

A Study of Organophosphorus Poisoning at A Tertiary Care Hospital in Nepal

Mandal L*, Bhattarai MD**, Gaire D***, Koirala M****, Bhattarai T*****, Adhikari S*****,
Poudel SC*****, Ali M *****

*Associate professor, **Professor, ***Clinical Tutor, **** Third year MD resident, internal medicine, *****First year MD resident, internal medicine.

ABSTRACT

INTRODUCTION: Poisoning is a common medical emergency. Only a few studies have been undertaken with this topic. Poisoning with Organophosphorus(OP) compound is a common cause of mortality especially among the young people in hospitals of Nepal. This study was undertaken to see the pattern and mortality in patients with OP compound poisoning admitted in Bir Hospital, the tertiary care government hospital of Nepal.

METHODS: All the consecutive poisoning cases due to OP compounds who were admitted in the wards of Bir Hospital from January 1st 2014 to December 31st 2014 were evaluated retrospectively.

RESULT: A total of 110 poisoning cases were admitted in the wards of Bir hospital over a period of one year. Of these, OP poisoning was the most common (58.18%). OP poisoning was found more common in female (64%) than male. Most of these cases occurred in the age group 15-30 years (64%). Dichlorvos(Nuvan) and Methyl Parathion (Metacid) were responsible for most number of cases. The mortality with treatment in this study was found to be 6.25%. The average stay of patients who recovered after treatment was 8.57 days.

CONCLUSION: Most of the OP poisoning occurred in younger age group. The mortality with treatment in this study was found to be 6.25% (4 out of 64). So, with proper treatment, the mortality of patients with OP poisoning can be reduced to low levels.

KEYWORDS: Organophosphorus, Pesticide, Poisoning

INTRODUCTION

Poisoning is one of the major causes of hospitalization through emergency and is a major public health problem in Nepal. Nepal being an agricultural country, there is widespread use of pesticide because of their easy availability. Pesticides are now the common method of suicide worldwide.¹ Organophosphorus pesticide account for about 80% of pesticide-related hospital admission.² The case fatality of Organophosphorus compound is 5-20% in developing countries in Asia.³ The aim of our study was to see

the pattern and mortality of Organophosphorus (OP) compound poisoning cases admitted in the wards of Bir Hospital over a period of one year.

METHODS

This is retrospective observational study of patients of Organophosphorus poisoning admitted in Bir Hospital. One year study of OP patients admitted in Bir Hospital was planned. Accordingly, data were collected from the medical records of patients with poisoning admitted in the wards of National Academy Of Medical Sciences (NAMS), Bir Hospital from January 1st 2014 to December 31st 2014 and were analyzed. The variables used were age, sex, address, and occupation, numbers of days stayed in hospital, cure rate and mortality. Patients below the age of 15 years were not included in this study. Cases with insect bite, snake bite and food poisoning were excluded from the study.

Correspondence :

Dr.LaxmanMandal

Senior consultant Physician and Associate Professor,
Department of Medicine, NAMS, Bir Hospital

Email: Drlaxmanmandal@gmail.com

RESULTS

Total cases of poisoning were 110 of which 64(58.18%) had OP poisoning, 20(18.18%) had zinc sulphide poisoning and 20(23.64%) had other poisonings (corrosive, paracetamol, etc). OP poisoning was mainly attributed to dichlorvos (Nuvan) and methyl parathion (Metacid). Of the 64 cases of organophosphorus poisoning, 64% were females and 36% were males. Most of patients belonged to 15 to 30 years of age (Females more than double of male). Most of the cases were students (31%) followed by housewives (27%) and farmers (11%). 44% patients were from Kathmandu valley and 56% from outside valley (Dhading, Nuwakot, Sindhupalchowk, Kavre and other places). Of the OP poisoning cases, 92.18% recovered, while 6.25% patients expired and 1.57% were taken to another hospital. The average stay of patients who recovered after treatment was 8.57 days.

Table 1. Distribution of OP poisoning by gender (Total = 64 patients)

Gender	Total no. of cases	Percentage (%)
Male	23	36
Female	41	64
Total	64	100

Table 2. Distribution of OP poisoning cases by Age of patients.

Age	Male	Female	Total	Percentage
15-30	13	28	41	64
31-45	7	7	14	22
46-60	2	6	8	12.5
>60	1	0	1	1.5
Total	23	41	64	100

Table 3. Occupation of patient

Occupation	Number of cases	Percentage (%)
Students	20	31
Housewife	17	27
Farmer	7	11
Other	20	31
Total	64	100

Table 4. Address of patients

Address	No. of cases	Percentage (%)
Kathmandu valley	28	44
Outside Kathmandu valley	36	56

Table 5. Outcome of patient

Outcome of patient	No. of cases	Percentage (%)
Discharged after recovery	59	92.18
Death	4	6.25
Taken to other hospital	1	1.57
Total	64	100

DISCUSSION

Organophosphorus poisoning is the most common form of poisoning seen in the hospital settings of Nepal as shown by similar studies in other centres.^{4,5} In this study, female poisoning cases were more (65.5%) than male (45.5%), the ratio being 1.84:1. Similar trend was seen in India, Pakistan, Sri Lanka and Nepal.⁶⁻¹⁰ 15-30 years age was found to be the most vulnerable age group. Similar results were seen in other studies.⁹⁻¹² Students (31%) were among the most number of cases followed by housewives (27%) and farmers (11%). Students were most vulnerable in other studies also.^{9,13} Most of the cases were from outside Kathmandu valley (55%). In this study, mortality with treatment was seen 6.25%. In other studies reported from Nepal, the mortality associated with OP poisoning ranged from 7.4% to 13%.^{5,14} Also some studies done in India showed mortality of OP poisoning with treatment to be 12%¹⁵ and 25%.¹⁶ In our hospital, moderate to severe OP poisoning cases were admitted in the intensive care wards. Rest of the patients were admitted in other wards. Admitted cases were regularly followed and specially followed at 10 pm to see the condition of patients.¹⁷ Atropine was given by infusion pump in the intensive care wards and by continuous IV drip in the other wards.¹⁴ In this study, the average stay of patient in hospital was 8.57 days.

CONCLUSION

OP poisoning is common condition and is more common in young adults. Considering the common occurrence, relatively younger age of patients and full curability of the condition, early diagnosis, timely monitoring and prompt management in well-equipped

hospitals may help to reduce mortality. Close watch of such OP poisoning cases in the intensive care wards and other wards are required. Since OP compounds including other pesticide are easily available, there should be strict rules regarding selling of all these chemicals.

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