POISONING TREND IN FARIDKOT REGION: A RETROSPECTIVE STUDY

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Abstract

This is a two years retrospective study from poisoning cases data record that were admitted in the emergency forensic department of Medical College, Faridkot. It is a study depicting the pattern of poisoning in the Faridkot region of Punjab. The association of age, sex, occupation, monthly income, place of resident in poisoning cases, was studied statistically among the cases brought to the emergency Forensic wing.

Keywords: Poisoning trends; Organo-Phosphorus; Aluminium Phosphide; DDT

Introduction

Poisons were known since ancient times. References to the poisons are found in the oldest Egyptian, Babylonian and Greek records. The ancient Indian scriptures contain references to the poisoning of kings, the doings of professional poisoners and of widespread organized poisoning in prehistoric times. In older days, in cases of poisoning the portions of stomach and heart were put on fire and the nature of flame and sound were noted to determine the nature of poison. A Chinese Materia medica of about 3000 B.C. gives information on poisons. [1]

Orphila, professor of chemistry and legal medicine at Paris is considered as the father of modern toxicology. In nineteenth century, Orphila brought precise chemical method in to toxicology. Orphila extracted arsenic from human tissues using a procedure for identification, developed several years before by James Marsh.

This toxicological evidence was used in the courts in 1840 to convict Marie Lefarge of a homicidal poisoning. This was the first time that the toxicological data had been as evidence in the trial. [2]

The Greek Philosopher Socrates was executed by the State through the use of hemlock, plant poison.

In ancient India, the poisons like opium, aconite, arsenic were known. They were used by women to get rid of cruel husbands. In a semi-historical legend of central-India, it is narrated that the grandfather of Asoka, sent to the latter monarch in the guise of a present, a fascinating girl who was 'poison'-maiden fed on poison until she was so saturated with venom that her embrace would prove fatal to an ordinary mortal. [2]

The problem is getting newer dimensions as new drugs and chemicals are being 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. The commonest agents in India appear to be pesticides i.e. now Organo Phosphorus Compounds & Aluminium phosphide have emerged as major poisons in the north India. [3]

The word "Toxicology" is derived from the Greek word 'Toxicon' which was used as a poisonous substance to arrowheads. The substance inflicting toxic effect may be a drug, an insecticide or pesticide or any chemical substance in the environment. (Methylisocyanate leakage at the Union Carbide Plant in Bhopal in 1984 resulted in high mortality and morbidity).

Organic phosphorus compounds are in common use agriculturally and domestically as pesticides, vermicides and rodenticides. [4]

The trend in poisoning has changed; it was arsenic which was prime status it later shifted to Opium, barbiturates and OPC. [5]

With the green revolution in the state of Punjab insecticide became the no. 1 poisoning status. [6]

Material & Methods

The present study is a retrospective study done from poisoning cases brought in the Emergency Wing, Department of Forensic Medicine in G.G.S. Medical College, Faridkot to know the current trend of poisoning in the region of Faridkot and adjoining districts (Ferozepur, Moga and Muktsar) as per hospital records. Data for this study was collected in the year 1995 and 1996.

In total 131 cases were studied and analyzed using the following parameters.

1. Month wise distribution
2. Poison wise distribution
3. Monthly income
4. Occupational Status
5. Age wise distribution
6. Sex wise distribution
7. Area wise distribution

Results

Table 1
Month wise distribution

Sr. No.	Month	1995	1996	Total Cases	%
1	January	2	4	6	4.58
2	February	2	1	3	2.29
3	March	8	3	11	8.39
4	April	4	3	7	5.34
5	May	4	7	11	8.397
6	June	6	8	14	10.69
7	July	5	12	17	12.98
8	August	12	19	31	23.67
9	September	8	9	17	12.98
10	October	1	7	8	6.11
11	November	3	1	4	3.06
12	December	2	0	2	1.53
	Total	57	74	131	100

Table 2
Poison wise distribution

Sr. No.	Name of Poison	Year 1995	Year1 996	To tal Ca se s	%
1	O.P.C.	10	26	36	27.48
2	Aluminimum Phosphide	4	4	8	6.106
3	DDT	0	6	6	4.580
4	Unknown Spray Poisoning	9	22	31	23.66
5	Unknown Insecticide Poisoning	10	2	12	9.16
6	Drug Poisoning	0	2	2	1.52
7	Alcohol Poisoning	0	3	3	2.29
8	Rat Poisoning	2	1	3	2.29
9	Rogor Poisoning	0	1	1	0.76
10	Lice Killing Poisoning	1	0	1	0.76
11	Other unknown Poisoning	21	7	28	21.37
	Total	57	74	13 1	100

Table 3
Sex wise distribution

Sr. No.	Area Wise	1995	1996	Total	%
1	Male	45	54	99	75. 6
2	Female	12	20	32	24. 4
	Total	57	74	131	100

Table 4
Area wise distribution

Sr. No.	Area Wise	1995	1996	Total	%
1	Rural	38	49	87	66.4
2	Urban	19	25	44	33.6
	Total	57	74	131	100

Table 5
Age wise distribution

Sr. No.	Age Wise	1995	1996	Total	%
1	0-10	3	1	4	3.05
2	11 to 20	20	22	42	32.06
3	21 to 30	23	38	61	46.56
4	31 to 40	5	8	13	9.92
5	41 to 50	6	5	11	8.40
	Total	57	74	131	100.00

Table 6
Showing Occupational Status

Sr. No	Occupation Status	No. of Cases 1995	No. of Cases 1996	Total	%
1	Farmers	18	29	47	35.8 8
2	Farm Workers	21	40	61	46.5 6
3	Govt. Employees	1	4	5	3.82

4	Shop Keepers	5	1	6	4.58
5	Students	6	0	6	4.58
6	Unemployed	6	0	6	4.58
	Total	57	74	131	100

Table 7
Showing Monthly Income

Sr. No.	Family Income Rupees/ Month	1995	1996	Total	%
1	300	0	1	1	0.76
2	500	23	21	44	33.59
3	600	11	21	32	24.43
4	650	0	1	1	0.76
5	700	9	14	23	17.56
6	800	11	10	21	16.03
7	900	0	1	1	0.76
8	950	0	1	1	0.76
9	1000	1	1	2	1.53
10	1200	0	2	2	1.53
11	1300	0	1	1	0.76
12	1500	1	0	1	0.76
13	2000	1	0	1	0.76
	Total	57	74	131	100

Discussion

This study shows that in Faridkot region of Punjab the commonest mode of poisoning is agricultural accidental poisoning. Rural population is more prone to the poisoning due to the occupational hazards. Farm workers (46.56%) and farmers (35.8%) constitutes highest effected group 82.44% in the study.

In present study, Rural population is more prone to poisoning than urban i.e. 66.41% which are similar to trends seen by Sinha [7] et al i.e. 61.75% and Gorea et al [8] i.e.71.01%. Males are most affected than females i.e. 75.5% as seen by Sinha [7] et al i.e. 69.47% and Gorea et al [8] i.e. 65.22%. Maximum numbers of cases are seen in age group of 21 to 30 years i.e. 46.56%, which are the most active years of a person's life.

Organo Phosphorus compounds are most effective as insecticides and are toxic to human beings as well and take many lives every year, mostly in rural areas [9]. OPC poisoning affected greater [10] number of cases i.e. 27.48% followed by Aluminium Phosphide 4.58%.

Most cases of poisoning were reported in the months of June, July, August and September, 60.32%. It is due to hot and humid atmosphere.

A number of non-fatal cases have been recorded in persons handling fruits sprayed with an organic phosphorus insecticide. A number of accidental deaths through contamination and leakage of these compounds to edible commodities have also been recorded (Kerala food poisoning cases in India). Workers engaged in the manufacture, packing, or spraying them are at special risk of accidental poisoning. [4]

From this study and earlier studies by different authors, it was clear that rural males are more prone to poisoning, probably due to occupational hazard being one of the factors. So, Mass awareness and education program should be started to prevent such poisoning incidents [7]. The electronic media and population at grass root involvement helps in generating.

The farmers and farm workers handling these insecticides should wear gloves and masks.

The preventive and educational measures can be more effectively designed and implemented if epidemiological data derived from the poison information centers are utilized. [10]. So, it is the duty of general public, N.G.O's, Government and Doctors to educate this venerable portion of society. OPC's, Aluminium Phosphide and other poisonings can be restricted by controlling the sale and distribution.

Conflict of interest

None declared

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