Original Research Article

The Study of Trends and Out Come of Acute Poisoning in a Tertiary Care Hospital Khammam, Telangana; India

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Abstract

Background and Objective: It is important to know the trends, nature, sevesrity and outcome of acute poisoning cases in order to take up appropriate planning, time lapse, first aid and recovery. This study is to assess the trends and outcome of acute poisoning cases in a tertiary care hospital in Khammam.

Materials and Methods: This is a retrospective study conducted in a tertiary care hospital attached to a medical institution in Khammam. The study includes 126 cases and data regarding age, sex, time elapsed after intake, circumstances of poisoning, name of the poisonous substance, chemical type, duration of hospitalization, severity and outcome collected in the Proforma.

Results: Incidence was common among 21-30 yr. old married Hindu male laborers from rural background belonging low socioeconomic classes with only primary education. Majority of the incidents occurred in the victim's home during the day time. Maximum number of cases were encountered during the Rainy season and in the month of November. Organophosphorus insecticides and poisoning by snake bite were the commonest types of poisoning. Majority of the acute poisoning cases were hospitalized within one hour of toxic exposure. Maximum number of patients stayed in hospital for up to 7 days and recovered. Family problems and financial problems were the most common reasons behind poisoning. Overall mortality was found to be 3.05% and 38 cases succumbed to the poisoning.

Conclusion: Poisoning was common in young males. Maximum number of cases encountered in Rainy season. Organophosphorus insecticides and poisoning by snake bite were the commonest types of poisoning. Majority of the acute poisoning cases were hospitalized within one hour of toxic exposure. The overall mortality was substantially high, mainly contributed by self-poisoning with insecticides. Early care in a tertiary care center may help to reduce mortality in India.

Key words: *Acute poisoning, Trends and outcome, tertiary care hospital, Time lapse, OPC*

Introduction

Poisoning both accidental and intentional were significant contributors to mortality and morbidity throughout the world According to WHO, three million acute poisoning cases with 2,20,000 deaths occur annually. Of these 90% are of fatal poisoning and occur mainly in developing countries particularly among the agricultural workers[1]. Acute poisoning forms one of the commonest causes of emergency hospital admissions. Pattern of poisoning in a region depends on variety of factors, such as availability of the poisons, socioeconomic status of the population, religious and cultural influences and availability of drugs. In India, it has been estimated that about 5 to 6 persons per lakh of population die due to poisoning every year.[1] The most common cause of poisoning in India and other developing countries is pesticides. OP compounds are readily available, relatively cheap and have a rapid, lethal action even in smaller doses. Therefore, they are

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widely used as suicidal poisons.[2]

The mortality and morbidity in any case of acute poisoning depends upon a number of factors such as the nature of the poison, dose consumed, availability of medical facilities, treatment by qualified persons and time interval between intake of poison and provision of medical help.

The main objective of the present study was assessing the pattern and outcome of acute poisoning cases admitted at a tertiary care hospital and to know the nature and severity of poisoning in order to take appropriate preventive measures.

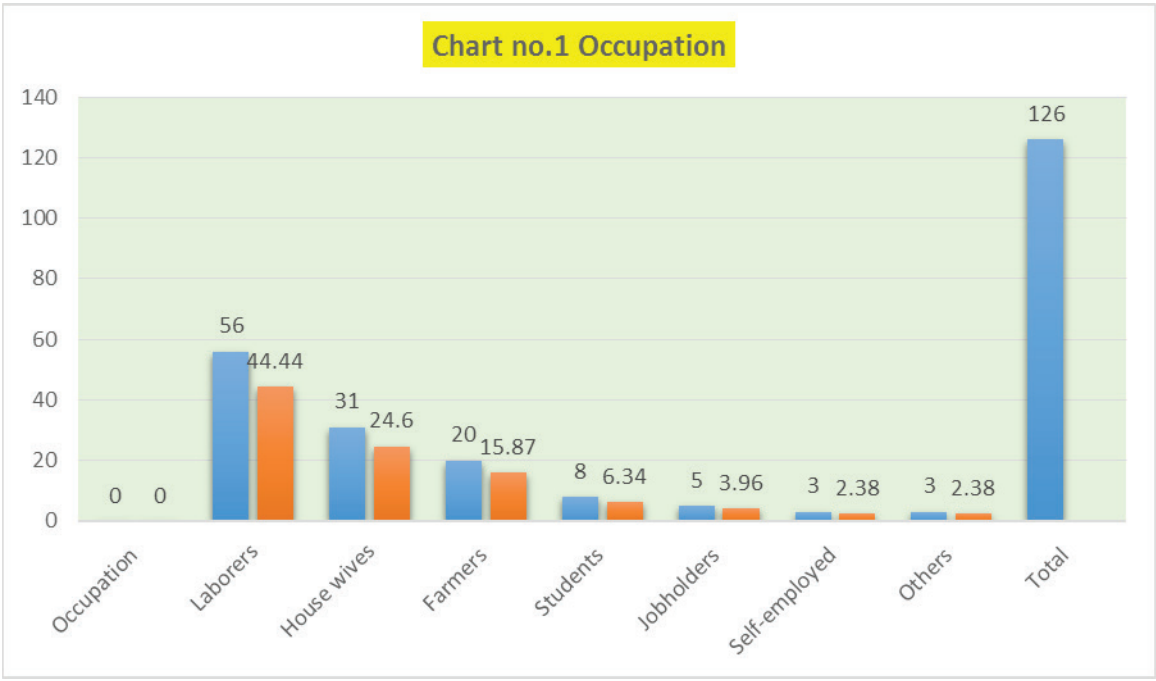
Materials and Method

Present retrospective study was conducted in a tertiary care hospital attached to a Medical College in Khammam for a period of one year from October 2017 to August 2018. The study included 126 cases of various acute poisoning due to various poisons /drugs /chemicals. Data regarding profile, domicile pattern, type of poison, manner of poisoning, seasonal trends, motive behind poisoning, name of poisonous substance, chemical type, duration of hospitalization, severity, time elapsed after intake and outcome were collected in the Proforma. All data were documented, analyzed and interpreted with previous studies. In our study the age above 14 years onwards cases were studied.

Aims and Objectives

To assess the trends and outcome of acute poisoning cases in a tertiary care hospital in Khammam.

To know the nature, severity and outcome of acute poisoning cases in order to take up appropriate preventive measure.



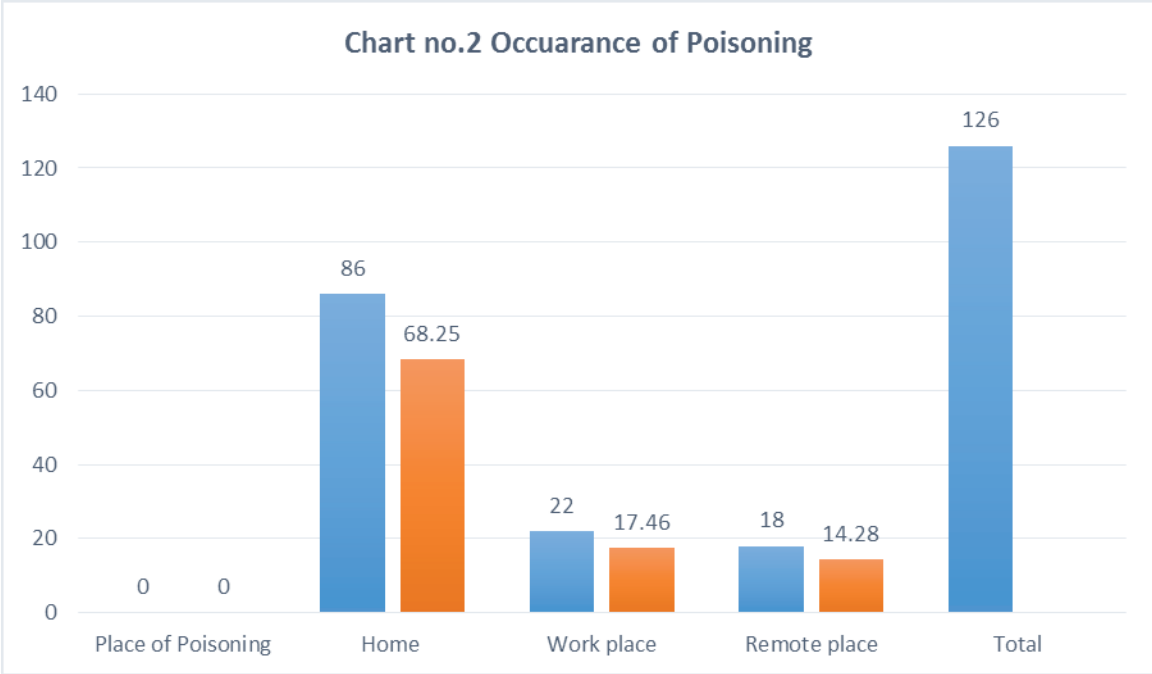


Chart no.2 Occuarance of Poisoning
140
120
100
80
60
40
20
0
0
0
86
68.25
22
17.46
18
14.28
126
Place of Poisoning
Home
Work place
Remote place
Total

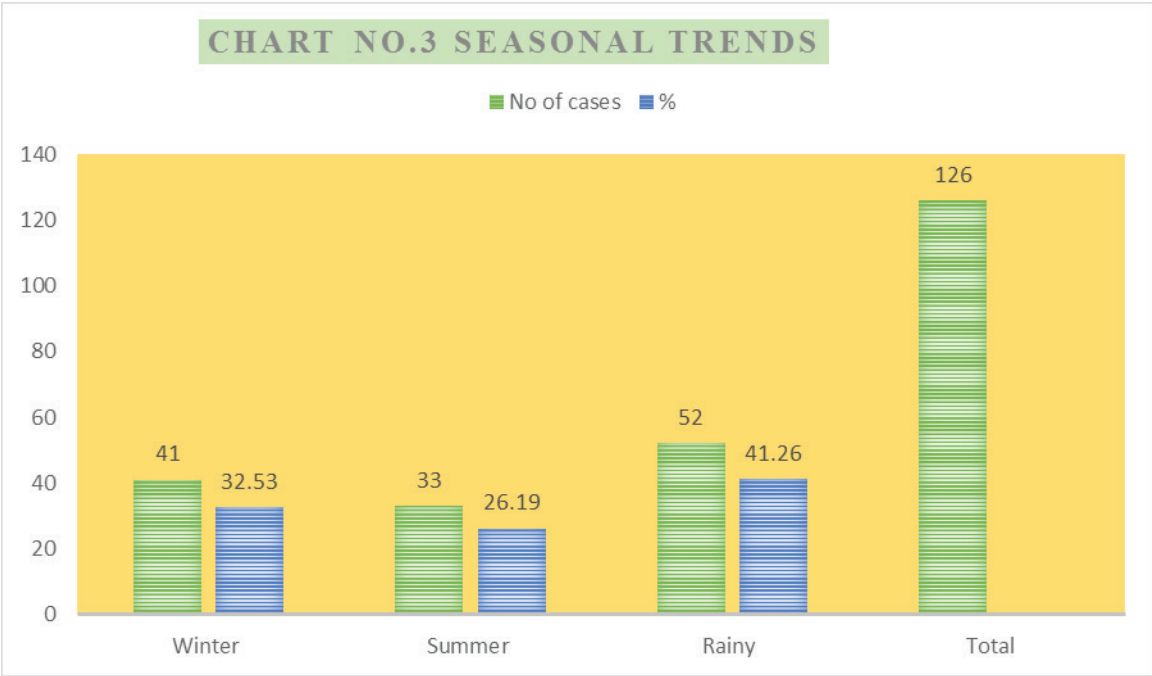


CHART NO.3 SEASONAL TRENDS
No of cases
%
140
120
100
80
60
40
20
0
41
32.53
33
26.19
52
41.26
126
Winter
Summer
Rainy
Total

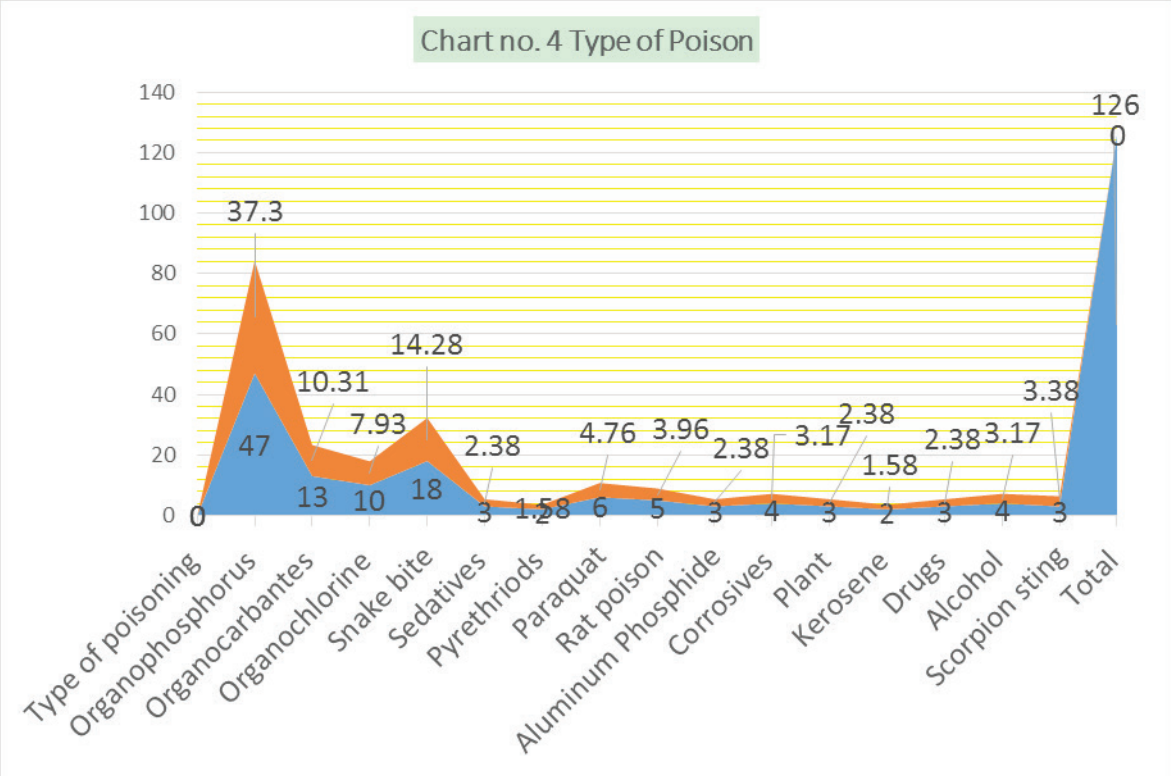


Chart no. 4 Type of Poison
140
120
100
80
60
40
20
0
37.3
47
10.31
13
7.93
10
14.28
18
2.38
3
1.58
2
4.76
6
3.96
5
2.38
3
3.17
4
2.38
3
1.58
2
2.38
3
3.17
4
3.38
3
126
0
0
Type of poisoning
Organophosphorus
Organocarbantes
Organochlorine
Snake bite
Sedatives
Pyrethriods
Paraquat
Rat poison
Aluminum Phosphide
Corrosives
Plant
Kerosene
Drugs
Alcohol
Scorpion sting
Total

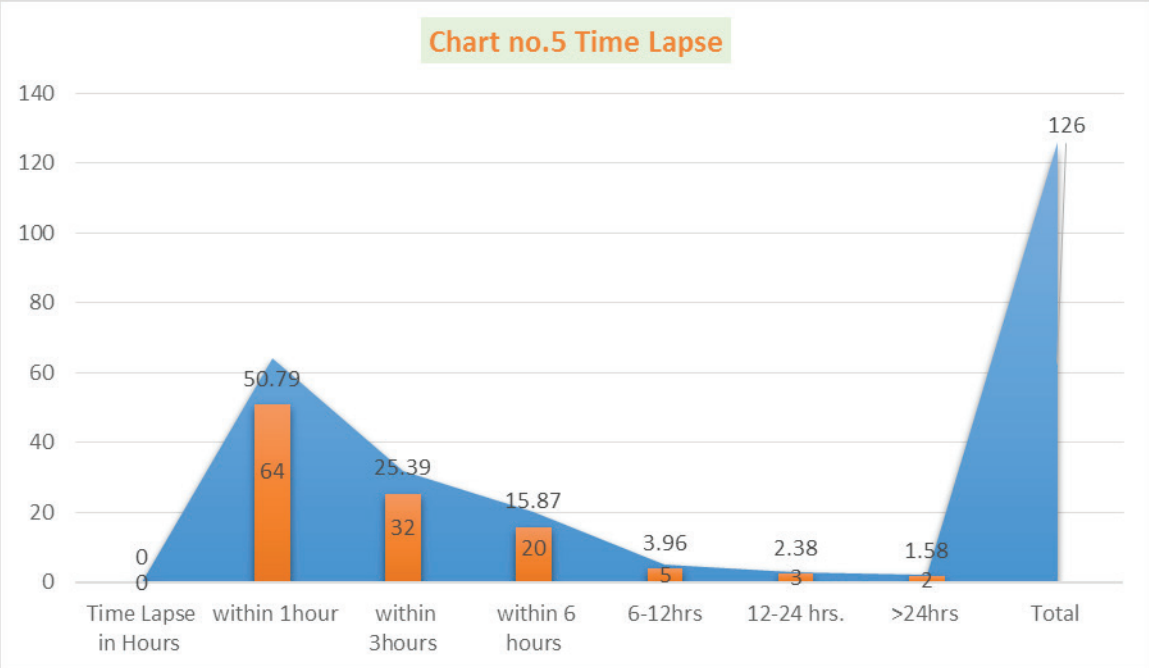
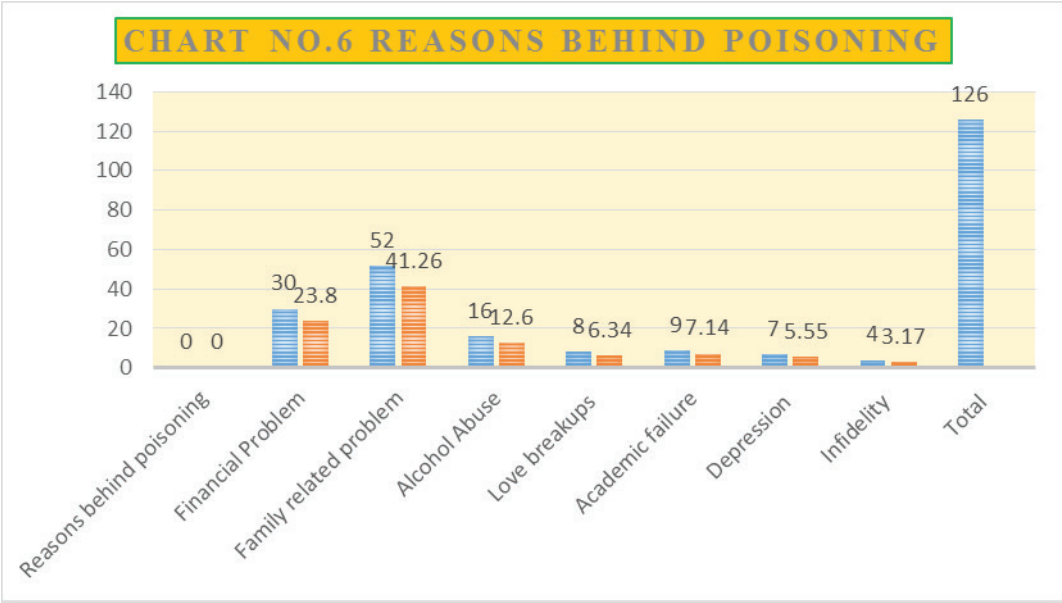


Chart no.5 Time Lapse
140
120
100
80
60
40
20
0
0
0
50.79
64
25.39
32
15.87
20
3.96
5
2.38
3
1.58
2
126
Time Lapse in Hours
within 1hour
within 3hours
within 6 hours
6-12hrs
12-24 hrs.
>24hrs
Total



Observations and Discussion

- In the present study, the overall mortality was found to be 3.05%. The reasons observed were delay in admission to hospital, improper management of the patient, nature of poison, dose consumed, availability of medical facilities and time interval between intake of poison and medical treatment and lack of information regarding the poison and its antidote. Similar observations were made by other studies.[1-3].

- In our study 59 [46.82%] patients were of 21-30 years followed by 28[22.22%] patients of 31-40 years and 22[17.46%] patients were less than 20 years of age and least 10[7.93%] were from 41-50 years age group. In age of above 60 years, 3 cases were reported. These results were consistent with studies conducted by others. [2-4] Exposure to social, economic, domestic, occupational pressures, early marriages and inability to cope with the post marital pressures especially in rural areas are important factors.

- In the present study, 71[54.34%] patients were male as compared to 55[43.65%] females thus giving a male to female ratio of 13:10**.** Similar patterns were observed by other studies.[2-5] Males are more exposed to stress and occupational exposure compared to females and have easy accessibility to the agrochemicals due to more involvement in agricultural work. This is the main reason for the disparity.

- In our study**,** 87[69.04%] patients were from rural background and in comparison, only 30.95% of the people were from urban background. These results were similar to other studies.[5] Pesticides were the main choice by the victims as these are easily available in rural areas.

- In this study, 92[73.01%] of the victims were Hindu while 20[15.87%] were Muslim and 4 [11.11%] were Christian. Similar results were obtained by studies conducted by others reseachers.[6]

- In this study, we observed that the acute poisoning was most commonly seen in married men [51/40.47%] and women [31/24.60%] while unmarried people were 38[30.15%]. Which could be due to variable income of agriculture workers who come across various stressful situations in their life. This finding is similar with the study done by others.[4-6]

- In our study, severe acute poisoning cases were more likely to occur in low income people [80/63.49%] when compared to middle class [38/30.15%] and people of high socio-economic status [8/6.34%]. Similar observations were noted by others.[5,6]

- We observed that in most cases, poisoning victims

had only primary education [55/43.65%] followed by secondary education in 37[29.36%] cases only 18[14.28%] were graduates while 16[12.69%] were illiterate. This consistent with other studies.[5,6]

- In our study, majority of acute severe poisoning cases were seen in laborers [56/44.44%] followed by house wives [31/24.60%] and farmers [20/15.87%]. Similar findings were made by other studies.[5-7] chart no.1.

- In this study, 82[65.07%] patients consumed poison during the day **(**6 am -6pm) while 44[20.63%] of them consumed it at night (6pm-6am). The consumption during evening hours could be explained as people usually meet at homes after working hours and discuss about their problems leading to frustration resulting in them taking the extreme step. Same observations were noted by other studies.[7,8]

- In the present study**,** 86 [68.25%] victims consumed poison at their home while 22[17.46%] did it at their work place18 [14.28%] of them in a remote place. These were consistent with other studies.[7,8,9] Chart no. 2

- Seasonal trends of acute poisoning: Most of the cases were reported in Rainy season [52/41.26%] followed by Winter [41/32.53%] and Summer [33/26.19%]. The increased incidence during the rainy season could be attributed to increased availability of pesticides, frustration resulting from the loss of crops as a result of excessive or inadequate rains. Similar trends were observed by other studies.[7-9] Chart no.3

- In the present study on acute poisoning cases, it is seen that the Organophosphorus insecticides account for 47[37.30%] cases and poisoning by snake bite for 18[14.28%] cases. There is a rapidly increasing trend in the incidence of OPC poisoning over the last few years due to easy availability and uncontrolled sale and use of these agents. Due to greater exposure in fields, there is a great risk of posing by snake bite especially in rural agriculture workers and laborers. Similar results were reported by various studies conducted by other authors.[6-10] Chart no.4

- In our study, out of this insecticide group, carbamate was responsible in 13 [10.31%] cases followed by organochlorine compounds in 10 [7.93%] cases. The difference in the type of poisoning seen within the country may be due to the difference in the pattern of use and availability of pesticides in various parts of the country. This is consistent with other wokrs.[7-10]

- In the present study, 98[77.77%] patients consumed the poison with suicidal intent while in 26[20.63%] cases, the exposure was accidental. However, in 2[1.58%] cases, the intention was homicidal. Similar observations made by others.[7-13] It appears that the easy availability of OPC, low cost coupled with their faster and more effective action probably makes it a favorite poisoning agent for suicidal purpose. It was seen on psychiatric assessment that majority of the suicidal cases were associated with reactive depression. Accidental poisoning especially with kerosene was more common in alcoholics and was observed in 8[6.34%] cases.[7-13] In our study, snake bites were responsible for accidental poisoning in 18[14.28%] cases as this region has more snakes and agricultural population. These results were consistent with other researchers.[7-13]

- In our study, 64[50.79%] of the acute poisoning patients were hospitalized within the first one hour of toxic exposure while 32[25.39%] of them were admitted between 1-3 hrs. However, 20[15.87%] of them were brought in less than 6 hrs. after toxic exposure. The remaining 10 patients were hospitalized between 6 hours to 24 hours of toxic exposure. The early reporting to the hospital after poisoning had greatly affected the case of fatality and similar observations were made by previous works.[10-14] chart no.5

- In present study, 88[69.84%] patients consumed highly toxic and fatal dose of poison whereas 38 [30.15%] patients consumed mild toxic and fatal dose of poison. There is a variability of symptoms and signs depending on the nature of the compound, amount consumed, absorption, time gap between exposure and presentation to the hospital. Similar outcomes were also observed in other studies.[13,15]

- In the present study, a rather high 106 [84.12%] patients received first aid while 20[9.52%] people did not receive first aid as they were close to the hospital and were brought immediately. Similar findings were made by others.[12-16] Regarding role of first aid, it plays an important role in mortality and morbidity.

- 60[47.61%] patients had to stay in hospital up to 7 days while 24[19.04%] stayed in the hospital for 3 days 24 [19.04%] patients had to stay only for one day in hospital. However, in two poisoning cases, patients had to stay in hospital for more than 30 days. These were consistent with studies conducted by others.[14-18]

- In this study, 88[69.84%] recovered as they reached hospital within 3 hours and were managed properly.

- Delay in transfer of the patients from remote places to hospital leads to delay in treatment which may cause more damage to their organs and lead to death. This was seen in 38[30.15%] cases. Overall mortality in the present study is 3.05%. Same outcomes were obtained by other studies.[18-20]Among the total deaths, reported majority of them arrived at hospital after 3 hours. Mortality due to poisoning depends on various factors including age, toxicity of the poison, amount consumed, health status of the patient, early hospitalization and proper management. Cause of death was refractory hypotension with severe metabolic acidosis and respiratory failure along with secondary complications.

- In the present study, the most common causes were family problems seen in 52 [41.80%] cases followed by financial problems in 30[23.80%] cases. The motives depend on the variety of factors such as economic crisis, stress, rain dependent agriculture, natural calamities etc. Unemployment, chronic illness, quarrels and love failure were the other contributory factors in suicides. It was seen from our study on psychiatric assessment of all suicidal attempt cases that majority of cases were associated with acute stress reaction. Similar findings also observed by other studies.[20-22] chart no.6

- Alcohol presented as an associated inebriant in 28 cases may explain the fear of death in these people. These were similar to other researchers.[20-22]

Preventive Measures

The changing trends of poisoning need proper health care policy planning for early proper diagnosis and effective treatment of such cases.

Strict rules must be followed regarding sale of pesticides.

Conclusions

- The overall mortality is 3.05%.

- Most of the victims were married Hindu Rural Laborers of low socio-economic groups.

- Most of them consumed poison at home in the evening hours during monsoon.

- The trends of acute poisoning cases indicated that Organophosphorus insecticides and poisoning by snake bite were the commonest types of poisoning.

- It was seen on psychiatric assessment, that majority of the suicidal cases were associated with reactive depression, consumed the poison with suicidal intent.

- Majority of the acute poisoning cases were hospitalized within one hour of toxic exposure after receiving first aid.

- Maximum number of patients stayed in hospital for up to 7 days and recovered.

- In the present study, family problems and financial problems were the most common reasons behind poisoning.

Conflict of Interest: Nil

Source of Funding: Self

Ethical Clearance: Obtained

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