

Demographic Profile of Poisonings in a Tertiary Care Centre

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Abstract: *Acute poisoning due to suicidal or accidental exposure causes significant mortality and morbidity and is a common method of deliberate self-harm. We reviewed data obtained from the hospital medical records and included socio-demographic characteristics, agents, intention behind the act, prior similar history and associated comorbidities. The aim of the study was to analyse the profile and trends of patients presenting with acute poisoning to our hospital. The study was conducted in 50 patients who presented to our emergency room with acute poisoning. Data was collected pertaining to patient's demographics and analysed. Our data revealed a higher incidence of poisoning in females (n=32; 64%). The mean age of the study group was 37.8 years. The mean weight of the patients was 55 kilograms with a standard deviation of 9.405 kilograms. Majority of our subjects were housewives (n=18; 36%). 21 of the subjects (42%) had intentionally consumed the poison. 11 of the subjects (22%) gave a previous history of an intentional act of poison consumption. Organophosphorus compound was the most common poison involved (n=23, 46%). This study showed that majority of our study subjects were relatively younger and were employed.. A large majority also had underlying psychiatric illness. These conclusions may hold true to areas similar in socioeconomic conditions as ours in India.*

Keywords: Drugs, organophosphorus compound, poisons, Acute poisoning

1. Introduction

A poison is any substance which when introduced into the body even in small concentrations may produce death, serious illness, or harmful effects [1]. According to World Health Organization, (WHO) poisoning occurs when people consume enough of a hazardous substance to cause illness or death[2]. According to the WHO, more than three million poisoning cases with 251,881 deaths occur worldwide every year, of which 99% of fatal poisonings occur in developing countries, particularly among agricultural workers. Socio economic status of the population, religious and cultural beliefs, availability of poisons, occupations prevalent in the region influences the pattern of poisoning [3]. WHO estimated that though developing countries are account able for only 15% of the worldwide use of pesticides, about 50% of pesticide poisonings occur in these countries, especially through misuse of chemicals[4]. Deliberate self-harm is another major problem in the developing world. The toxicity of available poisons and paucity of medical services ensure that mortality from self-poisoning is far greater in the tropical than in the industrialised world[5]. Organophosphorus poisoning occurs very commonly in south India, where farmers form a significant proportion of the population who commonly use organophosphorus compounds like parathion as insecticides. Thus, due to the easy accessibility of these compounds, a large number of suicidal cases are encountered in this region [6].

Against this background, the present study was focussed on the nature of poisoning cases reported in a particular area, to improve the medical management and thereby prevent deaths due to poisoning.

Objective

Our objective in this study was to study the profile and trends of patients presenting with acute poisoning to our hospital

2. Materials and Methods

Source of data

Method of data collection : The prospective, observational study was conducted at the emergency departments and intensive care units (ICUs) of Father Muller Medical College and Charitable Hospital, Mangalore. The study was carried out for the period of 1 year from August 2017- August 2018. Data collection was performed according to hospital regulations after approval by the hospital authorities. 50 inpatients admitted to the emergency department of the hospital who satisfied the study criteria were included in the study. Patient data relevant to the study was obtained from treatment charts/ case sheets, laboratory reports and patient or patient's caregiver's interview. The relevant information was collected on a suitably designed patient data collection form. The patient demographics and socio-economic data collected consisted of name, age, sex and occupation of the patient, type of poisoning, route of administration, and reason.

Inclusion criteria

- Patients presenting with acute poisoning, aged 16 years and above
- Those who had undergone exposure to poison either by household or agricultural pesticides, drug or miscellaneous products

Exclusion criteria

- Food poisoning,
- near drowning
- drug reaction cases
- Insect / snake bite
- Chronic poisoning.

Statistics: The demographic data was analysed using frequencies for categorical variables and mean standard deviation for numerical variables.

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Ethical clearance: This study was approved by the ethical committee of Father Muller Medical College, Mangalore

3. Results

We studied 50 patients of acute poisoning who were hospitalized from August 2017 to August 2018. Our data revealed a higher incidence of poisoning in females (n=32; 64%) as compared to males (n=18; 36%).

Table 1: Distribution of cases according to gender

Sex	Frequency	Percentage
Male	18	36%
Female	32	64%

Our subjects varied between 16 to 67 years. The mean age of the study group was 37.8 years. 18 subjects belonged to the age group of 16-25 years (36%), 10 subjects belonged to the age group of 26-35 years (20%), 3 subjects belonged to the age group of 36-45 years (6%), 10 subjects belonged to the age groups between 46-55 years (20%) and 9 subjects belonged to the age group between 56-67 years (18%).

Table 2: Distribution of cases according to age

Age	Frequency	Percentage
16-25years	18	36%
26-35years	10	20%
36-45years	3	6%
46-55years	10	20%
56-67years	9	18%

The weights of the subjects varied between 35 and 76 kilograms with a mean value of 55 kilograms and a standard deviation of 9.405 kilograms.

Majority of our subjects were housewives (n=18; 36%) followed by students (n=15; 30%), labourers (n=7; 14%), drivers (n=5; 10%), farmers (n=4; 8%), office worker (n=1; 2%).

Table 3: Distribution of cases according to occupation

Occupation	Frequency	Percentage
Housewife	18	36%
Student	15	30%
Labourer	7	14%
Driver	5	10%
Farmer	4	8%
office worker	1	2%

29 of these subjects (58%) had accidentally consumed the poison and 21 of the subjects (42%) had intentionally consumed the poison. All patients (n=50, 100%) consumed the poison orally.

Table 4: Distribution of cases according to intention

Intention	Frequency	Percentage
Suicidal	29	58%
Accidental	21	42%

11 of the subjects (22%) gave a previous history of an intentional act of poison consumption while 39 of the patients (78%) did not.

Table 5: Distribution of cases according to prior history

Previous History	Frequency	Percentage
Yes	11	22%
no	39	78%

Organophosphorus compound (RATOL) was the most common poison involved (n=23, 46%). Second commonly used compound was phenol (n=4, 8%), followed by paracetamol (n=3; 6%), ratol with kerosene (n=3; 6%) and benzodiazepines (n=3; 6%). Other agents used were sedatives, antipsychotic drugs, NSAIDs, cardiovascular drugs, corrosives and antiepileptic drugs. An equal incidence of benzodiazepine with ratol, pyrethroid, leviteracetam, copperoxychloride, -syrup. Suncid (magaldate+simethicone) + kerosene, chlorpyrifos, amytriptylline tablets, caustic poison (diluted HCl) unknown tablets, metronidazole+ ciprofloxacin+ diclofenac, naphthalene balls, naphthalene balls+ trachoma powder+ morstein ash powder, phenol+ calcium tablets, abrus precatorius seeds (castor beans) (n=1; 2%).

Type Of Poison	Frequency	Percentage
Ratol	12	24%
Parquet	3	6%
Op	11	22%
benzodiazepenes and ratol	1	2%
Pyrethroid	1	2%
ratol and kerosene	3	
leviteracetam	1	2%
Copperoxychloride	1	2%
Benzodiazepenes	3	6%
syrup Suncid (magaldate+simethicone) + kerosene	1	2%
Chlorpyrifos	1	2%
amytriptylline tablets	1	2%
Phenol	4	2%
caustic poison (diluted HCl)	1	2%
unknown tablets	1	2%
metronidazole+ciprofloxacin+diclofenac,	1	2%
naphthalene balls	1	2%
naphthalene balls+trachoma powder+ morstein ash powder	1	2%
phenol+calcium tablets	1	2%
abrus precatorius seeds (castor beans)	1	2%

Table 6: Distribution of cases according to type of poisons

30 out of 50 patients (60%) had psychiatric illnesses while the remaining 40 % had other associated comorbidities which complicated their stay in the hospital.

Table 7: Distribution of cases according to co morbidities

Comorbidities	Frequency	Percentage
NIL	8	16%
HTN	1	2%
Thyroid	1	2%
Psychiatry	30	60%
ADS, IHD, DM	1	2%
HIV	1	2%
MODS, AKI, acute hepatitis	1	2%
DM, HTN, IHD, peripheral neuropathy, migraine	1	2%
DM, HTN	3	6%
psychiatry disorders+AKI	1	2%
TB	1	2%
DM, HTN, hypothyroid	1	2%

4. Discussion

There were 50 patients who satisfied our inclusion criteria. The mean age was 37.8 years. Most patients were in the third or fourth decade of life in other studies as well [7,8]. This may be due to failed interpersonal relations, work related stress and impulsiveness which is more commonly associated with the younger age group. There was a higher incidence of females in the study. Some authors reported a higher proportion of males [9,10] while some reported more number of females in their studies which was similar to our study [11,12]. This may be due to cultural and gender related differences existing in different communities.

Another study mentions that among young people, suicidal behaviour was found to be associated with female gender and not attending school or college among many other factors [13]. This may probably be because youth who are well educated are aware and have better access to various toxins.

Studies conducted in countries where agriculture is the main occupation of the people, found that Organophosphorus (OP) was the most frequently encountered poisoning [14,15,16]. These findings were similar to our study. Other drugs included were barbiturates, thyroxine, anti-epileptic drugs (AEDs) and analgesics. Restricting the sale of over the counter medications and dispensing only with valid prescriptions along with patient education is important to prevent their harmful use.

A large majority of patients suffered from some sort of psychiatric illness and most poisonings were due to deliberate self-harm. Hence, all patients admitted with poisoning need detailed psychiatric evaluation.

5. Conclusion

There was a female predominance among our subjects. Most of our subjects were from a relatively younger age group. The sale of insecticides, pesticides and over the counter medications need to be strictly regulated in order to minimize incidence of poisoning. Since organophosphorous poisoning is lethal and is an easily available pesticide, it needs to be replaced with a safer option. Timely medical aid and poison information centres should be made widely available in order to reduce mortality and to provide information. No patient who presents with acute poisoning should leave hospital without a psychiatry consultation.

Limitation: our limitations include a small sample size and also does not reflect interregional variation in acute poisoning.

Consent: written informed consent was obtained from the patients (or approved parties) for publication of this paper.

Ethical Approval: Written approval of Ethics committee has been collected and preserved by the authors.

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