Methanol Poisoning — A Chennai Experience

Recently there has been an increase in admissions due to methanol poisoning in various hospitals in the country.1 These are all probably due to illicit liquor consumption and the sufferers are poor people. It has been observed that this occurs in the rural area and the patients are admitted to hospitals with limited infrastructure facilities, contributing to the high mortality.

In October 2001, there was an epidemic of methanol poisoning in Chennai and many patients were admitted to our hospital. We share our experience with management of these patients and also suggest guidelines, which may be valuable in management at centres with inadequate facilities.

Sixty seven cases of methanol poisoning were admitted, of which 60 were males. Their age ranged from 10-70 years (mean - 39 years). The quantity of illicit liquor consumed ranged from 200 ml - 600 ml (average - 375 ml). Majority of the patients presented between 12-24 hours after consumption.

The clinical profile of these patients are as follows:
Symptoms: vomiting - 62 (93%); giddiness - 53 (79%); abdominal pain - 28 (42%); blurred vision - 27 (40%) and breathlessness - 26 (39%). Signs: Level of consciousness - (a) conscious - 40 (60%); (b) drowsy - 22 (33%), (c) unconscious - 5 (7%); dilated pupils - 42 (63%); tachypnoea - 26 (39%); bradycardia - 11 (16%) and retinal changes - 10 (15%).

Methanol poisoning was confirmed by demonstrating methanol in blood by chromotropic acid complex method. The levels were not measured.

The patients were treated by standard methods, which included I.V. high dose Bicarbonate, Ethanol and Folic acid.2 Forty six patients recovered, 10 patients became blind, and 21 patients expired (Mortality - 31.3%). Eight patients died within 4 hours, 10 patients between 4-24 hours and three patients died after 24 hours of admission. Arterial blood gas measurements were not available to assess the severity of metabolic acidosis. The most probable cause of death was severe metabolic acidosis. None of the patients underwent dialysis. Non-availability of arterial blood gas analysis and dialysis was a major factor contributing to mortality. The fact that 69% of the patients could be saved was probably due to the aggressive ethanol and bicarbonate administration.

Ideal management would include measurement of methanol in blood by chromotropic acid complex method. The levels were not measured.

In centres with adequate infrastructure facilities we suggest the following guidelines in management.1,2


ii. Ethanol should be started if
a. Methanol ≥ 20 mg/dl
b. ↑ Osmolal gap
c. ↑ AG metabolic acidosis
d. Visual symptoms

iii. The loading dose of ethanol should be 7.6-10 ml/kg of 10% Ethanol I.V. (or) 0.8-1 ml/kg of 95% Ethanol PO with orange juice.

iv. The maintenance dose of ethanol should be 2 ml/kg/hr of 10% Ethanol I.V. (or) 0.21 ml/kg of 95% Ethanol PO. This dose should be adjusted to achieve blood ethanol level of 100-150 mg/dl.

v. I.V. NaHCO₃ therapy to be monitored based on ABG.

vi. Leucovorin - 1 mg/kg (Max 50 mg) I.V. followed by folic acid 1 mg/kg every 4th hourly for 6 doses.3

vii. Haemodialysis (if not available, peritoneal dialysis) is indicated if
a. Serum methanol ≥ 50 mg/dl
b. Resistant Metabolic Acidosis
c. Visual Abnormalities
d. Patients with renal impairment

viii. 4-Methyl pyrazole (Fomepizole), if available can replace ethanol.3

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