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Original Article

Acute Poisoning Cases in a Tertiary Care Hospital of Peshawar

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Abstract:

Objective: We aimed herein to assess mode, manner, type and clinical characteristics of poisoning in patients presented to Lady Reading Hospital emergency department.

Methods: All information related to poisoning including mode of transmission, demographic information, duration of hospital stay, name of poison ingested, inhaled and intension of poisoning was retrieved from the medical record room of Lady Reading Teaching Hospital (LRH) casualty department. The cases reported with a history of acute poisoning were recorded for a period of one year from February 2016 to January 2017.

Results: Acute Poisoning contributed to 1.96% (n=430) of all the cases admitted to emergency. 60.2% (n = 259) percent of the patients were female. The majority of the victims were in 18-25 years age group (P < 0.001).232 (54%) patients admitted with a history of suicide. 111 (25.8%) were poisoned with drug over dose, 237 (54.3%) of patients were either the victim of accidental or homicidal poisoning. Suicidal poisonings were more common in young age group and females (P <0.001). Among prescribed medications the most common poisoning agent were neurotics (39.6%) followed by drug over dose (25.8%) and analgesics (23.7%). Antidepressant drugs were the most common prescription drugs taken for suicidal purposes. Analysis of duration of hospital stay revealed that 29.8% (n = 128) of patients stayed in hospital for 2 days. The mortality rate was 0.5%.

Conclusion: The majority of poisonings were due to over dose of prescription drugs such as anti-depressants, abuse of alcohol and cannabis. Suicidal tendency was more in young age groups and in females. Most common agents causing poisoning were antidepressants, analgesics, rat pills and other psychotropic substances. The study also indicated that most of the incidents occur at home when victim was either alone or left unattended.

Key Words: Acute poisoning, suicide, drugs, antidepressants, analgesics, rat pills, psychotropic substance.

Introduction

Intoxication is the emergence of unwanted signs and symptoms in an organism after exposure to potentially harmful chemical, physical or organic materials.[1] The risk of poisoning has been increased many folds in the last few decades due to manufacturing and daily use of potentially harmful substances. These include detergents, cleansing agents, medicines and petroleum products.[2] The incidence of poisoning reported at Lady Reading Hospital (LRH) is just a tip of an ice berg prevalent in the community.

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According to the study conducted at three major hospitals of Rawalpindi districts showed that the trend of poisoning has been increased manifolds since last decade.[3] Most of the incidences of poisoning reported were female and children from the rural population.[3]

Acute accidental poisoning is highly common in children.[3] In a national health survey of Pakistan, poisoning was the second commonest cause of unintentional injuries to children under the age of 5 years.[4] Exposure to house hold poisons is frequently found in younger age group probably due to inquisitiveness to explore things.

A study conducted in district Karachi showed that accidental poisoning was most common among two to five year of age (54%) [5]. In Peshawar, LRH is a tertiary care hospital having a flow of over 130-170 acute

emergencies per day. 1-2 poisoning cases received per day were referred to medicine department. There is no separate poisoning management unit. Cases of poisoning were managed by the competent team from medical unit. Medicolegal samples collected were send to chemical examiner for quantitative and qualitative analysis.

Materials and Methods

This retrospective study was conducted at Lady Reading Teaching Hospital Peshawar. Information was collected from the medico-legal clinics and record room of hospital emergency and autopsy center. The collected data was from February 2016 to January 2017. The incidence of poisoning was calculated by using the formula total number of poisoning cases reported in emergency divided by total number of admissions in emergency department.

A standardized questionnaire was developed to collect data from patient files. A volunteer duty medico-legal officers supervised medical students of 3rd year MBBS in data collection. All cases of poisoning were collected; socioeconomic status, age, sex, occupation and other demographic details were analyzed along with frequency of commonly used substances and their clinical presentation by using SPSS 16. Hospital mishaps such mortality due to assess of anesthesia, over dosage were not included in the study. Descriptive statistics were obtained as mean with standard deviation and proportion for quantitative and qualitative data, respectively. Skewed continuous data was also reported in terms of median with interquartile range (IQR). For the comparison of two groups univariate association was used by using chi-square test for categorical data and continuous variables were compared using two tail test. Trend of poisoning was also observed in terms of frequency and the causative substance involved in poisoning.

The research approval was taken from Ethical Review Board of the Khyber Medical College (KMC). Permission to use data for research purpose was also taken from the Medical Superintendent LRH & Head of Causality department. Data was collected from the case records using a structured format (case Performa). The information included socioeconomic status, demographic details and hospital management information such as age, sex, marital status of the patient, mental health history, family history, name/type of poisoning agent, management in the ward and ICU, drugs administered, ventilator support, duration of hospital stay, outcome of the treatment. These case Performa data were finally analyzed with the help of a statistician using descriptive statistics.

Results

During one-year study period out of 21,934 admissions via emergency only 430 (1.96%) patients admitted with symptoms of acute poisoning. Mean age of the patients was 29.9 ± 13.3 (28.0 ± 12.0 for women and 32.7 ± 14.6 for men), median age was 26, and age range was 5 to 65 years. The mean age of women was significantly lower than that of men ($p<0.05$). Distribution of victims of poisoning by gender and age group shown in Table-1.

Table 1: Distribution of victims of poisoning by gender and age group

Sr.#	Total cases reported	n=430 (1.96%)
1.	Male	171 (39.8)
2.	Female	259 (60.2)
3.	M:F	1:1.12
4.	Mean age	30.22
5.	Below 5 years	66 (15.3%)
6.	Age 06 -14	47 (10.9%)
7.	Age 15-24	118 (27.4%)
8.	Age 25-34	111 (25.8%)
9.	Age 35-44	59 (13.7%)
10.	Age 45-54	17 (3.9%)
11.	Age >55	12 (2.7%)

Males were 171 (39.8%) and females were 259 (60.2%). Tablet overdose cases were 111 (25.8%) and poisoning due to common household poisons such as phenol compounds, petrol, kerosene oil and detergents were 87 (20.2%). Male (41) female (46) ratio in cases of poisoning due to common household substances was (1:1.12) (Table 1). Victims consumed insecticide fumes were 46 (10.6%). The study showed 232 (54%) patients consume with intention of suicide and only 78 (18.1%) cases were of unintentional poisoning

Table 2: Manner of poisoning

	Suicidal	Accidental
Male (n=171)	**36 (21 %)**	**29 (17%)**
Female (n=259)	**111 (43%)**	**49 (19%)**
Total	**232 (54%)**	**78 (18.1%)**

The probability of incidence of intentional ingestion is much higher among age group of 19-35. Out of 46 patients 06 victims reported acute respiratory distress due to inhalation of Organophosphorus fumes (insecticides). Victims of neurotic drug overdose were 92. 52 incidences reported with history of ingestion of mosquito repellent and rat pills (Table-2). 20 cases

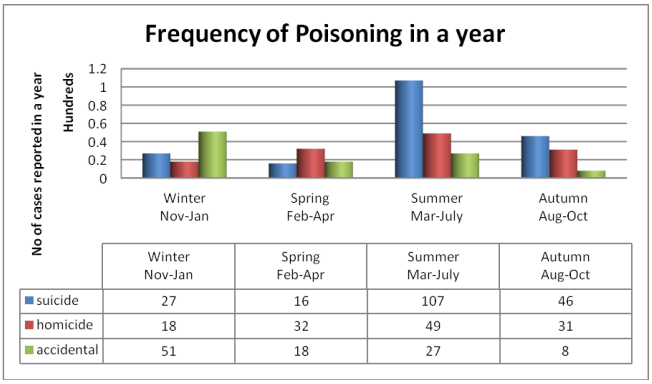
reported with convulsions due to mosquito repellent liquid ingestion. After intensive care and management 81 (85.2%) critical patients recovered and 14 (13.3%) patients died. Intensive care management was done in casualty dispute of gastric lavage and forced catharsis, with antidotes such as Atropine, Oximes, and Vitamin K for insecticides and Flumazenil for sedative hypnotics. Other therapeutic drugs used were Antibiotics, Antiepileptic, Pantoprazole Antacids and Ondansetron. The female patients tend to consume tablets and mosquito repellent poison more than the Organophosphorus compounds. (Table 3)

Table-3 Distribution for causes of poisoning by gender

	Male	Female	Total	SD
Drugs	56	147	203	25.1 σ ± 4.1
a) Over dose	26	85	111	
b) Anti Psychotic	30	62	92	
Insecticides	23	23	46	32.41 σ ± 14.7
Food Poisoning	25	22	68	34.4 σ ±14.5
Mosquito Repellent	03	17	20	21.1 σ ± 4.1
Rat / wheat Pills	19	33	52	42.1 σ ± 9.3
Other agents	25	12	41	26.2 σ ± 13.3
Total	171	259	430	

During the summer the temperature raises up to 48℃.[16] Total numbers of poisoning cases reported during the summer were 107 (24.8%) whereas in winter it is 27 (06%). It has been indicated in our study that incidence of suicide was more in the summer. (Table 4)

Table 4:: Seasonal Variation



	Winter Nov-Jan	Spring Feb-Apr	Summer Mar-July	Autumn Aug-Oct
suicide	27	16	107	46
homicide	18	32	49	31
accidental	51	18	27	8

Other contributing factors are hot climate 183 (42.5%), low socioeconomic status 336 (78.1%), poor hygiene 151(35.1%), lack of spouse attention 78 (18.1%) recurrent disease 34 (7.9%), unwanted pregnancy 7(1.6%), family stress/ social stress 111 (25.8%), early marriages 46 (10.6%) It was also found that 13 (3%) victims have recurrent history of multiple suicidal attempts (Table 5). Table 5 elaborate factors contributing to self-poisoning and table 6 shows time interval between poisoning and admission to the hospital.

Table-5: Factors contributing to self-poisoning

Etiological Factors	No of victims	Frequency
Low socioeconomic Status	**336**	**78.1%**
Spouse Affection	**78**	**18.1%**
Recurrent Disease	**34**	**7.9%**
Social Stress	**111**	**25.8%**
Multiple attempts of suicide	**13**	**3%**

Table-6: Poisoning Admittance Time Interval

<2 Hours	**76 (17.7%)**
2-6 Hours	**283 (65.8%)**
>6 Hours	**71 (16.5%)**

Discussion

Acute poisoning was more common in women (55.9%). [9] The most common cause of poisoning was drugs in all studies from other countries.[9, 12] Studies from Oman, Sri Lanka, India, and South Africa reported a higher prevalence among men (52%) and the most common cause of poisoning was alcohol in Finland and Spain, whereas pesticides, insecticides were main causative source of poisoning in Sri Lanka and India [13-15]. This may be related to differences in the cultural, socioeconomic, and geographic features of the countries. In western countries, the rate of intentional self-poisoning with alcohol and illicit drugs is relatively high compared to that in underdeveloped countries. Studies from Turkey reported the common types of drugs ingested to be psychoactive drugs 17.5%, Antidepressants: 6%, sedatives: 11.6%, antipsychotics: 37.6%, analgesics 15.3%, paracetamol: 9.2%, cardiovascular drugs 10.7%), antiepileptic 7.7% and antibiotics 1.8%.[16-17] In our study the most common types of drugs were psychoactive drugs such as cocaine, cannabis, alcohol (n= 45) and psychotropic drugs such as barbiturates(n=47). 92 (39.6%) cases reported with drug over dose due to excessive use of neurotics and analgesics (23.7%) these results are similar with the study done in Turkey.

The incidence of acute poisoning in Peshawar is far less as compared with the information collected from other provinces of the country. In southern regions (district Multan and district Bahawalpur) of Punjab the incidence of poisoning was higher (n=953 and n=601 per year) [18]. The sex ratio of patients who consumed poison was almost equal (1:1.02). The most

common type of poisoning was drug overdose (47.2%) after that common household substances 20.2%, rat pills 12% and mosquito repellant 4.6%. Most of the victims are the native of semi urban and urban category.

The drugs which were misused for the purpose of poisoning were sedatives 34(36.9%) especially Alprazolam and Diazepam and antipsychotics 24(26%) and psychoactive such as alcohol, cannabis 42 (45.6%). All patients with rat poison had jaundice secondary to hepatotoxicity, whereas only one patient with drug poisoning had hepatotoxicity.[19].Results of our study showed tablet overdose as a major reason for acute poisoning followed by Organophosphorous poisoning, rat pill and mosquito repellant.[20] Pyrethroids are the substances used in mosquito repellent. They are 2250 times more toxic to insects than humans. Their toxic effects are due to delayed closure of the voltage gated sodium channels and in higher doses act on the GABA chloride channels inducing seizures. [21] In our study 20 cases reported were of mosquito repellent ingestion. 03 were male and 17 were females. These results are similar as that of Srilanka.

Most of the patients who had tablet overdose spent less duration of stay in the hospital. It was also found that tablet over dosage most attention seeking suicidal attempt and less likely to cause death if victim brought within 02 hours of incidence. 67% incidence of ingestion of psychoactive drugs such as alcohol and cannabis were accidental.[22]

Most of the patients were retain in emergency for observation for 6-8 hours. For supportive management of fume inhalation saturated oxygen was given, supportive antibiotics such as levofloxacin, Clarithromycin were given 8 hourlies, for stress management ondansetron, Omeprazole, antacids were given. Stomach wash done in 126 cases where as diuretics were given to 196 patients. Most of the patients with mosquito repellent (Prallethrin) intoxication presented with convulsions and treated with antiepileptic and proton pump inhibitors. Studies have reported that mislabeling and substances kept in wrong container, like soft drink bottles as storage for Pesticide.[23]

In our study we found that the majority of the patients are from low socioeconomic status middle aged from nearby urban community. The incidence and patterns of the acute poisoning were found to be highest due to tablet poisoning predominant in female whereas wheat pills and mosquito repellent poisoning being the second highest with female preponderance. We have also found that the commonly consumed drugs were, antiepileptic, benzodiazepines and antipsychotic agents.[24]

Significant damage to internal organs and mortality incidents can be prevented with earliest hospitalization and by giving symptomatic treatment of poisoning. It was also indicated in the study that most of the accidental incidents happed at home when victim was either alone or left unattended.[25]

Conclusion

This study indicated that most commonly used agents for poisoning are medicines, wheat pills and pesticides. The intentional poisoning was more in male adults and in female adolescent group.

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Conflicts of Interest

No conflict of interest

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