

Original Research Paper

Retrospective Study of Poisoning Cases at Tertiary Care Hospital in Western Uttar Pradesh

¹Barakha Gupta, ²Kaushal Kishore, ³Pooja Rastogi, ⁴Ranjana Singh

Abstract

Poisoning is a medical emergency and a patient is always invariably rushed to the casualty of the hospital at the earliest possible moment, irrespective of the amount and nature of poison ingested. This study was carried out on poisoning cases reported to casualty of Sharda Hospital, SMS&R Greater Noida in two year duration from 1st January 2013 to 31st December 2014. The main objectives of the study were to analyze pattern and demographic variables of poisoning cases. Out of total 1214 medico-legal cases 128 were poisoning cases. Males (57.8%) outnumbered females and maximum cases were of age group 21-30 yrs. (39.84%). More cases from rural area (59.4%) were reported, July month saw maximum number of cases (16.4%). Maximum admissions (47.7%) were done from 8 AM to 4 PM; maximum incidence was also reported at this time only (46.1%). Poisoning by agrochemicals was seen in maximum cases (48%) and in maximum cases manner of poisoning was of suicidal in nature (62.5%). Maximum patients reported to casualty in conscious state (55.5%), 40.6% cases were successfully discharged and Mortality rate was 10.2%. Such studies of poisoning cases will help authorities for planning, prevention and treatment of these cases.

Key Words: Poisoning, Mortality, Organophosphorus, Agrochemical poisons

Introduction:

Poisoning is a qualitative term used to define the potential of a chemical substance in acting adversely or deleteriously on the body. Poison is a substance capable of producing damage or dysfunction in the body by its chemical activity. [1]

According to WHO, three million acute poisoning cases with 2, 20, 000 deaths occur annually. Out of these, 90% of fatal poisoning occurs in developing countries particularly among agricultural workers. It is estimated that more than 50,000 people die every year from toxic exposure in India. [2]

Massive use of pesticides in agriculture [3], as it is being the major profession in the rural areas of India also exposes farmers with these compounds

Introduction of a variety of newer drugs for treatment, exposure to hazardous chemical products due to rapid industrialization, unhealthy dietary habits and increases in alcohol consumption have led to a wide spectrum of toxic products to which people are exposed. [4]

The cases of poisoning by Corrosives, Sedatives & hypnotics, Alcohol, Dhatura, Oleanders, Snake bite etc. are also frequently reported in adults and poisoning by Kerosene and cleaning agents is more common in children. [4] Profile of poisoning in an area depends upon a variety of factors, ranging from access to and availability of poison, socio-economic status of the individual, cultural and religious influences, etc. Poisoning forms a major problem in developing countries.

Easy availability and low cost of hazardous chemicals play a major role in suicidal homicidal and accidental poisoning in developing countries. [4]

This study is being conducted in Greater Noida, which is situated in NCR region of Uttar Pradesh. It is an educational hub for professional students and very rich in agricultural land and both students and farmers are vulnerable for exposure that's why profiling of poisoning cases is essential.

Aims and Objectives:

Corresponding Author:

¹Associate Professor,
Dept. of Forensic Medicine & Toxicology,
SMS& R, Sharda University; Greater Noida, U.P
E-mail: Barkha_vp@yahoo.co.in

²Assist. Prof,

³Prof & HOD,

⁴Prof, Dept. of Preventive & Social Medicine,
SIMS Hapur; U.P

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1. To analyze pattern of poisoning cases
2. To study demographic variables of Poisoning cases
3. To suggest preventive measures which would possibly reduce incidence of these case

Material and Methods:

This retrospective study was conducted on poisoning cases reported to the casualty of Sharda hospital, SMS&R Sharda University, Greater Noida, which is a tertiary care hospital.

The study was conducted for two years duration from 1st January 2013 to 31st December 2014. General information regarding demographic profile, socioeconomic status etc. of each case was confirmed from causality & hospital records. Brought dead cases were not included in this study. The collected data were statistically analyzed in form of ratio & frequencies and compared with other studies.

Observation and Results:

In our study out of total 128 poisoning cases 57.8% were males and 42.2% were females. Male female ratio was 1.37:1. In age group analysis maximum incidence was seen in age group of 21-30 years comprising (39.8%) cases, followed by 11-20 years (27.3%).

Combining both factors it is very clear that teens and young adult constitutes major chunk of poisoning cases. (Table 1)

Present study showed that rural population (59.4%) were more affected than urban which comprised of (39.8%) of total cases. (Table 2) Maximum cases were reported in Rainy season i.e. in the month of July (16.4%) followed by June (11.7%). (Table 3)

In this study maximum cases (47.7%) reported to casualty between 8 AM to 4Pm in the evening followed by 4PM-12AM (46.1%). Least cases were seen during midnight to early morning. (Table 4)

In present study we observed that maximum cases (48%) were of agrochemicals poisons. Among those Organophosphates, Aluminum phosphide and Zinc Phosphide constituted the maximum cases.

This was followed by drugs which constituted 15% of total cases in which benzodiazepine was the biggest group. Corrosive & addictive group constituted 7% each, followed by hair dye (4%), hydrocarbons (4%) and animal bites cases (3%) respectively.

No information about type of poison was available in 12% of cases. In our study total 17 cases were positive for alcohol on clinical examination. Out of these 41.17% presented as alcohol intoxication while 58.82% presented with

associated poisoning cases. (Table 5) In majority of cases (96.87%) poisoning was through oral route while in four cases exposure was with inhalation of insecticide (3) and diesel (1) respectively. (Table 6)

Our Study Showed the maximum incidences were of suicidal poisoning (62.5%) followed by accidental (32.81%) and 1.6% was of homicidal in nature. Out of 80 suicide cases, in 55% cases reason was not known, 28.75% belonged to family problems followed by psychiatric illness (11.25%) and study related problems (8.75%). (Table 7)

In this study maximum 60.2% cases stayed in hospital for one to five days duration, followed by patient who stayed for less than one day (26.6%). (Table 8)

In our study 55.5% of cases were conscious when reported to casualty. Semiconscious patients constituted 29.7% and they were clubbed with disoriented cases also. 14.8% of cases reached causality in unconscious state.

In present study majority of cases were discharged (40.6%) after improvement, only 1.6% was referred to higher centers, 24.2% cases left the hospital against the medical advice and 10.2% cases died. Maximum cases were between 21-30 yrs. of age who died.

Majority of the cases died due to agrochemicals (61.53%) in which Aluminum phosphide was the biggest cause. (Table 9)

Discussion:

In the present study of total 1214 medico-legal cases reported to the causality during two year duration 128 poisoning case were recorded. In our study males (57.8%) outnumbered females (42.2%) and maximum patient belonged to the age group 11-30 years (67%). Involvement of young male is because of impulsiveness and mental vulnerability, exam stress, failure in love life, problems in families etc. Our findings were similar to other studies. [2-7]

But different to Arun M et al [13] study in which maximum cases were above 60 years of age only. In this study rural population (59.4%) was affected more than urban population (39.8%) similar to other author's findings. [5, 6, 8,9] This is because of demographic situation of the hospital. Greater Noida is rich in agricultural land and farmers are at risk of exposure of poisonous compounds.

In our study maximum cases were reported in rainy season because of crop failure in summer followed by losses in rainy season, beginning of new session of study so more

stress on students, more hot and humid conditions effects behavior leads to increased irritability. Our findings were consistent with Deepak Pokhrel, study [1] but different from B. Maharani et al [10] and Shreemanta Kumar Dashet al [11] studies where majority of cases were reported during summer while in geriatric study [12] winter was the commonest season.

Maximum case reported to the hospital during 8AM-12AM and same scenario was seen during incidence of these cases in this study. [10, 11] While in Deepak Pokhrel study [1] more cases were reported during night time. Reason for poisoning during day time could be alone at home as house wives and also unintentional exposure is more because of working hours.

Maximum cases were of agrochemicals constituting 48% of the total cases in our study. Out of these Organophosphates, Aluminum phosphide and Zinc Phosphide constituted the maximum cases similar to others studies. [2, 3, 5, 7-12] This could be explained easily as Greater Noida is agriculture and educational hub so farmers are more exposed to these compounds intentionally or unintentionally.

Easy availability and no restriction on the sale and supply of these compounds is main reason for high incidences.

In Drugs poisoning benzodiazepine was the biggest group. [11] Reason being the more stress and strain in professional education life and these drugs are available over the counter easily. Most of the cases in this study were suicidal (62.5%) while accidental were (32.81%) and least common were homicidal (1.6%).

These findings are consistent with other studies. [3, 5, 6, 8] suicidal poisoning was more commonly seen in adults as poisoning is supposed to cause painless death.

Accidental cases are more in children by household poison or where person is unintentionally exposed to harmful substances as in agriculture. Maximum suicide cases belonged to family problems (17.1%) followed by psychiatric illness (7.03%) consistent with other studies [3, 4] while in K.N. Ramesha et al study [7] major reason was psychiatric illness.

Majority of family problems are because of nuclear family, break in family support system, impulsiveness and stress due to job. Depression is more because of high expectations at academic, financial or social front.

In our study majority cases (60.2%) stayed in hospital for one to five days like others. [1,7] maximum cases (55.5%) were conscious when reported to casualty in this study which was in contrast to N S Patel et al [3] study where altered sensorium cases were more. This is due

to the close proximity of the hospital so patient reached hospital earlier than the presentation of grave signs.

Majority of cases were discharged (40.6%) after improvement because of timely intervention, proper care and better conditions in hospital to tackle poisoning cases. Few cases (1.6%) were referred to higher centers. These findings were similar to previous studies [2, 9]

In present study Mortality rate was 10.2% similar to other studies. [4, 9] in majority of cases (46%) mortality was due to Aluminum phosphide. [4]

Conclusion:

In our study the incidence of poisoning cases in casualty was 10.54% of all medico-legal cases and Mortality rate was 10.2% of poisoning cases. Authentic data on poisoning was not available not only from India but from entire SEAR (South East Asia Region).

WHO states that many cases go unnoticed and mortality may actually be higher. Involvement of young males group which is most active and most productive puts huge burden on economy and social loss to the country.

Following measures should be taken by government and medical personnel to reduce the incidence of poisoning cases and plan preventive measures:

1. Better and Prompt medical management by Improvement in ICU, Appropriate supportive conditions and Separate Toxicology Unit establishment.
2. Establishment of a Poison Information Center for better management & prevention of poisoning cases.
3. Restrict the sales of most toxic Agrochemicals and Educate farmers regarding their handling and use
4. Educate people regarding prevention of common household poison and Schools & colleges should have councilor.
5. People suffering from depression or psychiatric problem should be given counseling and over the counter sale of drugs should be banned.

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Table 1: Age and Sex wise Distribution

Age Grps. (Yrs)	Sex		Total (%)	Sex Ratio
	Male	Female		
Up to 10	8	3	11(8.59)	2.66:1
11-20	18	17	35(27.34)	1.05:1
21-30	30	21	51(39.84)	1.42:1
31-40	9	7	16(12.5)	1.28:1
41-50	7	4	11(8.59)	1.75:1
51-60	2	1	3(2.34)	2:1
>60	0	1	1(0.78)	0:1
Total	74	54	128(100)	1.37:1

Table 2: Residential Status of Cases

Residence	Cases	Percentage
Urban	51	39.8
Rural	76	59.4
Unknown	1	0.8
Total	128	100.0

Table 3: Month and Year Wise Distribution

Month	Cases		Total (%)
	2013	2014	
January	7	4	11(8.59)
February	6	0	6(4.68)
March	2	6	8(6.25)
April	4	1	5(3.9)
May	5	7	12(9.37)
June	8	5	13(10.15)
July	7	14	21(16.4)
August	5	5	10(7.81)
September	5	6	11(8.59)
October	4	4	8(6.25)
November	4	8	12(9.37)
December	5	6	11(8.59)

Table 4: Arrival Time of Patient

Arrival Time	Cases	Percentage
8.00AM- 4.00PM	61	47.7
4.00PM-12.00AM	59	46.1
12.00AM- 8.00AM	8	6.3
Total	128	100.0

Table 5: Types of Poison

Poison	Cases	Percentage
Agrochemicals (48%)		
a) Organophosphorus	18	14.06
b) Aluminum phosphide	16	12.50
c) Rat poison	11	8.59
d) Mosquito Repellant	10	7.81
e) Lice poison	5	3.91
f) Scabies lotion	1	0.78
Corrosives (7%)		
a) Acids	6	4.69
b) Toilet cleaner	2	1.56
c) Dettol	1	0.78
Hydrocarbons (4%)		
a) Kerosene	4	3.13
b) Diesel	1	0.78
Addictive (7%)		
a) Alcohol	7	5.47
b) Cannabis	2	1.56
Drugs (15%)		
a) Benzodiazepine	11	8.59
b) Zolpidem	2	1.56
c) Paracetamol	1	0.78
d) Ephedrine	1	0.78
e) Warfarin	1	0.78
f) Unknown drug	3	2.34
Animal Bites (3%)		
a) Snake bite	3	2.34
b) Insect bite	1	0.78
Hair dye	5	3.91
Unknown poisoning	15	11.72
Total	128	100

Table 6: Route of Exposure

Route of Exposure	Cases	Percentage
Oral	124	96.87
Inhalation	4	3.12
Total	128	100

Table 7: Reason for Poisoning

Reason of Poisoning	Cases	Percentage
Accidental	42	32.81
Homicidal	2	1.6
Suicidal	80	62.5
• Reason not known	(44)	(55)
• Family Problem	(23)	(28.75)
• Psychiatric illness	(9)	(11.25)
• Study related problem	(7)	(8.75)
• Unmarried with H/O Amenorrhea	(1)	(1.25)
Total	128	100

Table 8: Duration of Stay in Hospital

Days	Cases	Percentage
<1 day	34	26.6
1-5 days	77	60.2
6-10 days	11	8.6
11-15 days	4	3.1
>16 days	2	1.6
Total	128	100.0

Table 9: Outcome of Patient

Outcome	Cases	Percentage
Discharged	52	40.6
Lama	31	24.2
Died	13	10.2
Referred	2	1.6
Not admitted	30	23.4
Total	128	100