Changing Trends in Poisoning

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Poison refers to any agent that can kill, injure or impair normal physiologic function in humans. Use of poisons has been described since ancient times. Schools of toxicology have been described in Venice and Rome in as early as 17th century. Development of new principles of pharmacology (drug interactions) and pharmacogenomics have facilitated better understanding of medical toxicology. Over last 50 years poison control training and research centers have been created globally to aid management of poisonings. These centers also focus on prevention of poisonings.

Poisoning is a major problem throughout the world. The exact incidence of poisoning is not known in India due to lack of central registry but approximately it accounts for 10% of admissions in medical emergency. Suicide is ranked as third leading cause of death in age group 15−44 years. It was responsible for around 600,000 deaths in 1990s. Toxicity of available poisons and paucity of medical services ensure that the mortality is greater in developing countries than in industrialized world.

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North, Northwest and Central India commonly report poisoning due to aluminium phosphide which is a grain preservative. In 1990s, it was the leading cause of suicidal poisoning in North India. Hooch tragedies, hypnotic and sedative over dosage are increasingly reported from various areas.

Hair dye consumption is not an uncommon means of deliberate self harm. It is being increasingly reported from the developing countries probably due to easy availability and low cost. An 11 year (1992-2002) retrospective study of 374 cases has been published from Poison Control Center of Morocco. A study of 150 cases over 10 years has been reported from Khartoum, Sudan. Numerous case reports have been published from India, many of which are from Andhra Pradesh. Hair dye is commonly available as Super Vasmol 33. Paraphenylene diamine (PPD) is a major component of the hair dye. Angioneurotic edema with stridor, rhabdomyolysis with dark urine and acute renal failure are common features of hair dye poisoning.

In this issue of the journal Sahay et al have studied 30 patients with acute kidney injury following hair dye ingestion. Renal failure has been described in previous studies with incidence ranging from 45-70%. In an early report from India by Chugh et al renal failure was reported in 2 patients who were found to have acute tubular necrosis on kidney biopsy. The cause of renal failure is likely to be due to rhabdomyolysis or aromatic structure of PPD making it easily reabsorbed and concentrated in tubules. Biopsy has been done in 15 patients in the present study showing acute tubular necrosis in 8 and acute interstitial nephritis in 7 patients. Early airway protection, alkaline diuresis and dialysis are recommended for management.

Reducing deaths from self harm will require interventions to both reduce the incidence of harmful behaviour and to improve medical management of acute poisonings.

Medical toxicology which encompasses the pathophysiology, diagnosis and treatment of clinical problems related to poisoning and drug intoxication has in the past decade become an established subspeciality in the West. It is important for physicians to know about the manifestations of poisons for early detection and prompt treatment. It also important that the public is educated about the same.

References