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Pattern and Clinical Outcome of Poisoning Cases Admitted in Emergency Department of a Tertiary Care Center at High Altitude Nepal.

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Abstract

Introduction: Poisoning is one of the major health problems not only for the respective nation but also globally. Globally it has more impact on mortality and morbidity. According to WHO 2021 mortality rate of Nepal due to unintentional poisoning is 1.66 per one lakh

population.(1) The objective of this study is to know the pattern and clinical outcome of oral poisoning in the high altitude of Nepal.

Methods: This is retrospective observational study done in the emergency of Karnali Academy of Health Sciences (KAHS), Jumla. The data was taken from 2021 July to 2022 July. Data was collected by reviewing the record file from data store of KAHS. Data entry was done in excel sheet followed by its analysis.

Results: Out of total 8163 patients visited in one year 74 (0.90%) was of poisoning cases in the year July 2021 to 2022 July. Most of the poisoning cases were seen in the age group between 11-20 i.e. 41.89%. Zinc phosphide (33.78%) was found to be the most common type of poisoning followed by an herbal compound (10.81%) named Coriaria nepalensis locally called as Machhaino. Maximum case overload was seen in the month of May-June. Out of 74 only 26 (35.13%) went through psychiatry evaluation. Out of 26 cases psychiatry evaluation 20 were suffering from mental disorder. The most common mental health disorder was suffering from depression (60%). In 46% suicidal tendency was found. 58 (78.37%) were discharged at the end of hospital stay and total death was 3 (4.05%).

Conclusion: The poisoning pattern is different in different part of world. Multidimensional approach is needed to address the problem related to poisoning. Most of the poisoning cases are associated with mental health disorder.

Keywords: Pattern of poisoning, mental health issues, outcome.

1. INTRODUCTION

Poisoning is a global health problem which covers one of the common reasons to visit emergency. Its incidence varies according to the regions and many factors play in role like environmental risk factors, psychological risk factors, family related factors, personal characteristics, level of education, residence, occupation.(2,3)

The consequence of poisoning is very harmful if not treated timely and appropriately. The factor imposing consequences are country health regulation. The most important thing is holistic management of poisoning which includes general or supportive measure, use of specific antidotes and most important is psychosocial interventions. Better management starts with triaging and immediate management with appropriate psychosocial counselling at the

time of discharge. Hence this study aims to provide insight into pattern and outcome of poisoning Cases Admitted in Emergency Department of a Tertiary Care Center at High Altitude Nepal.

2. MATERIALS AND METHODS

This study was a retrospective observational type of study conducted at Karnali Academy of Health Sciences (KAHS). The patients presenting with acute poisoning to the Emergency Department between July 2021 to July 2022 were reviewed for inclusion. Data was collected by reviewing records from the Emergency Department. Case records of poisoning for gender, age, residence, type of poison, intention of poisoning, association with a psychiatric component and outcome of treatment were analyzed from a pre-structured pro forma. Data entry was done in excel followed by statistical data analysis.

3. RESULTS

A total of 74 poisoning cases visited the Emergency Department of KAHS, Nepal from July 2021 to July 2022 which is 0.90% of total one year emergency patients. The socio-demographic variable was categorized as age, gender and residence as shown in Table No.1.

Age distribution of the poisoning cases shows that majority of the patients were in the age group of 11- 20 years which was 31 (41.89%) followed by age group of 21 – 30 years which was 17 (22.97 %) followed by age group of 0-10 years which was 13 (17.56%). Above 50 age group showed least vulnerability to poisoning which was 2 (2.7%) followed by middle age group, 31- 40 years which was 11 (14.86%). Out of 74 patients included in the study, 45(60.81%) were females and 29(39.18%) were males. Hence the female to male ratio was found to be 1.55:1. The poisoning was slightly more among the residents of rural areas contributing for 39 (52.7%) patients in comparison to 35 (47.29%) patients from urban areas.

Table No. 1: Socio-demographic variables of patients with oral poisoning

Age groups	No. of patients	Percentage	p - value
0-10	13	17.56%	
11-20	31	41.89%	
21-30	17	22.97%	

31-40	11	14.86%	
41-50	0		
51-60	1	1.35%	
61-70	1	1.35%	
Gender			
Female	45	60.81%	
Male	29	39.18%	
Residence			
Rural municipality	39	52.7%	
Urban municipality	35	47.29%	

Our study showed that a variety of poisons were being consumed by 74 different patients in one year period. Among them, Zinc phosphide(25, 33.78%) was found to be the most common type of poison consumed followed by a herbal compound (8, 10.81%) named Coriaria nepalensis locally called as Machhaino. Organophosphorus compound (5, 6.75%) stood as the third most commonly used poison to be consumed. List of other poisons consumed are shown in Table No. 2 below.

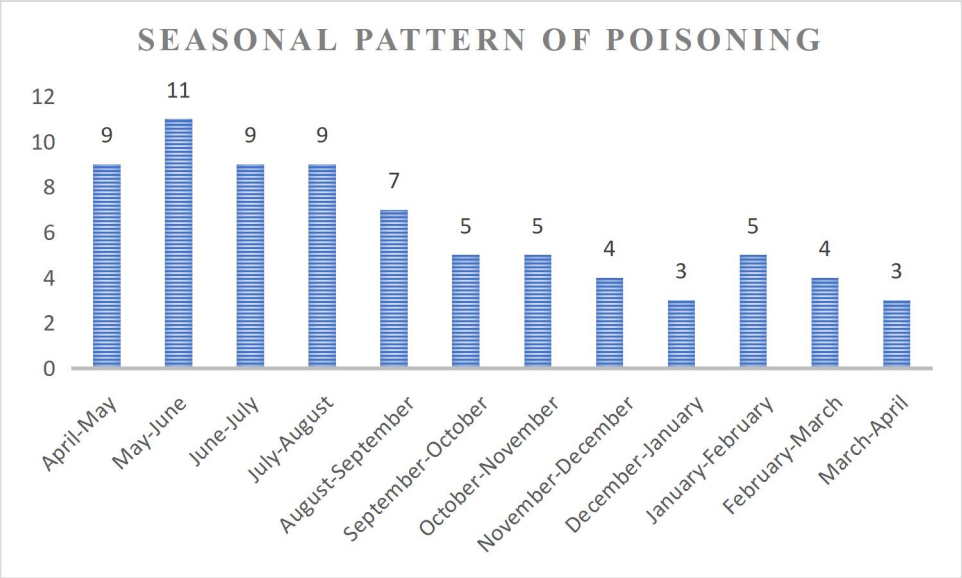
Table No. 2: Type of poison consumed.

Type of poison	**No. of patients**	**Percentage**	**p - value**
Pesticides			
Organophosphorus	5	6.75%	
Unknown Pesticide	1	1.35%	
Rodenticides			
Zinc Phosphide	25	33.78%	
Aluminium Phosphide	3	4.05%	
Unknown Rodenticide	4	5.40%	
Herbicides			
Pretilachlor	2	2.70%	
Butachlor	1	1.35%	

Medicines			
Paracetamol	3	4.05%	
Phenytoin	1	1.35%	
Olanzapine	1	1.35%	
Gamma Benzene Hexachloride (Lindane/Scabies Lotion)	2	2.70%	
Herbal			
Coriaria nepalensis (Machhaino)	8	10.81%	
Giant Cobra (Bako Plant)	1	1.35%	
Others			
Mushroom	3	4.05%	
Cannabis	1	1.35%	
Petrol	1	1.35%	
Acid (Phenyl)	1	1.35%	
Caustic (Acid used in Solar Battery)	2	2.70%	
Terpentine Oil	1	1.35%	
Unknown (?Benzodiazepine/Brown Sugar)	1	1.35%	
Unknown	7	9.46%	
Total	74		

A seasonal pattern of poisoning has been shown in the histogram below in Fig. No. 1 with maximum number of cases seen on month of May- June.

Fig. No. 1



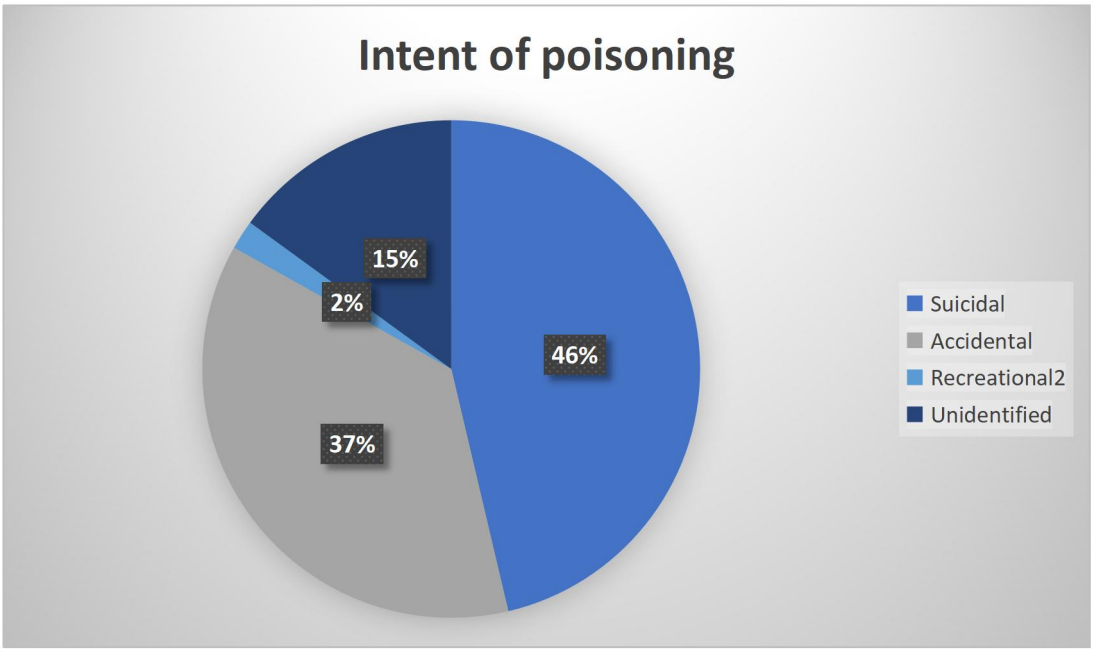
Out of 74 cases, 26 (35.13%) cases received psychiatric evaluation. Among the evaluated patients, 20 cases were diagnosed with psychiatric disorders tabulated in Table No. 3. 12 out of 20 cases were found to be suffering from depressive disorders.

Table No. 3: Psychiatric disorders diagnosed in evaluated cases of poisoning

Psychiatric disorders	**No. of patients**
Depressive disorders	12
Adjustment disorder	2
Acute stress reaction	1
Impulsive DSH	2
Complicated grief	1
Anxiety disorder with features of dissociation	1
Seizure disorder	1
Total	20

Fig. No. 2 shows the intent of poisoning which was identified as suicidal (34, 45.94%) in most of the cases followed by accidental poisoning (27,36.48) in a large number of the patients. Whereas, in 11(14.86%) cases, the intent of poisoning could not be found.

Fig. No. 2



More than half of the cases of poisoning were discharged (58, 78.37%). A few patients expired (3, 4.05%). Remaining cases (13, 17.56%) could not be determined due to various reasons as tabulated in Table No. 4 below.

Table No. 4: Outcome of the poisoning cases

Outcome	**No. of patients**	**Percentage**
Discharged	58	78.37%
Deaths	3	4.05%
Leave against medical advice	10	13.51%
Abscondment	2	2.70%
Loss of follow up	1	1.35%
Total	74	100%

4. DISCUSSION:

In our study incidence of poisoning in female was higher than male (female to male ratio 1.55:1) which is similar to study done by Baral et.al, and Getnet et.al, (4,5) . The highest portion of the poisoning case was of 11-20 years and 21-30 years i.e. 41.89% and 22.97%. The result is consistent with the study done by Woyessa et.al. (6,7) . The reason behind this result can be the people of this age group are high ambitious, risk taking and are under stress. The majority of the cases were from more rural area which is very consistent finding with study of Susan et, al.(8) In our study the most common type poisoning was Rodenticides, Zinc phosphide i.e. 33.78% followed by herbicides which is 10.81%. The worldwide pesticides are most common and among which organophosphorus poisoning. (6,9–12) The 20% of the global suicide are due to pesticide self-poisoning.(13)The reason behind it is easy availability of the pesticide in the other part of the world where fertile land is available for agriculture and use of rodenticides, herbicides in rural high altitude of Nepal. Economic problem, family problem, personal issues, mental health issues are common in rural part of the Nepal which leads to increase in the case of poisoning. We found seasonal variation in the incidence of the poisoning cases. In the month of May and June there was highest number of cases in rural high altitude. The total death was 3 (4.05%). Most of the cases were in the season of spring and summer. The finding was consistent with other studies.(5,14)

Paracetamol (4.05%) constitutes majority of cases among medicine related poisoning. It is found to be most common ingested medication from most of the study.(15)

The most common type of intent for poisoning was found to be suicidal (46%). According to WHO 77% of global suicide occur in low-middle income country(13). 26 cases i.e. 35.13% of patients received psychiatric evaluation, among them 20 cases were suffering from mental health issues. Depression was most common mental health problem in our study. Depression is strongly associated with the appraisal of suicidal intent.(16)

Hence after looking at the data multidisciplinary management is needed for seriously poisoned patients. There is need of psychiatric services and counseling in the management of such cases.(17)

5. CONCLUSION

Poisoning is very common globally and also in rural high altitude of Nepal. The rodenticide, pesticide and herbicides are common in western rural part of Nepal. Herbicides named Coriaria nepalensis (locally called as Machhaino) is very common in Jumla. Treatment outcome of poisoning is satisfactory with low mortality. Mental health issues were found to be associated with most of the poisoning.

Conflict of interest: The authors declare that no competing interest exists.

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•Medical record section

Mr. Megh Raj Budha, Medical Recorder.

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