

Trend of poisoning at a tertiary care centre of Haryana: An autopsy based study

SS Dalal, Associate Professor, Department of Forensic Medicine, N.C. Medical College, Israna, Panipat, India
Sandeep Kumar Giri, Senior Resident, Department of Forensic Medicine, Pt. B. D. Sharma, PGIMS Rohtak, India
Jitender Kumar Jakhar, Associate Professor, Department of Forensic Medicine, Pt. B. D. Sharma, PGIMS Rohtak, India
SK Dhatarwal, Sr. Professor & Head, Department. of Forensic Medicine, Pt. B. D. Sharma, PGIMS Rohtak, India
Pradeep Yadav, Post Graduate, Department. of Forensic Medicine, Pt. B. D. Sharma, PGIMS Rohtak, India
Naveen Yadav, Post Graduate, Department. of Forensic Medicine, Pt. B. D. Sharma, PGIMS Rohtak, India

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<p>Article history</p> <p>Received: Jan.31, 2018 Received in revised form: March 01, 2019 Accepted: March 7, 2019 Available online: May 25, 2019</p>	<p>Abstract</p> <p>Among the various modes of deaths, deaths due to poison are more common due to low cost and easy availability of poisonous substance especially in developing countries like India. The aim of present study is to analyse the trend of poisoning based on demographic and social parameters. The present study was conducted in the Department of Forensic Medicine, Pt. B. D. Sharma, PGIMS Rohtak in the period of one year i.e. 01/01/2018 to the 31/12/2018 over 282 cases. Data were compiled, tabulated and analysed statistically. In this study, males outnumbered the females with male: female ratio 1.51:1. Most common age group affected was 21-30 years (34.7%) followed by age group 31-40 years (21.9%). Maximum number of cases of poisoning were seen in unemployed persons (20.2%) followed by labourers (19.1%). Most of the cases of poisoning belongs to rural residential area (66.3%) whereas (33.7 %) belongs to urban residential area. In both genders the cases of poisoning more common in married individuals (64.2) as compare to the unmarried individuals (35.8%). Ingestion of poison was most common mode of intake (84.4%) followed by inhalational mode (15.6%). Most of the individuals died within 6 hours of ingestion of poisonous substance (33.7%) followed by survival period between 6 to 12 hours (30.5%). Maximum number of cases were suicidal in manner (58.5%) whereas (41.5%) were accidental in manner collectively as well as in both genders. Homicidal poisoning was not observed. Deaths due to poisoning in young adults and in married persons are more common proven by many studies including present study which is a major concern. In order to avoid poisoning, many steps can be taken specially to limit the availability of poison.</p>
<p>Corresponding author</p> <p>SS Dalal Associate Professor, Department of Forensic Medicine, N.C. Medical College, Israna, Panipat, India.</p> <p>Phone: +919990249019 Email: satyavirdalal@hotmail.com</p>	
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Introduction

Poisoning refers to the damaging physiological effects of ingestion, inhalation or other exposure to a range of pharmaceuticals, illicit drugs and chemicals including pesticides, heavy metals, gases and common household substance (1). Death due to poisoning has been known since time immemorial. 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 (2). Poisoning is the fourth common cause of mortality in India (3). Various studies pertaining to poisoning statistics demonstrated considerable difference between North India and South India (4). It has been found that the incidence of Aluminium Phosphide poisoning is increasing in North India (5) (6) (7). Number of studies have been done on subject of profiling or trends of poisoning in different regions of our country. The aim of present study is to analyse the trend of poisoning based on demographic and social parameters.

Material and methods

The present study was conducted in the Department of Forensic Medicine, Pt. B. D. Sharma, PGIMS Rohtak in the period of one year i.e. 01/01/2018 to the 31/12/2018. Total 1354 hospital death cases were brought for post-mortem examination in the mortuary of Department of Forensic Medicine in the period of one year i.e. 01/01/2018 to the 31/12/2018. Out of total 1354 cases, 282 cases in which history of poisoning was present and in which autopsy findings suggestive of poisoning were present were included in this study. Various details of each case like age, sex, residential area, occupation, marital status, survival time after consumption and mode of poisoning were noted in systematic manner on a proforma.

Results

Noted parameters of each case like age, sex, residential area, occupation, marital status, survival time after consumption and mode of poisoning were compiled, tabulated and analysed statistically. Results obtained is shown below in tables.

Table 1: Gender wise distribution of cases

Gender	No. of Cases
Male	170
Female	112
Total	282

It is evident from the above table that males outnumbered females contributing 60.28 % to the total number of cases. The ratio of males to females is 1.51:1.

Table 2: Age wise distribution of cases

Age group (in years)	Male		Female		Total	
	No. of Cases	%	No. of Cases	%	No. of Cases	%
<10 years	1	0.59 %	1	0.89 %	2	0.71 %
10 – 20	13	7.64 %	20	17.86 %	33	11.77 %
21 – 30	64	37.36 %	34	30.35 %	98	34.72 %
31 – 40	38	22.14 %	24	21.43 %	62	21.99 %
41 – 50	27	15.70 %	16	14.29 %	43	15.25 %
51 – 60	18	10.44 %	12	10.71 %	30	10.64 %
61 – 70	8	4.67 %	4	3.57 %	12	4.25 %

71 – 80	1	0.59 %	1	0.89 %	2	0.71 %
Total	170	100 %	112	100 %	282	100 %

Table 2 showing that maximum cases of poisoning was seen in the age group 21 to 30 years i.e. 98 cases (34.7 %) followed by age group 31-40 years i.e. 62 cases (21.9%). For both genders maximum no. of cases seen in age group 21 – 30 years.

Table 3: Occupational status wise distribution of cases

Occupational status	Male		Female		Total	
	No. of Cases	%	No. of Cases	%	No. of Cases	%
Farmer	30	17.64 %	20	17.86 %	50	17.73 %
Student	17	10.00 %	19	16.96 %	36	12.76 %
Job	30	17.64 %	0	0 %	30	10.64 %
Businessmen	10	5.88 %	0	0 %	10	3.55 %
Labourer	33	19.41 %	21	18.75 %	54	19.15 %
Housewife	0	0 %	45	39.72 %	45	15.96 %
Unemployed	50	29.41 %	7	6.25 %	57	20.21 %
Total	170	100 %	112	100 %	282	100 %

As per table 3 most of the cases of poisoning were seen in unemployed i.e. 57 cases (20.2%) followed by labourer i.e. 54 cases (19.1%). Among females, maximum cases of poisoning seen in housewives i.e. 45 cases (40.1%)

Table 4: Residential area wise distribution of the cases

Residential area	Male		Female		Total	
	No. of Cases	%	No. of Cases	%	No. of Cases	%
Rural	107	62.94 %	80	71.43 %	187	66.31 %
Urban	63	37.06 %	32	28.57 %	95	33.69 %
Total	170	100 %	112	100 %	282	100 %

It is evident from the above table 4 that most of the cases of poisoning belongs to rural residential area i.e. 187 cases (66.3%) whereas 95 cases (33.7 %) belongs to urban residential area. In both genders

rural area individuals are more as compared to urban area.

Table 5: Distribution of cases on the basis of marital status

Marital Status	Male		Female		Total	
	No. of Cases	%	No. of Cases	%	No. of Cases	%
Married	108	63.5 %	73	65.2 %	181	64.2 %
Unmarried	62	36.5 %	39	34.8 %	101	35.8 %
Total	170	100 %	112	100 %	282	100 %

Table 5 showing that in both genders the cases of poisoning more common in married individuals as compare to the unmarried individuals. The married cases shared 64.2 % whereas unmarried cases shared 35.5 %.

Table 6: Distribution of cases on mode of intake wise

Mode	Male		Female		Total	
	No. of Cases	%	No. of Cases	%	No. of Cases	%
Ingestion	134	78.8 %	104	92.9 %	238	84.4 %
Inhalation	36	21.2 %	8	7.1 %	44	15.6 %
Total	170	100 %	112	100 %	282	100 %

Table 6 showing that ingestion of poison was most common mode of intake, seen in 238 cases (84.4%) followed by inhalational mode 44 cases (15.6%).

Table 7: Distribution of cases on basis of survival period after consumption

Survival period after consumption	Male		Female		Total	
	No. of Cases	%	No. of Cases	%	No. of Cases	%
Brought dead	18	10.5 %	20	17.8 %	38	13.5 %
<6 hours	45	26.5 %	50	44.6 %	95	33.7 %
6 to 12 hours	66	38.9 %	20	17.8 %	86	30.5 %
12 to 24 hours	21	12.4 %	11	9.8 %	32	11.3 %
24 to 72 hours	17	10.0 %	9	8 %	26	9.2 %
3 to 7 days	3	1.7 %	2	1.8 %	5	1.8 %
Total	170	100 %	112	100 %	282	100 %

As per table 7 most of the individuals died within 6 hours of ingestion of poisonous substance i.e. 95 cases (33.7%) followed by survival period between 6 to 12 hours in 86 cases (30.5%).

Table 8: Manner wise distribution of the cases

Manner	Male		Female		Total	
	No. of Cases	%	No. of Cases	%	No. of Cases	%
Suicidal	95	55.9 %	70	62.5 %	165	58.5 %
Accidental	75	44.1 %	42	37.5 %	117	41.5 %
Total	170	100 %	112	100 %	282	100 %

As per table 8 maximum number of cases were suicidal in manner 165 cases (58.5%) whereas 117 cases (41.5%) were accidental in manner collectively as well as in both genders. Homicidal poisoning was not observed.

Discussion

In the present study males (170, 60.28%) outnumbered the females (112, 39.72%) with male to female ratio 1.51:1 which is similar to the studies conducted by the various authors like Pawar et al (8), Patil et al (9), Vaidya et al (10), Dash et al (11), Satinder et al (12) and Maharani et al (13). However, study done by Kristinsson et al (14) and Hovda et al (15) is contrary to the present study in which male to female ratio is lower.

The most common age group of poisoning in this study is 21-30 years (34.7%) followed by age group 31-40 years (21.9%). The number of cases in extremes of age groups i.e. less than 10 years and 71-80 years are least (0.7% each) in this study. The findings related to age group of the other studies done by Pawar et al (8), Patil et al (9), Maharani et al (13) and Dash et al (11) is similar i.e. most common age group is 21-30 years.

In this study most of the cases of poisoning are seen in unemployed individuals i.e. in 57 cases (20.2%) followed by labourer i.e. 54 cases (19.1%). Among males, maximum number of cases is seen in unemployed persons whereas in female's maximum cases of poisoning seen in housewives i.e. 45 cases (40.1%). In the study by Maharani et al (13) among males labourers are more common in 18.66 % cases which is near about the value of present study i.e. 19.1% and in females' housewives are more common which is similar to present study. In present study maximum number of the cases of poisoning belongs to rural residential area i.e. 187 cases (66.3%) whereas 95 cases (33.7 %) belongs to urban residential area. In both genders rural area individuals are more as compared to urban area. The findings of present study are similar to the study done by Dash et al (11). In the study done by Satinder et al and Patil et al (9) incidence is higher in urban areas.

In both genders the cases of poisoning more common in married individuals as compare to the unmarried individuals. The married cases shared 64.2 % whereas unmarried cases shared 35.5% which is similar to the study of Prajapati et al (16).

In this study oral route of poisoning is most common, seen in 238 cases (84.4%) followed by inhalational mode 44 cases (15.6%) which is in accordance with the study done by Adinew et al (17) and Patil et al (9).

It is evident from the present study that most of the patients died in early hours of the treatment. Maximum patients died in the within 6 hours of the

treatment i.e. 95 cases (33.7%) followed by survival period between 6 to 12 hours in 86 cases (30.5%). 13.5% sufferer not reach hospital live i.e. brought dead.

In present study maximum number of cases were suicidal in manner 165 cases (58.5%) whereas 117 cases (41.5%) were accidental in manner collectively as well as in both genders which is in accordance with the other studies done by Khosya et al (18), Singh et al (19) and Patil et al (9). No case is found to be homicidal in manner.

Conclusion

Deaths due to poisoning in young adults and in married persons are more common proven by many studies including present study which is a major concern. In order to avoid poisoning, many steps can be taken specially to limit the availability of poison. Early hospitalization may play the pivotal role to reduce the number of deaths due to poisoning which is evident from the present study that most of the patient died in early hours of hospitalization which reflect the late admission of victims. The incidence of poisoning and its morbidity and mortality can be reduced by developing and implementation of effective prevention strategies.

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