EDITORIAL

POISONS AND ANTIDOTES

From the dawn of recorded history human beings have exhibited a morbid fascination with the subject of poisoning. The word "poison" evokes an eerie instinctive paranoia, which defies description. Poisoning is often associated with excruciating painful death. The ancient Greeks used poisoning as a legal method of execution for condemned criminals and philosophers. Socrates was forced to drink oil of hemlock (which contains a toxic alkaloid coniine) after he was condemned to death by his countrymen. Poisoning, particularly homicide, is a popular topic of fiction books.

In the 12th Century Maimonides issued the following warnings, "Avoid all foods that exhale bad odour for example onions, for it is in such dishes that colour, odour or consistency of the poison is easily concealed. Be on guard against those cooked with garlic and those having an acid taste or styptic or indeed excessively sweet. Be careful of wine, for it is a liquid that easily conceals the odour, colour and taste of the poison and especially because it facilitates its arrival at the heart". (Mancini R. E., Principles and Practice of Clinical Toxicology – Current Concepts, Upjohn, 1983). All chemical substances are potential poisons. Paracelsus (1567) had this to stay on the subject, "All substances are poisons; there is none which is not a poison; it is the right dose that differentiates a poison".

Poisoning falls into 2 broad categories: acute and chronic poisoning. Regarding circumstances it is common to classify poisoning as either accidental or intentional. The latter can be classified further as self-poisoning or homicide. In chronic poisoning, poison is ingested in small amount over a period of time and the cumulative effect is manifested when extensive and irreversible damage has been done on vital organs. A typical example is lead poisoning. As for acute poisoning symptoms of poisoning are manifested soon after ingestion of poison and it is easy to establish the cause-effect relationship from the case history. In self-poisoning, the individual ingests massive dose of the poison, away from other people so as not to attract attention. Under those circumstances poisoning is discovered when it is too late for meaningful intervention. Often there is a note indicating why the victim decided to commit suicide. Accidental acute poisoning is common among children up to the age of 5 and there are warning signs (nausea, vomiting, diarrhea, salivation, bronchorrhea, convulsions, etc) which make it possible to save life if there is timely intervention at home or in hospital.

The management of a poisoned patient often follows a standard procedure, which includes maintenance of vital physiological functions and removal of unabsorbed poison. It is not possible to explore this subject exhaustively in an editorial. The main focus of this editorial is the use of antidotes in management of a poisoned patient. An antidote is defined as a therapeutic substance used to counteract the toxic action(s) of a specified xenobiotic. Many other agents not covered by this definition are used to prevent the absorption of poisons, to promote their elimination or to treat their effects on body functions symptomatically. There is a mistaken belief that antidotes play a critical role in such cases. Based on this misconception, many clinicians tend to withhold important decisions regarding treatment, pending the recognition of the poison by an analyst. In practice, there are no antidotes for the majority of poisons. Even in the few instances where antidotes exist, they play a relatively minor role in the overall management of the poisoned patient. During the period 1986-1990, the International Programme on Chemical Safety (IPCS) in conjunction with Commission of the European Communities (CEC) had a project to evaluate antidotes used in treatment of poisoning. In one of the meetings I attended, it was generally recognized that oximes (pralidoxime, obidoxime) at the dose commonly used in organophosphate pesticides poisoning are of little value in regeneration of cholinesterase enzyme (IPCS/CEC working group on antidotes, New Castle, Upon-Tyne, UK, 1989). The same is true of other antidotes such as snake antivenoms. An article in this issue of the journal (Maitai *et al.*) examines the subject of antidotes in more details. The authors examined four prospective chemicals as possible antidotes for zinc phosphide, a common rat poison.

Editor-in-Chief