

Study of Socio-Demographic Profile of Pesticidal Poisoning Cases in Tertiary Care Center

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ABSTRACT

Introduction: The pesticide poisoning is a common medical emergency and leads to increase morbidity and mortality rate in developing countries due to easy accessibility and low cost. The study was conducted to study the socio-demographic profile of poisoning case to understand the possible factors responsible for poisoning episodes. **Method:** A hospital based descriptive cross-sectional study was carried out in Nepalgunj Medical College, Teaching Hospital, Kohalpur, a tertiary care center, conducted for period of six months from October 2017 to March 2018. The socio-demographic profile of all cases of pesticidal poisoning attended in emergency department or admitted in medical ward were collected on a suitably designed pre-structured proforma and analyzed. **Results:** Total 164 patients were enrolled in the study. Majority were fallen in the age group of 20-30 years with female 76.80% dominating the male 23.20%. Married couples (74.40%) were found to be more affected and house wife was more vulnerable group 42.10%. Incidence of poisoning was more common in joint family as compare to nuclear family 81.10% versus 18.90%. Organophosphorous was most common pesticides 42.70% and suicide was main manner of poisoning. Quarrel with spouse was main reason in majority 23.80% and most of events were held at evening 69.50%. **Conclusion:** Pesticide poisoning was common in developing countries. More emphasis should be given on preventive measures and safety practices among the population for prevention and reduction of the pesticide poisoning.

Key words: Organophosphorous, pesticides, poisoning, socio-demographic profile, tertiary care center

INTRODUCTION

Acute poisoning is an important medical emergency and major global health problem with significant morbidity and mortality affecting people of all age groups. According to World Health Organization, (WHO) poisoning occurs when people drink, eat, breathe, inject, or touch enough of a hazardous substance (poison) to cause illness or death¹. As per WHO data in year 2012 it was reported that more than 90% of fatal poisoning cases are seen in middle and low income countries i.e. the developing countries in general and agricultural countries in particular². Pesticide is any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest. Pesticide poisoning is an important health problem particularly in the low-income countries like developing countries.

The reported incidence of pesticide poisoning worldwide is about 3 million and suicidal cases accounts more than one third^{3,4}. Pesticide poisoning is common in our countries as majority of population's likely hood of living is still farming. Factors contributing pesticidal poisoning are, easy availability,

low cost, lack of proper knowledge regarding proper handling and storage along with poverty, ignorance and illiteracy. Information regarding pesticidal poisoning in our region is limited and hence this study was carried out to study the socio-demographic profile of pesticidal poisoning in this center which will be useful for enhancement of the knowledge, awareness and safety practices among the population for prevention and reduction of the pesticide poisoning.

MATERIAL AND METHODS

The present study was undertaken at Nepalgunj Medical College, teaching hospital a tertiary care center. A descriptive cross sectional study was conducted for period of six months from October 2017 to March 2018. All cases of pesticidal poisoning attended in emergency department or admitted in medical ward were included in the study. Cases of food poisoning, adverse drug reaction, insect bites, snake bites and other than pesticides were not included in the study.

Patient data relevant to the study was obtained from treatment charts/case sheets, laboratory reports and patient or patient's relative. The relevant information was collected on a suitably designed pre-structured proforma. The socio-demographic profile consists of age, gender, occupation, marital state, and educational status, manner of poisoning and cause of poisoning. The collected data were entered in Microsoft Excel software and data analysis was performed with the help of SPSS software version 20.0.

RESULTS

Total of 164 patients enrolled majority were fell in the age

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group of 20-30 years 39% (64). Total female 76.80% (126) dominating the male 23.20% (38). Religion wise almost all 99.40 (163) were Hindus. Incidence of poisoning was found more common among married couples 74.40% (122) versus 25.60% (42) in unmarried. Most of the victims had completed secondary level education 48.80% (80). Incidence of poisoning was more common in joint family as compare to nuclear family

(81.10% versus 18.90%). House wife was more vulnerable group 42.10% (69) as compared to others. Organophosphorous was most common pesticides used for poisoning 42.70% (70) and suicide was main manner of poisoning. Quarrel with spouse was main reason for poisoning in majority 23.80% (39) and majority of events were held at evening 69.50%(114).

| Variables | Frequency | Percent |
|-----------------------|-----------|---------|
| Age group | | |
| <20 Yrs | 35 | 21.30% |
| 20-30 | 64 | 39.00% |
| 30-40 | 36 | 22.00% |
| 40-50 | 15 | 9.10% |
| 50-60 | 6 | 3.70% |
| >=60 | 8 | 4.90% |
| Range (Years) | 13-73 | |
| Median age | 25±12.74 | |
| Gender | | |
| F | 126 | 76.80% |
| M | 38 | 23.20% |
| Religion | | |
| Hindu | 163 | 99.40% |
| Muslim | 1 | 0.60% |
| Marital Status | | |
| Married | 122 | 74.40% |
| Unmarried | 42 | 25.60% |
| Education | | |
| Graduates | 17 | 10.40% |
| No formal education | 36 | 22.00% |
| Primary education | 31 | 18.90% |
| Secondary education | 80 | 48.80% |
| Type of Family | | |
| Joint | 133 | 81.10% |
| Nuclear | 31 | 18.90% |
| Occupation | | |
| Business | 8 | 4.90% |
| Farming | 13 | 7.90% |
| House wife | 69 | 42.10% |
| Service holder | 34 | 20.70% |
| Student | 35 | 21.30% |
| Unemployed | 5 | 3.00% |

Table I: Sociodemographic details (n= 164)

| Features | Frequency | Percentage |
|----------------------------|-----------|------------|
| Type of pesticides | | |
| Aluminium phosphide | 17 | 10.40% |
| Cypermethrin | 19 | 11.60% |
| Organophosphorous | 70 | 42.70% |
| Unknown | 32 | 19.50% |
| Zinc phosphide | 26 | 15.90% |
| Manner of Poisoning | | |
| Accidental | 11 | 6.70% |
| Suicidal | 153 | 93.30% |
| Cause of Poisoning | | |
| Failure | 35 | 21.30% |
| Miscellaneous | 34 | 20.70% |
| Nil | 38 | 23.20% |
| Quarrel with others | 18 | 11.00% |
| Quarrel with spouse | 39 | 23.80% |
| Time of ingestion | | |
| Afternoon | 1 | 0.60% |
| Evening | 114 | 69.50% |
| Morning | 10 | 6.10% |
| Night | 39 | 23.80% |

Table II: Distribution of cases according to features of poisoning (n=164).

DISCUSSION

Poisoning being an important public health problem. It consumes not only the valuable health service resources but also causes considerable morbidity and mortality⁵. Socio-demographic factors behind it were assessed with an attempt to find out the factors responsible for ingestion of poison, which might be very helpful for making preventive strategies and early intervention. The present study shows that the highest number of patients belonged to the age group of 20 to 30 years 39% (64) with mean age of 25 years, which was comparable to other studies^{6,7}. This age group belongs to those who are more active, both physically and mentally with having major responsibilities towards family and society having continuous financial crises and stressful life. Higher suicidal rate was found among females 76.80% (126) than males 23.20% (38) which was similar with study done by Pokhrel et al⁸. Majority were housewives by occupation 42.10% (69) and belongs to joint family 81.10% (133) The high incidence may be because females are more exposed to stress, strain, have to manage household activities with limited resources along with domestic violence, unemployment and behavioral problems also contribute higher incidence among females. Married couples were more vulnerable as compared to unmarried (74.40% versus 25.60%) which was comparable to study done

by Mugadlimath A et al⁹. Quarrel with spouse was main culprit in majority 23.20% (38) as compared with other factors. Marital disharmony probably causing stress and leading to extreme steps like poisoning. Among different pesticides used organophosphorous was used by majority 42.70% (70). OP as main pesticides was also reported by other studies^{9, 10, 11}. As Agriculture is the main occupation of the people in this region and organophosphorus was commonly used pesticide in this locality, which was cheap and easily available and accessible in market. In our study most of events were held during evening time 69.50% (114) contrast to Maharani et al, where mostly in day time¹². The main reason during evening time may be most of family members were at home and any kind of dispute, quarrel may aggravate the situation.

LIMITATIONS

The small sample size and short duration of this study may be the main limitation factors affecting the results. Also, most of the cases were diagnosed on the basis of patient's history and clinical examination, while they were not confirmed with laboratory testing.

CONCLUSION

Organophosphorous was the most commonly used poison due to its easy availability and accessibility. We suggest the government should regulate the import, manufacture, sale, transport, distribution and use of insecticides and pesticides with a view to prevent risk to human beings.

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