

Outcome of Acute Organophosphorus Poisoning at Liaquat University Hospital Hyderabad

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Abstract: This study was conducted for the determination of the mortality and recovery in 130 patients with organophosphorous poisoning admitted at Liaquat University Hospital Hyderabad. The patients were divided into two groups, group (A), thirty patients were treated with conventional therapy and group (B), 100 patients were received conventional and parliadoxine therapy. Both groups were further analyzed for time duration from poisoning to arrival at hospital, in hospital mortality and duration of recovery (able to do self care). Total 130 patients were admitted in ICU of these 80 were male 50 were female. Age of these patients was 18-50 years. Over all there were 80(%) males and 50(%) females. Regarding mortality 14(30%) patients in group A and 20(20%) in group B were died ($p < 0.0015$). The time of poisoning to arrival was within 72 hours in 12(40%) Group A patients and 14(14%) in group B subjects where as it was 72 hours to 1 week in 02(6.66%) Group A and 6(6%) in group B ($p < 0.005$). The duration of full recovery was less than 24 hours in 3(10%) group A and 58(58%) in group B while it was 24 to 72 hours in 5 (16%) group A and 20(20%) group B whereas 4 to 7 days in 8(26%) group A and 8(8%) in group B patients. Immediate shifting of victims of poisoning to well equipped ICU setting hospitals, early use of antidote at door care and careful resuscitation help to reduce the mortality in these patients.

Key words: Organophosphorous poisoning • OP poisoning • Outcome of OP poisoning

INTRODUCTION

Organophosphorus compounds (OPS) irreversibly inhibit acetyl-cholinesterase and widely used as pesticide in agriculture. Poisoning by organophosphorus kills hundred's of thousands of people each year [1]. OPS poisoning either suicidal or accidental is more commonly seen in rural area world wide. Incidence of pesticide intoxication approximately 22-30% of total poisoning cases as reported by police in Japan, Taiwan and Thailand [2]. They are common suicidal agents in Pakistan as well [3]. There an acute toxic effect on central and peripheral nervous system is due to blockage of acetyl cholinesterase which causes accumulation of acetyl choline at muscronic and nicotinic receptors [4]. Majority of deaths occur following deliberate self poisoning [5]. Standard conservative treatment for Poisoning involve cleaning & washing of skin / gastric lavage, administration of activated charcoal and full atropinization (dilating Pupils). Currently compounds like glycopyrolate and oxime are introduced [6]. These compounds help in reducing mortality over 10% or even higher by competing

poisoning at synaptic level [7, 8]. This study is conducted to assess the mortality, recovery and complications in patients suffering from OPS Poisoning.

MATERIALS AND METHODS

This study was conducted at Liaquat University Hospital Hyderabad from January 2009 to December 2010. All patients of organophosphorus poisoning were enrolled for study. The informed consent was taken from every patient or attendant of patients for participating in the study. The detail history and relevant clinical examination was performed. The medical data of these patients were recorded. These patients were divided into two groups. Those patients who were treated with conventional therapy only were placed in group (A) and those who received conventional and parliadoxine therapy, were placed in group (B). Both groups were further analyzed for time duration of poisoning to arrival at hospital, in hospital mortality and duration of recovery (able to do self care). The conventional therapy included a. cleaning of body of patient with water, b. Gastric

lavage, c. Full atropinization (dilatation of pupil) the dose of atropine sulphate was 1-2 mg I/V then 1 mg I/V for every 10-15 minutes. Pralidoxime 1 gm in the form of intravenous infusion and repeated until fasciculation disappear. The data was collected on predesigned proforma and then entered, saved and analyzed in SPSS version 10.00. The frequency and percentage was calculated for mortality, recovery and gender distribution. The mean \pm SD was calculated for age. The chi-square test was applied between categorical variables at 95% confidence interval and the p-value \leq 0.05 was considered as statistically significant.

RESULTS

Total 130 patients were admitted in ICU of these 80 were male 50 were female. Age of these patients was 18-50 years. Out of 130, patients 30 patients were not received pralidoxime therapy were put on group A and 100 patients who received pralidoxime therapy were put on group B. The stratification of study population is shown in Table (1) while the mortality of both groups is presented in Table (2). The time of poisoning to arrival at the hospital significantly affect the mortality in both groups shown in Table (3). The patients of both groups were further assessed for complications and ventilator support i.e. Group: A 20/30 (66.6%) while group: B 25/100 (25%) p = 0.005 (statistically significant). The duration of full recovery / in hospital stay (able to do self care) was assessed in both groups (Table 4).

Table 1: Baseline data of patients:

Total No: of patients	130
Age (years)	18-50
Mean age	34
Gender	
Male	80
Female	50
Group B: (Patient received parldoxime therapy)	100
Group A: (Patient not received parldioxime)	30

Table 2: Mortality in both groups

Group	Death	P- value
A (n=30)	14 (30%)	0.0015*
B (n=100)	20 (20%)	
Overall mortality	34 (26.1%)	

*P value is statistically significant

Table 3: Time of poisoning to arrival at the Hospital

	Group A (n = 30)	Group B (n = 100)	P- value
Within 72 hours	12 (40%)	14 (14%)	0.005*
72 hrs to one week	02 (6.66%)	06 (6%)	

*P value is statistically significant

Table 4: Duration of Full Recovery / In Hospital Stay

	Group A (n = 30)	Group B (n = 100)
Less than 24 hours.	3 (10%)	58 (58%)
24 hours to 72 hours.	5 (16.6%)	20 (20%)
4 days to 7 days.	8 (26.6%)	8 (8%)

DISCUSSION

Organophosphorus poisoning are acetyl cholinestrase inhibitors. Early treatment of OPS poisoning reverse the effect of Organophosphorus compound parldioxime reactivate acetylcholine from acetyl choline estrase complex. This drug is used as antidote of OPS poisoning. Its main therapeutic effect is recovery of neuromuscular transmission at nicotinic synopsis. Pralidoxime, should be given as early as possible for better out come of these patients [8].

In this study mean age of the patients who suffered from OPS poisoning was 34 \pm 2 years and 61.5% were male. This is comparable to the studies of Sheikh *et al.* [9], they observed that 66% were male and 80% were in age limit of 22-30 years. Time duration from poisoning to arrival at hospital is very important for prognosis and decreasing the mortality in these patients as observed in this study, 26 (20%) were died within 72 hrs after getting the management of OPS poisoning of both groups. This observation is also noted in other studies [10,11]. In hospital stay / time of full recovery (able to do say care) is quick in those patients who received pardiloxime then conventional therapy. Respiratory failure is most trouble or complication of OPS poisoning. Need of ventilator support was reduced the symptoms in the poisoned patients as observed in this study. These observations were also noted by Sheikh *et al.* [9], who observed that the length of ICU stay was 2.3 \pm 3.2 days and Aziza *et al.* [12], who noticed that ICU stay was 8.6 days. Most important complication of OPS poisoning is respiratory failure which need the mechanical ventilatory support. In this study 66% verses 25% of group B were put on ventilatory support. Early pralidoxime therapy reduces the respiratory failure in addition to the need of ventilatory support in OPS poisoning as observed in this study and other studies [13, 14].

CONCLUSION

Immediate shifting of victims of poisoning to well equipped ICU setting hospitals, early use of antidote at door care and careful resuscitation help to reduce the mortality in these patients. Education and training of

primary care physician of rural area about emergency management of OPS poisoning also reduces the mortality in OPS poisoned patients.

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