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Research Article

Assessment of Poisoning Cases in a Tertiary Care Hospital

Swathi Acharya*, K. Lakshminarayana and Sharanappa

Department of Pharmacology, Vijayanagara Institute of Medical Sciences, Bellary, 583104 Karnataka, India

***Correspondence Info:**
Dr. Swathi Acharya,
Postgraduate Student,
Department of Pharmacology
Vijayanagara Institute of Medical Sciences, Bellary, 583104 Karnataka, India
E-mail: acharyaswathi4@gmail.com

Abstract

Background: Poisoning is a common day-to-day event. It is important to know the nature, severity and outcome of acute poisoning cases in order to take up appropriate planning, prevention and management techniques.
Objective: The objective of this study was to assess the poisoning cases admitted to the tertiary care hospital, VIMS, BELLARY.
Materials and Methods: Data from case records of 100 patients admitted with the diagnosis of acute poisoning during 6 months were collected. Information demographic features, name of poisonous substances, mode of poisoning, time elapsed after intake, mode of treatment given; duration of hospitalization, severity and outcome was collected in the prestructured proforma and subjected to statistical analysis.
Results: Out of 100 study subjects, 48 were males and 52 Females, 21-30 years of age group is more among males compared to females. The most common type of poisoning is OP Poisoning 58%. After treatment 76% recovered and 24% were discharged against medical advice. Only 21% had developed complications. The relation between age, locality, marital status, SES mode of poisoning outcome, duration of hospital stay and type of poisoning are found to be statistically significant.
Conclusion: OP poisoning cases accounts for majority of the admission. Appropriate emergency care is being given inspite of the delay in transit to the hospital.
Keywords: Assessment, Emergency care, Poisoning, OP Compound.

1. Introduction

Acute poisoning is an important medical emergency. Half a million people die each year as a result of various kinds of poisoning. WHO reports estimate poisoning as one of the most common causes of increased morbidity and mortality rate worldwide. It states that the incidence of pesticide poisoning, which is high in developing countries, has doubled during the past 10 years. 99 per cent of the fatal poisoning cases occur in developing countries, predominantly among the farmers due to various kinds of poisoning; including poisonous toxins from natural products during handling.[1] Acute pesticide poisoning is one of the most common causes of intentional deaths worldwide.[2] Pesticide self-poisoning accounts for about one-third of the world's suicides. The nature of poison used varies in different parts of the world and may vary even in different parts of the same country depending on the socioeconomic factors and cultural diversity.[3] Among the poisoning cases Organophosphorus compound poisoning occurs very commonly in southern India, due to the easy accessibility of these compounds to the farmers who use organphosphorus compounds like parathion as insecticides. In addition to that, snakebite is a common acute medical emergency.[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.[5] In developed countries, the rate of mortality from poisoning varies only from 1 to 2 per cent but in developing countries like India, it varies between 15 to 30 per cent and is the fourth most common cause of mortality specially in rural India.[6]

It is important to know the nature, severity and outcome of acute poisoning cases in order to take up appropriate planning, prevention and management techniques. Hence this study aimed to assess the pattern and outcome of acute poisoning cases in a tertiary care hospital, Vijayanagara Institute of Medical Sciences, Bellary, Southern India.

2. Material and Methods

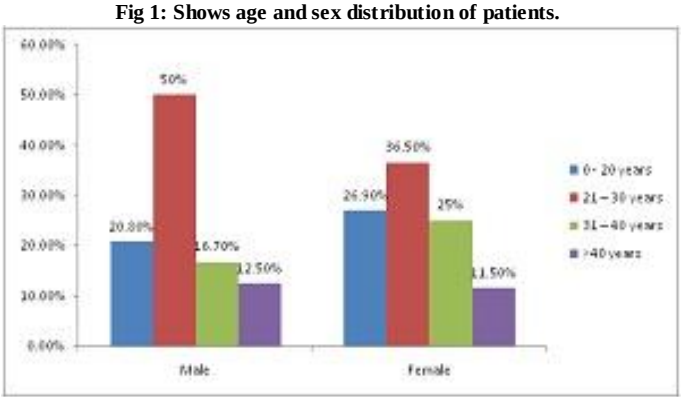
A retrospective study was done amongst the inpatients; Case records of 100 patients admitted with the diagnosis of acute poisoning cases from Jan2013 to June 2013 are assessed. Data was collected from 100 patients with respect to age, sex, socioeconomic status, name of poisonous substance, mode of poisoning, time elapsed after intake, duration of hospitalization, severity and outcome were assessed. Chi- square test was used to compare the frequency data. Probability of occurrence of <0.05 or less was considered as statistically significant.
All cases diagnosed of Acute poisoning due to house hold, agricultural, sting, snake bite, acid poisoning were included. Patients of suspected food poisoning were excluded.

3. Results

3.1 Patient demographics

Out of 100 study subjects, 48% were males 52% Females, 21-30 years of age group is more among males compared to females as shown in figure 1. Majority of them were married (71%). Around 53% from rural population among which 62% are of low SES.

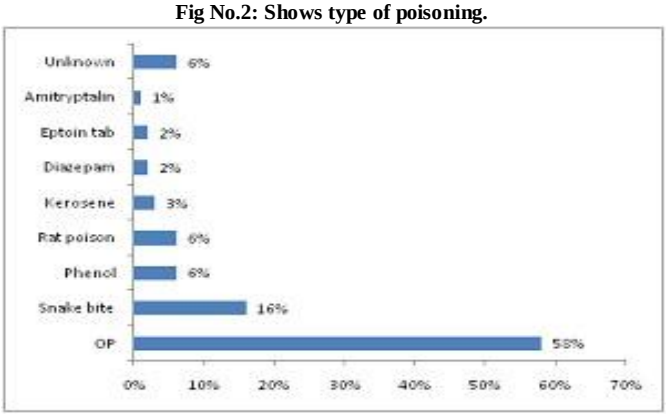
Fig 1: Shows age and sex distribution of patients.



3.2 Modes of poisoning:

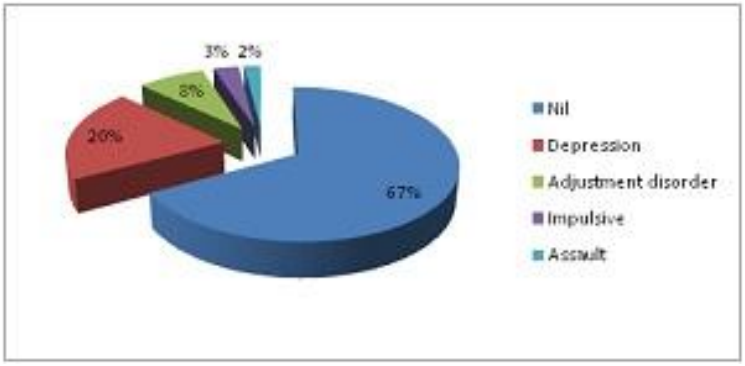
The most common type of poisoning is OP Poisoning (58%) as shown in Fig no 2. Among these 79% are suicidal cases, most common route of poisoning being oral (79%).

Fig No.2: Shows type of poisoning.



33% of the study subjects had precipitating factors among which depression (20%) was the leading precipitating factor as shown in Fig no.3.

Fig No 3: Shows precipitating factors.



Majority of the patients were visited the hospital for the treatment after 3 to 4 hrs of poisoning (46%) as shown in Table no.1.

Table.no.1: Distribution of study subjects based on time period b/w poisoning and seeking for treatment

Time in hrs	Frequency	Percentage
<1 hr	07	07%
1 – 2 hrs	13	13%
3 – 4 hrs	46	46%
>4 hrs	34	34%
Total	100	100%

After treatment 76% recovered and 24% were discharged against medical advice. Only 21% had developed complications. Most common complication is the respiratory depression observed in 11% followed by cellulitis (8%) mainly in cases of snake bite and intermediate syndrome (2%).

All the recovered OP cases were treated with Atropine (50%) and PAM (47%). Other drugs used in the treatment were Ranitidine/Pantaprazole(86%), Ceftriaxone(44%), Metronidazole (22%),Ampicillin(30%),Ciprofloxacin(22%),Phenobarbitone(2%),Phenytoin (2%), Vit K (6%) etc. The other modalities of treatment used are Stomach wash(60%),Body wash(4%), ASV(10%),catheterisation(52%), Intubation and Ventilation(11%),MgSO4 dressing (8%), Fasciotomy(4%).

The mean duration of the hospital stay of the 48% patients were 3-5 days and there was statistical significant association between the type of the poisoning and outcome ($p<0.001$) as shown in Table no.2.

Table.no.2: Relation b/w outcome and type of poisoning

Type of poisoning	Outcome		Total
	AMA	DAR	
OP	11 (45.8%)	47 (61.8%)	58 (58%)
Snake bite	00	16 (21.1%)	16 (16%)
Phenol	06 (25.0%)	00	06 (06%)
Rat poison	00	06 (07.9%)	06 (06%)
Kerosene	00	03 (03.9%)	03 (03%)
Diazepam	02 (08.3%)	00	02 (02%)
Eptoin tab	02 (08.3%)	00	02 (02%)
Amitryptalin	01 (04.2%)	00	01 (01%)
Unknown	02 (08.3%)	04 (05.3%)	06 (06%)
Total	24 (100%)	76 (100%)	100(100%)

Chi square – 43.82 df- 8 p value – 0.001*

The relation between age, locality, marital status, SES mode of poisoning outcome, type of poisoning and duration of hospital stay are found to be statistically significant($p<0.01$) are shown in Table 3-7.

Table.no.3: Relation b/w locality and type of poisoning

Type of poisoning	Locality		Total
	Rural	Urban	
OP	41 (77.4%)	17 (36.2%)	58 (58%)
Snake bite	03 (05.7%)	13 (27.7%)	16 (16%)
Phenol	00	06 (12.8%)	06 (06%)
Rat poison	02 (03.8%)	04 (08.5%)	06 (06%)
Kerosene	00	03 (06.4%)	03 (03%)
Diazepam	02 (03.8%)	00	02 (02%)
Eptoin tab	00	02 (04.3%)	02 (02%)
Amitryptalin	01 (01.9%)	00	01 (01%)
Unknown	04 (07.5%)	02 (04.3%)	06 (06%)
Total	53 (100%)	47 (100%)	100(100%)

Chi square – 31.26 df- 8 p value – 0.001*

Table.no.4: Relation b/w marital status and type of poisoning

Type of poisoning	Marital status		Total
	Married	Un married	
OP	40 (56.3%)	18 (62.1%)	58 (58%)
Snake bite	14 (19.7%)	02 (06.9%)	16 (16%)
Phenol	06 (08.5%)	00	06 (06%)
Rat poison	04 (05.6%)	02 (06.9%)	06 (06%)
Kerosene	00	03 (10.3%)	03 (03%)
Diazepam	02 (02.8%)	00	02 (02%)
Eptoin tab	02 (02.8%)	00	02 (02%)
Amitryptalin	01 (01.4%)	00	01 (01%)
Unknown	02 (02.8%)	04 (13.8%)	06 (06%)
Total	71 (100%)	29 (100%)	100(100%)

Chi square – 18.25 df- 8 p value – 0.01*

Table.no.5: Relation b/w SES and type of poisoning

Type of poisoning	SES		Total
	Low	Middle	
OP	39 (62.9%)	19 (58.0%)	58 (58%)
Snake bite	11 (17.7%)	05 (13.2%)	16 (16%)
Phenol	06 (09.7%)	00	06 (06%)
Rat poison	02 (03.2%)	04 (10.5%)	06 (06%)
Kerosene	00	03 (07.9%)	03 (03%)
Diazepam	00	02 (05.3%)	02 (02%)
Eptoin tab	00	02 (05.3%)	02 (02%)
Amitryptalin	00	01 (02.6%)	01 (01%)
Unknown	04 (06.5%)	02 (05.3%)	06 (06%)
Total	62 (100%)	38 (100%)	100(100%)

Chi square – 19.86 df- 8 p value – 0.01*

Table.no.6: Relation b/w mode and type of poisoning

Type of poisoning	Mode of poisoning		Total
	Accidental	Suicidal	
OP	02 (09.5%)	56 (70.9%)	58 (58%)
Snake bite	16 (76.2%)	00	16 (16%)
Phenol	00	06 (07.6%)	06 (06%)
Rat poison	00	06 (07.6%)	06 (06%)
Kerosene	03 (14.3%)	00	03 (03%)
Diazepam	00	02 (02.5%)	02 (02%)
Eptoin tab	00	02 (02.5%)	02 (02%)
Amitryptalin	00	01 (01.3%)	01 (01%)
Unknown	00	06 (07.6%)	06 (06%)
Total	21 (100%)	79 (100%)	100(100%)

Chi square – 88.36 df- 8 p value – 0.001*

Table.no.7: Relation hospital stay duration and type of poisoning

Type of poisoning	DHS				Total
	0-2 days	3-5 days	6-8 days	>8 days	
OP	16 (44.4%)	36 (75.0%)	03 (100%)	03 (23.0%)	58 (58%)
Snake bite	02 (05.5%)	06 (12.5%)	00	08 (61.5%)	16 (16%)
Phenol	06 (16.7%)	00	00	00	06 (06%)
Rat poison	02 (05.5%)	04 (08.3%)	00	00	06 (06%)
Kerosene	03 (08.3%)	00	00	00	03 (03%)
Diazepam	02 (05.5%)	00	00	00	02 (02%)
Eptoin tab	02 (05.5%)	00	00	00	02 (02%)
Amitryptalin	01 (02.7%)	00	00	00	01 (01%)
Unknown	02 (05.5%)	02 (04.1%)	00	02 (15.3%)	06 (06%)
Total	36 (100%)	48 (100%)	03 (100%)	13 (100%)	100(100%)

Chi square – 30.90 df- 24 p value – 0.01*

4. Discussion

Poisoning is one of the leading causes of morbidity and mortality .The WHO reports suggest pesticides are now most common method of suicide worldwide. In our study out of the 100 cases, 79 of them were suicidal in nature which was similar to the other studies done by Maharani *et al*. and Shoaib *et al*.[7,8] 48% of them were male and 52% were female which was similar to studies done in Nepal but studies done in Tamil Nadu and other parts of Karnataka showed incidence was more among males compared to females[4,7]. It can be attributed to early marriage in the rural community along with its added familial responsibilities, social custom, limited resources. The most common type of poisoning was OP compound poisoning (58%) similar to the results of other studies done in southern India and Nepal in contrast to studies done in North India which showed most common poisoning is Aluminium phosphide.[8-11] which relates to the availability of compounds. The most common age group affected was 21-30 yrs of age group which was similar to most of the other studies conducted[7-9.] which can be explained by the fact that the persons of this age suffer from stress of the modern lifestyles, failure in love, family problems, nuclear family concept etc.33% of the study subject had precipitating factor most common being depression which was similar to the studies of Ramesh *et al*.[3] Most of the population were from rural area 53% ,it was similar to other studies. Most of them were labourers (55%) by occupation this can be explained by poverty, inadequate income to run the family, monsoon failure leading to stress and depression. Majority were married (71%), factors like dowry, cruelty by the in-laws, family quarrels, maladjustment in married life are responsible for the higher incidence of poisoning among house wives which was in consistent with other study result.[3,9] Most of them arrived to the hospital after 3-5 hrs of consumption similar to other study result[9],which attributes to the trying with local level management and then referral to higher centre or inability to reach medical care to the periphery. Majority of the cases treated adequately with pharmacological and non pharmacological treatment. Most common complication encountered in OP poisoning was respiratory depression (11%) and requirement of ventilation which was similar to other study by Vaidyanathan *et al*.where31.8% of patients required ventilator support.[11] Mean duration of the hospital stay was 3-5 days similar to the results of Ramanatha *et al*.[12] that time is normally required for close monitoring and complete observation of the poisoning cases. Most of them were treated adequately and recovered and discharged(76%) similar results of other study.[9] This accounts for the proper management in tertiary care set up inspite of delay in the transit time in seeking medical help.

5. Conclusion

In a tertiary care centers like ours, in 100 poisoning cases recorded it was found that majority of middle aged married women of low SES are prone to suicides predominantly with insecticides, particularly OP compounds. Out of 80% of poisoning cases referred and admitted in tertiary care centre, 76% of cases received the treatment which included Atropine and PAM and surgical intervention like tracheostomy, fasciotomy and recovered fully well. This highlights the appropriate emergency care in spite of the delay in transit.

The relatively small sample size, retrospective record-based nature is the limitations of our study. The information such as miscellaneous poisoning and types of snakes was not there in the records for analysis. Overall, the study contributes substantial additional information regarding the epidemiology and outcome of poisoning in a tertiary care teaching hospital at a district level.

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