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A Clinical Study of Poisoning Cases in Tertiary Care Hospital

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Abstract : Nowadays, poisoning is very common and its mortality is very high in developing countries. So, the main objective of the study was to describe the socio-demographic profile of poisoning cases and related mortality among patients admitted in a tertiary care hospital during the period from May 1st to May 31st 2017. A total of 101 poisoning cases were attended. Data were collected after obtaining informed consent from the patients. From the statistics analyzed, 57 (56.4%) were males and 44 (43.6%) were females. Most of the cases were from the age group of 21-30. From the study, pesticides were the common cause of poisoning (45%) followed by drug overdosage (16.5%) and envenomation (15%). Most of the cases were found to be intentional (88.7%). Mortality rate due to poisoning was 10.7% among which 6.9% were males and 3.8% were females. Thus the mortality rate can be reduced by better medical management and further sales restriction on the most toxic pesticides. In addition to above measures, establishment of poison information centre is essential for the prevention of poisoning cases.

Key words: Socio-demographic profile, Pesticides, drug overdosage, intentional poisoning and mortality rate.

Introduction

Poison is a substance capable of producing damage or dysfunction in the body by its chemical activity¹. Uncontrolled use of poisons in the developing countries has resulted in increased number of human fatalities year by year. Poisoning is one of the leading causes of morbidity and mortality and also a major public health problem worldwide.

Over the last few decades, rapid industrialization, introduction of newer range of drugs for treatment and massive use of pesticides in agriculture has increased the incidence of poisoning. In advanced countries, it has been observed that poisoning deaths are mainly due to cleansing agents, detergents, paracetamol, carbon monoxide and other cosmetic products². Hence this study aimed to deal with the poisoning cases admitted in a tertiary care hospital and suggest preventive measures to bring down incidence and there by mortality.

According to World Health Organisation (WHO), approximately three million acute cases with 2,20,000 deaths occur annually. Out of this, 90% of fatal poisoning occurs in developing countries³. Easy availability, extensive use and low cost of the chemicals, all make the population more vulnerable for accidental as well as suicidal poisoning.

MODE OF INTAKE :

DATE & TIME OF CONSUMPTION:

DIRECT / REFERRAL -IF REFERRED, FROM WHICH HOSPITAL AND

DURATION OF TREATMENT GIVEN THERE :

WAS THE POISONING ACUTE / CHRONIC :

INGESTION ON POISON ALONG WITH ALCOHOL INTAKE : YES/NO

SMOKING: YES/NO ALCOHOLIC : YES/NO

DURATION OF THE STAY IN THE HOSPITAL:

DATE OF DISCHARGE / DEATH:

Results

Age Group & Gender

Most of the poisoning cases were reported in the age group of 21-30 years followed by 31-40 years. It is a major concern that the males were found to be predominant in the age group of 21-30 years than the females.

Table 1. Number of poisoning cases by age group and gender

S.NO.	AGE GROUP	GENDER		COUNT	PERCENTAGE
		MALE	FEMALE		
1.	0-20	9	12	21	20.8
2.	21-30	26	17	43	42.6
3.	31-40	12	9	21	20.8
4.	41-50	7	4	11	10.9
5.	ABOVE 50	3	2	5	5.0

	TOTAL	57	44	101	100.0

Marital Status

58 cases were married and 43 cases were unmarried. In both married and unmarried patients, males were found to be more predominant than females.

Table 2. Marital status distribution

S.NO.	MARITAL STATUS	MALE	FEMALE	FREQUENCY	PERCENTAGE
1.	MARRIED	29	29	58	57.4
2.	UNMARRIED	28	15	43	42.6

Educational Level

Out of 101 patients admitted, about 44.5% (n=45) of patients fall under the category of secondary education (6th to 10th) and most of them were from rural areas.

Table 3. Educational level

S.NO.	EDUCATIONAL LEVEL	FREQUENCY	PERCENTAGE
1.	ILLITERATE	9	8.9
2.	PRIMARY SCHOOL	13	12.7
3.	SECONDARY SCHOOL	45	44.5
4.	HIGHER SECONDARY SCHOOL	15	14.8

5.	DIPLOMA	5	4.9
6.	BACHELOR DEGREE	13	12.3
7.	MASTER DEGREE	1	0.9
	TOTAL	101	100.0

Residence

Most of the cases were reported from rural areas (n=69, 68.3%).

Table 4. Type of Residence Distribution

S.NO.	RESIDENCE	FREQUENCY	PERCENTAGE
1.	RURAL	69	68.3
2.	URBAN/SEMI- URBAN	32	31.7
	TOTAL	101	100.0

Occupation

Most of the poisoned patients were labourers of 32% in which males (n=25) were predominant.

Table 5. Occupation distribution in comparison with male and female

S.NO	CATEGORY	MALE	FEMALE	NO. OF PATIENTS	PERCENTAGE
1.	FARMER	12	6	18	17.8
2.	HOME MAKER	0	15	15	15
3.	SCHOOL	5	6	11	10.9
	COLLEGE	1	3	4	4.0
4.	LABOURERS	25	7	32	31.7
5.	PROFESSIONAL	1	3	4	4.0
6.	UNEMPLOYED	4	0	4	4.0
7.	OTHERS	9	4	13	12.9

Mode of Transport

Most of the patients reach the hospital predominantly by bike (47%). 35% of people (n=41) use the government ambulance of 108 service.

Table 6. Mode of transport

S.NO.	CATEGORY	NO. OF PATIENTS	PERCENTAGE
1.	108	39	25
2.	PVT.AMBULANCE	18	11

3.	AUTO	23	15
4.	BIKE	49	31
5.	CAR	22	14
6.	OTHERS (TRAIN,WALK)	6	4

Type of Poisoning

Out of 101 patients, 17 patients each fall under the category of pesticide poisoning, drug overdosage (sedatives, anti-depressants, anti-diabetics, NSAID'S) and rodenticide poisoning.

Table 7. Types of poisoning among males and females

S.NO	TYPE	MALE	FEMALE	NO.OF PATIENTS	PERCENTAGE
1.	PESTICIDE(organo-phosphorus, pyrethroids)	12	5	17	16.8
2.	RODENTICIDE	10	7	17	16.8
3.	SNAKE BITE	9	6	15	14.9
4.	DRUG OVERDOSAGE (sedatives, anti-depressants, anti-diabetics, NSAID's)	5	12	17	16.8
5.	UNKNOWN BITE	4	2	6	5.9
6.	CORROSIVE/ACID	5	0	5	4.9

7.	PLANT POISON	2	3	5	4.9
8.	INSECTICIDE	4	3	7	6.9
9.	HOUSEHOLD PRODUCTS	2	3	5	4.9
10.	INSECT BITE	1	0	1	0.9
11.	UNKNOWN POISON	1	0	1	0.9
12.	PESTICIDE & RODENTICIDE	1	0	1	0.9
13.	RODENTICIDE & OLIYENDAR SEEDS	1	0	1	0.9

Mortality

Mortality rate of poisoning cases admitted in the hospital was 10.71%. The highest mortality is with pesticide poisonings like organophosphates (n=4) and herbicides (n=3). Drug overdosage, snake bites, rodenticide, plant poison show mortality with n=1.

Table 8. Mortality rate of poisoning

S.NO.	TYPE OF POISON	NAME OF THE POISON	MALE	FEMALE	MORTALITY RATE
1.	PESTICIDE	OPC	3	1	3.9%
2.	HERBICIDE	PARAQUATE POISON	2	1	2.9%
3.	SNAKE BITE	-	0	1	0.9%

4.	DRUG OVERDOSAGE	INJECTION INSULIN	0	1	0.9%
		NARCOTICS (CANNABIS)	1	0	0.9%
5.	RODENTICIDE	RATTOL PASTE	1	0	0.9%
6.	PLANT POISON	OLEANDER SEED	0	1	0.9%

Discussion

The result of this study showed that a total of 101 patients in which males (56.4%) predominated over females (43.6%) which is similar to the study conducted in a medical college hospital in Calicut⁸.

In poisoning cases, we noticed a trend for better survival chances in patients who had received first aid at home and some primary treatment before reaching hospital, which was statistically non-significant. The receipt of primary treatment, however, significantly decreased the duration of hospitalization in poisoning cases, thereby implying the need and importance of early treatment in these cases. The duration of hospital stay also had a direct correlation with lag time in reaching the hospital. Hence, there is a need to strengthen the importance of first aid and develop adequate strategies to improve the quality of treatment prior to referral center. Early access to treatment, increasing community health awareness and counseling can prove to be useful steps in this direction.⁹

The majority of the poisoning incidence were found in the age group between 21-30 years (42.6%) in which males are more prevailed than females. Organophosphates are the commonest class of pesticides which have been implicated in cases of poisoning¹⁰. But, in our study, out of 101 cases 17 patients each are from the category of pesticide poisoning especially organo-phosphorus poisoning, drug overdosage like sedatives, anti-depressants, anti-diabetics, NSAID's and rodenticide poisoning.

Most of the poisoning cases were from the rural areas (68.3%) which are similarly that study conducted in Ahmedabad¹¹.

Most of the cases reported were intentional (88.7%) and rest were accidental (11.3%). A study done in Bir Hospital in the capital city revealed that ninety-seven cases (98.0%) were intentional poisoning for suicidal attempt which is much higher compared to our study¹².

Most of the patients belong to secondary education (6th to 10th) with 44.5% and followed by[higher education (11th to 12th) with 14.8% and this resembles that study conducted in tertiary care hospital in Tamilnadu¹³. Our study also shows that snake bites were more prevalent in rural areas than urban areas as compared to the study in Maharashtra¹⁴.

Mortality rate due to poisoning during our study period was 10.71% but this finding is lower than the study in Aligarh (14.4%)¹⁵.

Conclusion

Majority of poisoning cases were found to be predominant in the age group of 21 – 30 years (42.6%). Pesticide poisoning was the most commonly reported one followed by drug overdosage. Mortality rate of the poisoning cases were found to be 10.71%. The incidence, trends of poisoning, the morbidity and mortality due to poisoning can be possibly curtailed by following:

- a. Strict vigilance over the sale and distribution of insecticides/pesticides.
- b. Educating the users regarding the drug toxicity.
- c. Good treatment facilities (i.e. antidotes etc.) at rural areas like Primary Health Care and Primary Health Unit and establishing poison information centers.

Proper and correct implementation of social and economic projects aimed for upliftment of the rural poor and downtrodden.

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