

PESTICIDE POISONING IN SRI LANKA

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Agrochemicals include basically two groups of chemical substances, namely, pesticides and fertilizers. Though either of these can cause poisoning or other adverse effects if misused, pesticides are the major group of substances causing human toxicity today.

Pesticide means any substance or mixture of substances intended for preventing, destroying, or controlling any pest, including vectors of human or animal disease, unwanted species of plants or animals causing harm during or otherwise interfering with the production, processing, storage, transport, or marketing of food, agricultural commodities, wood and wood products or animal feedstuffs or which may be administered to animals for the control of insects, arachnids or other pests in or on their bodies. The term includes substances intended for use as a plant-growth regulator, defoliant, desiccant, or fruit thinning agent or agent for preventing the premature fall of fruit and substances applied to crops either before or after harvest to protect the commodity from deterioration during storage and transport.

By definition therefore pesticides must kill pests which are living organisms. If misused they must be harmful to man. If there is a pesticide that is not harmful to human beings, that is not a pesticide.

Pesticides have five main areas of use in Sri Lanka. They are widely used in public health programs to kill vectors of malaria and filaria.

Secondly pesticides are used for domestic and personal use for application to kill, for example, insects like cockroaches or on the skin to control

scabies or head lice. Thirdly, pesticides are used for industrial purposes like fumigation of ships and buildings. Fourthly, pesticides are used for protection of material by incorporating in or on paint, timber, glue, and leather to prevent or retard attacks by insects or fungi. Finally, in agricultural production, on garden crops, forests, livestock and agricultural produce, pesticides are used.

The effects of pesticides on man can be acute or chronic. The major problem in Sri Lanka is acute toxicity. The gravity of the problem of poisoning with pesticides can be seen in the statistics shown below.

Total admissions and Deaths in Hospitals following Poisoning—1986

	Admissions	%	Deaths	%
Chlorinated hydrocarbons	1635	(7)	170	(8)
Organophosphates and Carbamates	10263	(40)	1022	(46)
Other Pesticides	2515	(10)	260	(12)
Medical agents	3136	(12)	102	(5)
Other poisoning and Toxic effects.	7976	(31)	640	(29)
	<u>25525</u>		<u>2194</u>	

The number of deaths from pesticide poisoning, surprisingly, is more than the total number of deaths from rabies, snake-bites, polio, diphtheria, tetanus, whooping cough, malaria, and all mur-

ders in Sri Lanka for the year 1986 (more than the combined total of all those causes of deaths). In fact, poisoning is now the second leading cause of death in our state hospitals.

A study done on pesticide poisoning in 1979, reported in the Bulletin of WHO in 1982, by Dr. Jeyaratnam and others had revealed that 73% of cases were due to deliberate ingestion. 17% cases were occupational, 8% were accidental and in 2% the cause was not ascertainable from the hospital notes. This study also revealed that of all the poisoning cases, 31% involved people between 11-20 years and 47% between 21-30 years; in other words, 78% cases were between 11-30 years.

Annual morbidity rate for pesticide poisoning was 79 cases for 100,000 population. This study further showed that 5 per 1000 of agricultural workers were hospitalised annually for pesticide poisoning. These revealing data showed that Sri Lanka probably has the highest rate of pesticide poisoning in the world! In the world literature poisoning shows about a 5% mortality rate but our mortality is around 9-10%.

Accidental and occupational poisoning can occur under special circumstances. Firstly, they can occur during research work in the laboratories. During field studies people can get accidentally poisoned. Secondly, during pesticide production, manufacturing, packaging, transportation and waste disposal, occupational poisoning may occur. Storage of human and animal food with pesticides can cause poisoning, and finally, during spraying poisoning can occur. Poisoning due to deliberate ingestion is very common in Sri Lanka because of the easy availability of highly concentrated and toxic pesticides.

Homicidal pesticide poisoning is extremely rare.

Some of the problems encountered regarding management of patients who have been exposed to pesticides are :

- (1) Undue delay in admission.
- (2) Lack of proper first-aid prior to admission.
- (3) Delay in the treatment after admission.
- (4) Lack of drugs and equipment necessary for proper treatment.
- (5) Wrong treatment due to the inability of correctly identifying the pesticide involved.
- (6) No psychiatric referral prior to discharge from hospital in attempted suicidal cases.

It is unrealistic to expect doctors to remember constituents, toxic effects, symptoms, signs and appropriate treatment for poisoning with an infinite array of pesticides, drugs, household products and industrial chemicals.

Recognizing this, all developed countries and many developing countries in the world, have established institutions from which doctors, emergency services and para-medical personnel can obtain immediate and accurate information on the identification, toxicity and treatment of poisonous substances. These institutions are known as Poisons Information Centres.

In Sri Lanka, doctors realised the need for such a Centre over a decade ago. However, it is only in 1987, that a National Poisons Information Centre was established in the General Hospital, Colombo. The Centre provides information on poisoning 24 hours a day throughout the year. Its telephone numbers are 96143 and 91111 extension 306. It is expected that the Centre will help to reduce the rising incidence of morbidity and mortality from pesticide poisoning.