the patient upright and administering ethanol via a nasogastric tube.

NB: IF THE PATIENT IS UNCONSCIOUS, PLACE THEM IN THE COMA POSITION & ARRANGE **URGENT TRANSFER** TO THE NEAREST HOSPITAL

This is a time critical situation for a life threatening emergency, and this management guide should be commenced as soon as possible with any person who has suspected methanol poisoning.

The above guidelines have been adapted from and endorsed by qualified medical professionals and provided for informational purposes only. In the event of methanol poisoning, this set of guidelines is not a substitute for advice and treatment from a qualified medical professional. Seek medical advice immediately.

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