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Review Article

Study of trends of poisoning according to site of consumption, associated co-morbidity and mode of consumption of the poison in acute poisoning cases

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Abstract

Introduction: This hospital based prospective observational study was carried out over a period of one year duration from 01/01/2016 to 31/12/2016 in Pt B.D. Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India to study distribution of acute poisoning cases according to mode of intake, associated co-morbidity and site of consumption of the poison.

Materials and Methods: All admitted and brought dead cases of acute poisoning were included in the study. Cases of known snake bite and other sting bites were not included in this study. Comprehensive proforma for the study was designed and relevant data of the individual poisoning cases was collected from the post mortem register maintained in the Mortuary of Department of Forensic Medicine of Pt B.D. Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, an apex institute of the state. Data was statistically analyzed.

Observations: In the study period total 1483 autopsies were conducted and 338 were the deaths due to acute poisoning. 96.2% cases had Ingestion as the mode of consumption while Inhalation contributed 3.8% in the mode of consumption. Associated co-morbidity was present in 72.2% cases and 89.9% cases of acute poisoning occurred at home.

Results with Conclusion: The present study helps to interpret the common mode, associated co-morbidity and site of consumption of the poisonous substance so that necessary measures can be taken to prevent the further rise in the number of cases.

Keywords: Ingestion, Inhalation, Acute poisoning, Co-morbidity and poisoning.

Introduction

Since ancient time, various poisonous substances are known which lead to large number of deaths in various societies. Poisons have been the subject of curiosity since ancient times. Since the dawn of recorded history poisons have had a great impact on human events. And although over the millennia the important poisons of the day have changed to some degree, toxic substances continue to challenge our everyday living. Traditionally, arsenic has been the favorite for homicide and opium for suicide, though there has been an increasing incidence of use of organophosphorus insecticides for suicide.[1] Various modes of consumption of poisoning are possible viz. ingestion, inhalation, subcutaneous absorption, intravascular, intramuscular and intradermal but very few modes are being reported.

Person suffering from another chronic illness also have tendency for the poisoning and through this study we tried to find out the association between the poisoning cases and the history of any chronic illness.

Manners of poisoning like suicidal, homicidal and accidental tend to occur at every place whether it is home, agricultural fields and other work places. So, in this study the place of commonest incidence of poisoning was studied.

Materials and Methods

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This autopsy based prospective study was carried out over a period of one year duration from 01 January 2016 to 31 December 2016. All the postmortem cases of poisoning were taken into consideration. Written consent was obtained from the nearest of the kin accompanying the dead body for postmortem examination. A detailed structured proforma was prepared and various parameters like modes of intake of poisoning, common sites of the incidence of acute poisoning and presence or absence of associated any chronic illness were studied. Every detail was confirmed from the accompanying family members after pondering police inquest papers and attached treatment papers. All the facilities of postmortem examination are available in the Mortuary of Department of Forensic Medicine of Pt B.D. Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, as it is an apex institute of the state. Cases from all over the state are referred here for treatment and autopsy purpose.

Observations and Results

After statistically analyzing the data obtained following findings were obtained.

On the basis of site of consumption-

Table 1: Site of consumption wise distribution of cases

	Male		Female		Total	
Site of Consumption	**Number**	**%**	**Number**	**%**	**Number**	**%**
Home	206	86.6%	98	98%	304	89.9%
Fields	31	13.1%	2	2%	33	9.8%
Work Place other than fields	1	0.3%	0	0%	1	0.3%
Total	238	100%	100	100%	338	100%

(Chi square- 10.24; p-value: 0.006)

It is evident from the table 1 that the major amount of poisoning occurred at home in both genders i.e. in 86.6% and 98% cases in male and female respectively. Only 1 case was noted with site of consumption as work place other than fields. The results of our study are statistically significant as the p-value was less than 0.05.

Moving further, the next parameter studied was mode of consumption of the poison and following findings were obtained-

Table 2: Mode of intake wise distribution of cases

	Male		Female		Total	
Mode	**Number**	**%**	**Number**	**%**	**Number**	**%**
Ingestion	326	95%	100	100%	226	96.4%
Inhalation	12	5%	0	0%	12	3.6%
Total	238	100%	100	100%	338	100%

(Chi square- 5.32; p-value: 0.013)

As depicted in described table 2 that in 96.4% cases the mode of intake of poisoning is ingestion while in 3.6% cases it is inhalation. Our study revealed statistically significant results as the p-value was less than 0.05.

The next parameter studied was to find out the association of any chronic illness and following findings were noted-

Table 3: Distribution of the cases as per associated chronic illness

	Male		Female		Total	
Chronic illness	**Number**	**%**	**Number**	**%**	**Number**	**%**
Yes	67	28.2%	27	27%	94	27.8%
No	171	71.8%	73	73%	244	72.2%
Total	238	100%	100	100%	338	100%

(Chi square- 0.083; p-value: 0.441**)**

As described in the table 3 that the 72.2% cases i.e. 244 did not have any associated chronic illness. Only 27.8% were having associated chronic illness. It was common finding in both genders. The results are statistically non significant.

Discussion

Out of total 338 cases of poisoning, Ingestion [326(96.2%)] was very common mode of poisoning than inhalation [12(3.8%)]. It was in accordance with the findings of study done by Patil et al[25] and Adinew et al[26] (83.6%) which showed ingestion as the most common mode. Out of total 338 cases of poisoning, 244(72.2%) cases had no history of any chronic illness while 94(27.8%) cases had history of some chronic illness. It was in accordance with the study done by Maharani et al[22] which showed history of chronic illness in 10.7% cases. Out of total 338 cases of poisoning, home contributed maximum to the consumption site of poisoning [304(89.9)] followed by fields [33(9.8%)] and 1(0.3%) was work place other than fields which is in consistence with Khan et al[20] and Kristinsson et al[15] which revealed home as the most common site of consumption.

Conclusion

Ingestion (96.2%) is the common mode than inhalation (3.8%) irrespective of the occupation, age group and gender. Home (89.9%) is the commonest site of consumption of poison irrespective of gender, occupation, type of family, age group, residential status. 72.2% cases had no co-morbidity while 27.8% were suffering from chronic illnesses. Many cases were having acute illnesses.

Source of Funding

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Conflict of Interest

None.

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