

# Analysis of Various Retrospective Poisoning Cases in Tertiary Care Hospital in Tamil Nadu

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## ABSTRACT

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Acute poisoning is a global problem of the world which has steadily increased over the past few years. It is an important cause of morbidity and mortality which is increasing day by day in developing countries. The mortality and morbidity due to poison can be reduced if the incidence and pattern of acute poisoning is known. The study aims to analyzing the pattern, cause and mortality rate of poisoning. The study was conducted in a rural area in Tamil Nadu, India. This retrospective study was conducted from September 2010 to April 2011. The data was analyzed using descriptive statistics.

During the study period 261 poisoning cases were reviewed. Out of these 261 cases 150 were males and 111 were females. Poisoning was common in the age group of 21-35 years which was 178 cases and in the range of 5-21 years were 43 cases. The poison consumed were as follow(s): Oleander seeds 60 cases, Snake bite 52 cases, Food poisoning 42 cases, Organophosphorous 37 cases, All out 13 cases, Multi tablet(???) 10 cases, Benzodiazepine and HIT 6 cases, Rodenticide 7 cases, Hair dye 5 cases, Antipsychotic, Endosulphan and scorpion bite 3 cases, Inhalational and Pain killer 2 cases, Cetirizine, Insulin, Petrol and Savlon liquid 1 cases and unknown 4 cases. 60.92% were suicide and 39.08% accidental, mortality rate were 0.4%. Establishment of strict policies against the sale and easily availability of pesticides and over the counter drugs is an effective way to control organophosphorous and drug poisoning.

**Keywords:** Mortality rate, Organophosphorous, Oleander seeds, Poisoning.

## INTRODUCTION

A poison is any substance, which when administered to the body through any route, produces ill health, disease or death while poisoning refers to the damaging physiologic effects of ingestion, inhalation, or other exposure to a range of pharmaceuticals, illicit drugs and chemicals, including pesticide, heavy metals, gases/vapours and common household substances, such as bleach and ammonia. Poisoning is an important health problem in every country of the world. Occupational exposure to industrial chemicals and pesticides, accidental or intentional exposure to household to pharmaceutical products and poisoning due to venomous animals, toxic plants and food contamination, all contribute to morbidity and mortality.

Poisoning is a major problem all over the world, although its type and the associated morbidity and mortality vary from country to country. According to the legal system of our country, all poisoning death cases are recorded as unnatural death and a medico-legal autopsy is routine. India ranks 10<sup>th</sup> in world with a suicide rate of 9.74 per lakh population.

Organophosphorous poisoning occurs very commonly in southern India, where farmers form a significant proportion

of the population who commonly use organophosphorous compound like parathion as insecticides. Thus, due to the easy accessibility of these compounds, a large number of suicidal cases are encountered in this region.

Pesticide poisoning is a major public health problem in developing countries particularly in setting in low education and poor regulatory framework. Pesticide usage in South Africa, both agricultural and non- agricultural has increased substantially in the past decade and this country is the largest market for pesticides for sub-Saharan Africa.

Most of victims of travel related poisoning were businessman (67.56%) rest were normal/domestic travelers (16.21%) and few were service holder (10.81%). Some other victims take poisonous material easily available in the household or at work place like rat killer (superwarferin), mosquito repellent (parathyroid), ant killer (gamma hexene), organo compounds (furadon, parathion, endosulphan)(This sentence is not clear). They also takes drugs which are available at house (either taken by them or house members) like alprazolam, diazepam, phenytoin, barbiturates, paracetamol, aspirin etc. since these all drugs are easily available over the counter. We also see lot of multi drug over dosage especially combination of antibiotics, analgesics and antihistamines.

Organophosphate is one of the commonest poisons consumed, as it is easily available. Among the organophosphorous compound, methyl parathion (metacid) is

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the most commonly used the other compound isdichlorovos (nuvan).

Snakebite is a common acute medical emergency faced by rural population in tropical and subtropical countries with heavy rainfall and humid climate. 35,000-50,000 people die each year from snake bite which is a common cause of morbidity and mortality in India. Snake bite is largely a problem of the rural area, where basic health facilities are poor and as a result death is common. The four families of venomous snake's atractaspididae, elapidae, hydrophidae and viperdae contain some 500 species; whereas the fifth family, the colubridae contain 40 species venomous to humans. Less than 200 species have caused clinically severe envenoming, ending in death or permanent disability. There are some 300 species of land snakes in Pakistan out of which 40 are poisonous. The commonest poisonous snake in Pakistan is cobra, viper and krait.

The causes and type of poisoning vary in different parts of the world depending upon the factors such as demography, socioeconomics, status, education, civilian and industrial, accidental and deliberate local belief and customs. The problem is getting worse with time as newer drugs and chemicals are developed in vast numbers. Today there are more than 9 million natural and synthetic chemicals, and the list keeps growing inexorably. However, less than 3000 of these cause more than 95% of the reported cases of poisoning. Some drugs that cause poisoning are classified in one of eight categories as follows: medical drugs, corrosives, alcohol, organophosphate, insecticides, rat poison (superwarferin), carbon monoxide (CO), mushroom and unknown. The medical drugs were categorized in to eight subgroups as psychoactive drugs, analgesics, antibiotics, cardiovascular drugs, antiemetic, multiple drugs, others (hormones, vitamins, minerals, anti diabetics, anticholinergic and antihistamines) or unknown.

The main aim of the study is to analyze the socioeconomical profile, demographical profile and evaluate the mortality rate due to poisoning, of the Patients admitted to the poison centre.

## METHODOLOGY

This study was conducted by the department of intensive care units (ICUs) and General Medicine ward at SRM Medical College Hospital and Research centre which is a tertiary care hospital located in Kancheepuram district, Tamil Nadu. This was a retrospective study designed based on case series analysis. All patients admitted to the emergency and intensive care units (ICUs) department with history of poisoning during the period of September 2010 to April 2011 were included in the study and they constituted a sample of size 261. The patients were analyzed for age, sex, socioeconomic status,

education, cause, type of poisoning and mortality rate. The data was collected in a proforma which was specially designed for the study. All retrospective cases were reviewed from the medical record department (MRD).

## RESULT

The retrospective study was conducted over a period of 8 months. Case records of poisoning cases from September 2010 to April 2011 were reviewed. During the study period 261 poisoning cases were reviewed.

Out of these 261 cases 150 patients (57%) were males and 111 patients (43%) were females (Table 1).

Among these 261 patients who had consumed the poison 79 were married males and 71 were unmarried males among the females 61 admitted were married and 50 unmarried (Table 2).

| Sex          | No. of patients |
|--------------|-----------------|
| Males        | 150             |
| Females      | 111             |
| <b>Total</b> | <b>261</b>      |

| Sex     | No. of patients | Married | Unmarried |
|---------|-----------------|---------|-----------|
| Males   | 150             | 79      | 71        |
| Females | 111             | 61      | 50        |

| Socio-economic status | No. of patients | Percentage |
|-----------------------|-----------------|------------|
| Low                   | 142             | 54.0       |
| Moderate              | 117             | 45.0       |
| High                  | 02              | 1.0        |

Most of patients belong to low socio economic status i.e.142 case (54%) than moderate socio economic status i.e. 117 cases (45%) and 02 cases (01%) seen in high low socio economic status (Table 3).

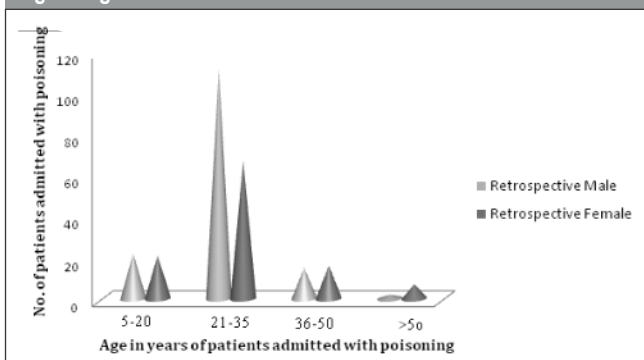
This study shows a majority of poison cases were from the age group of 21-35 years i.e. 178 cases (68.2%) which was followed by 5-20 years i.e. 43 cases (16.5%), 36-50 years i.e. 31 cases (11.9%) and >50 years i.e. 09 cases (3.4%) (Fig.1).

We observed that from the study out of 261 cases 102 cases (39%) were accidental and 159 cases (61%) were suicidal (fig 2).

It was found that according to the psychiatrist opinion the reasons of suicide were one of the following which include

**Table 4: Distribution of patients according to type of poisoning**

| Substance consumed  | No. of patients | Percentage   |
|---------------------|-----------------|--------------|
| All-out             | 13              | 5.0          |
| Antipsychotic drugs | 3               | 1.1          |
| Ant killer          | 2               | 0.8          |
| Benzodiazepine      | 6               | 2.3          |
| Cetirizine          | 1               | 0.4          |
| Endosulphan         | 3               | 1.1          |
| Food                | 42              | 16.1         |
| Hair dye            | 5               | 1.9          |
| HIT                 | 6               | 2.3          |
| Inhalational        | 2               | 0.8          |
| Insulin             | 1               | 0.4          |
| Multitables         | 10              | 3.8          |
| Organophosphates    | 37              | 14.2         |
| Oleander seeds      | 60              | 23.0         |
| Petrol              | 1               | 0.4          |
| Painkiller          | 2               | 0.8          |
| Rodenticide         | 7               | 2.7          |
| Savlon liquid       | 1               | 0.4          |
| Scorpion Bite       | 3               | 1.1          |
| Snake Bite          | 52              | 20.0         |
| Unknown             | 4               | 1.5          |
| <b>Total</b>        | <b>261</b>      | <b>100.0</b> |

**Fig. 1: Age distribution****Fig. 2: Cause of consumption**

economical condition, family problem, love failure, psychosis, marital conflicts, financial problem, unemployment and among the student it was stress due to exams.

The consumption of oleander seeds, organophosphorous was common which included 97 cases followed by food poisoning 42 cases, snake bite and scorpion stings which comprised of 55 cases, HIT and ALL OUT which comprised 19 cases, rodenticide and Antkiller comprised 9 cases and last was insulin, petrol, savlon liquid, inhalational poisoning comprised 5 Cases and miscellaneous included painkiller, cetirizine, antipsychotic drugs, multitables, benzodiazepine, hairdye, endosulphan which constituted 30 cases and unknown 04 cases (Table 4). We also witnessed a death case (mortality rate of 0.4%) which was due to zinc phosphate.

## DISCUSSION

Poisoning exposure was grouped in to 20 toxic substances and one unknown group was included in this study, In this study poisoning male (57.5%) predominated over female (42.5%).

The result of our study reviewed that a total 261 patients profile grammatically not correct. In our study 260 patients were improved and one patient died due to acute poisoning.

The result of the study shows that the incidence of poisoning was seen more in adults. Most commonly used route for poisoning exposure was oral followed by inhalation exposure. Intentional poisoning was seen more in adult male group because they are more often exposed to the stress and strain in their profession and due to the family problem in day to day life. Most of the poisoning was seen in younger adult age group i.e.21-35 years. The possible reason for increased poisoning in this age group may be because of problems in family studies, marriage, life settlement and employment which may themselves stressed and this may make them to attempt to suicide. In adolescence age, most of the poisoning cases were seen in girls than boys due to stress factors like family arguments, love failure in studies, mental conflicts. Matityahu L et al reported that the female/male adolescent self-poisoners ratio was 8:1.

Oleander seeds (60) poisoning was first, snake bite (52) second and food poisoning (42) was third leading causes of admission in this series. OPC is commonly used as a suicidal poisoning by the poor rural people in the tropical country because these compounds are easily available in the rural agricultural based area. This indicates poverty and love failure is an important contributing factor.

Sometimes sedative used as suicidal agent; it was commonly used by educated and rich people (affluent people). This is probably due to the knowledge among this class of people about the ability of these drugs to produce a peaceful death.

India is a country where agriculture is the prime profession for the majority of people in rural area and pest control is one of the most common problems faced by the farmers in agriculture. In order to eradicate the weeds and pests farmers procure and keep pesticides at their house. Because of easy availability of the pesticides people tend to use them for intentional poisoning.

Incidences of intentional poisoning are rising day by day due to social, emotional and professional stress. Most commonly used agents for intentional poisoning are pesticides or medicines by the people.

Household products induced poisoning was seen more in children of age less than 5 years. Most commonly used agents are phenyl, savlon liquid and other corrosive agents. Accidental poisoning in children is more seen in males, because children at this age become more curious in their newly acquired hand skills and mobility due to their exploratory, active and restless behaviors than the female children.

Other agents used for suicidal purpose were alcohol, ant killer, hair dye, HIT, inhalation, kerosene, petrol, savlon, rat killer, thinner etc. Also it was commonly used by the poor people mainly maid servant.

## CONCLUSION

Acute poisoning is a common and urgent medical problem in our country. Young adults should be educated about the hazards in the use of these chemicals, establishing a counseling centre in each hospital. People involved in health care professional must be aware of pattern of the common poisoning agents as well as their management.

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