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Research Article

AN ASSESSMENT OF THE CLINICAL IMPACT AND PROFILE OF REGULAR MANAGEMENT IN CASE OF ACUTE POISONING OF ORGANOPHOSPHORUS PESTICIDE

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Abstract:

Background: All around the globe, the frequently occurring form of poisoning is acute poisoning with organophosphorus (OP) pesticides. By chance or by choice inhalation, ingestion or cutaneous exposure are most likely the cause of this poisoning.

Objective: The objective of this research was to assess the clinical and statistical aspects of patients having acute organophosphorus (OP) poisoning. The treatment of this poisoning and its results are also determined.

Patients and Methods: This research was carried out at Jinnah Hospital, Lahore (April to November 2018). Total patients selected for this research were fifty in number. These patients were having acute organophosphorus (OP) poisoning. The age of all patients was more than 12 years. The measurement was made regarding clinical and statistical aspects, behaviours and pathway of poisoning, treatment and outcomes.

Results: Total patients in this research were fifty. The male and female were 39 (78%) and 11 (22%) respectively. Mean age of the patients was (24 ± 6.17) years. OP orally was taken by 48 (96%) and the number of patients exposed to it through inhalation was 2 (4%). A total of 37 (74%) patients committed suicidal attempt. Thirteen patients (26%) were presented with accidental exposure. 1.68 hours was the mean time from exposure to the presentation in the emergency department. The patients who were subjected to death due to organophosphorus (OP) poisoning were three.

Conclusion: In young males, the incidence of organophosphorus (OP) poisoning is more common that is usually suicidal. Death rate can be reduced by prompt management.

Keywords: Organophosphorus (OP) Pesticides, Poisoning, Oral and Management.

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INTRODUCTION:

All around the world, the common problem of affecting health is organophosphorus poisoning (OP) [1]. For the previous five decades, these compounds have been employed as insecticides [2, 3]. According to an estimate, 3 million people are subjected to organocypates every year, 300,000 people died due to this [4, 5]. By chance or by choice of inhalation, ingestion or cutaneous exposure to agriculture pesticide are most likely the cause of this poisoning [4, 6]. Clinical aspect of acute cholinergic crises by means of restriction of acetylcholinesterase identify the poisoning. Restriction of acetylcholinesterase cause excess of acetylcholine in the synapse [7 – 9]. Diarrhoea, bronchospasm, lacrimation, urination, bronchorrhea, bradycardia, emesis, meiosis and salivation are clinical aspects of acute OP poisoning, cardiac arrhythmias like heart block and QTC prolongation occur by chance. Muscle weakness, paralysis and fasciculations are nicotinic results [10]. Results can be enhanced by in-time resuscitation with oxygen, fluids, atropine and respiratory support. The atropine should be titrated. The titration is carried out to the therapeutic endpoint of until the cessation of bronchoconstriction and respiratory secretions become transparent [11]. The clinical seriousness of gastric lavage or urinary alkalization is not assisted by any proof [11, 12]. Ten to twenty percent cases die because of the self-poisoning. The objective of this research was to assess the clinical and statistical aspects of patients having acute organophosphorus (OP) poisoning. The treatment of this poisoning and its results are also determined.

PATIENTS AND METHODS:

This research was carried out at Jinnah Hospital, Lahore (April to November 2018). Total patients selected for this research were fifty in number. These patients were having acute organophosphorus (OP) poisoning. The age of all patients was more than 12 years. The measurement was made regarding clinical and statistical aspects, behaviours and pathway of poisoning, treatment and outcomes. Clinical examination of chest included respiratory distress, diarrhoea, excessive salivation, crepitations, lacrimation, vomiting, bradycardia and record of exposure, which may be inhalational or oral and

muscular weakness are some aspects on the basis of which OP poisoning was identified. A Performa was designed for the collection of information and data related to age, gender, behaviour of poisoning (suicidal, homicidal, accidental), pathway of poisoning (inhalational, oral), treatment (pralidoxime, atropine), clinical assessment, results (discharge, death) and time period of hospital stay were entered on a Performa. Using the Chi-Square Test, we compared qualitative information which is presented in percentage. Quantitative information was shown in Mean and Standard Deviation. Quantitative information was also compared through Student's T-Test. We also used SPSS for data entry and assessment.

RESULTS:

Total patients in this research were fifty. The male and female were 39 (78%) and 11 (22%) respectively. Mean age of the patients was (24 ± 6.17) years. OP orally was taken by 48 (96%) and the number of patients exposed to it through inhalation was 2 (4%). A total of 37 (74%) patients committed suicidal attempt. Thirteen patients (26%) were presented with accidental exposure. 1.68 hours was the mean time from exposure to the presentation in the emergency department. The patients who were subjected to death due to organophosphorus (OP) poisoning were three. At demonstration, miosis, bradycardia, excessive salivation and diarrhoea were observed in 96%, 92%, 48% and 8% respectively. On the other hand, 36% of patients were observed with respiratory distress. Every patient was provided with atropine. One mg was the dose of atropine and then tailored based on the clinical results. Pralidoxime was unavailable and expensive; so, every patient could not receive it. Pralidoxime was provided to 16 (32%) patients. These patients remain alive. For half an hour, the dose of pralidoxime was 2g and then 0.2g hourly. In patients with 12 – 24 years of age, the incidence of suicide was more frequent. The dissimilarity was important statistically. The time duration of hospital stay was one day, two days in 8, 24, 6, 8 and 4 patients respectively. The statistical dissimilarity between male and female related to behaviour and pathway of poisoning and time to the presentation in A & E was not significant (P-Value for male and female was 0.704 & 0.534 respectively).

Table – I: Gender Distribution

Gender	Number	Percentage
Male	11	22
Female	39	78

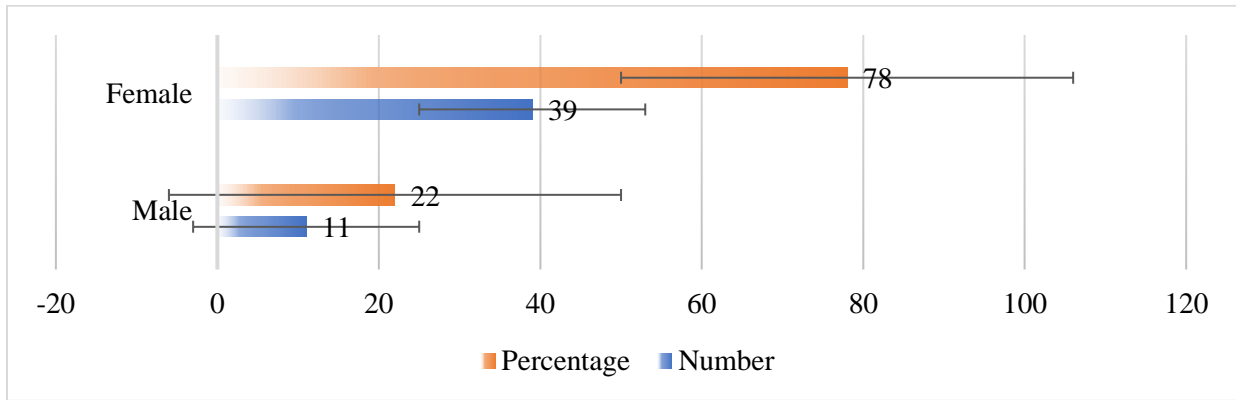


Table – II: Age and Hospitalization (Mean and SD)

Age/ Hospital Stay	Mean	±SD
Age (Years)	24	6.17
Hospitalization (Days)	2.52	1.18

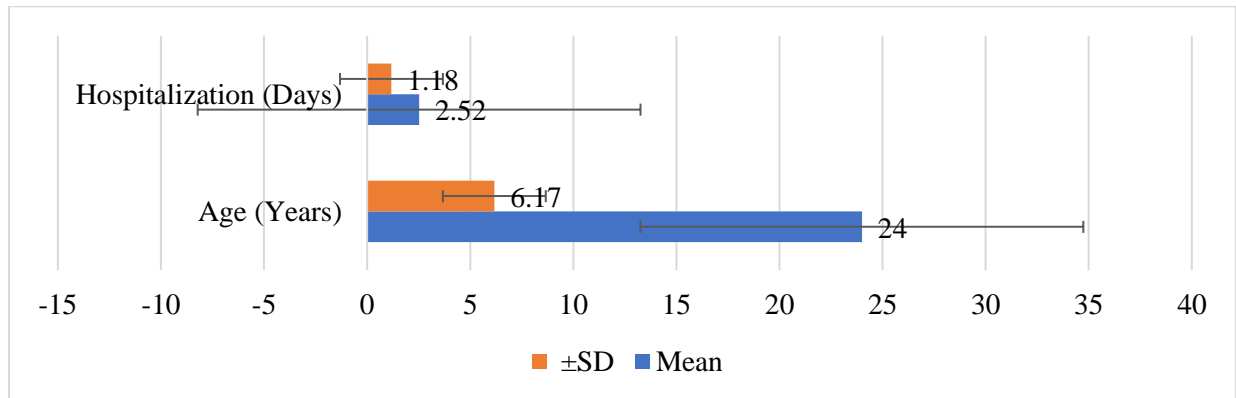
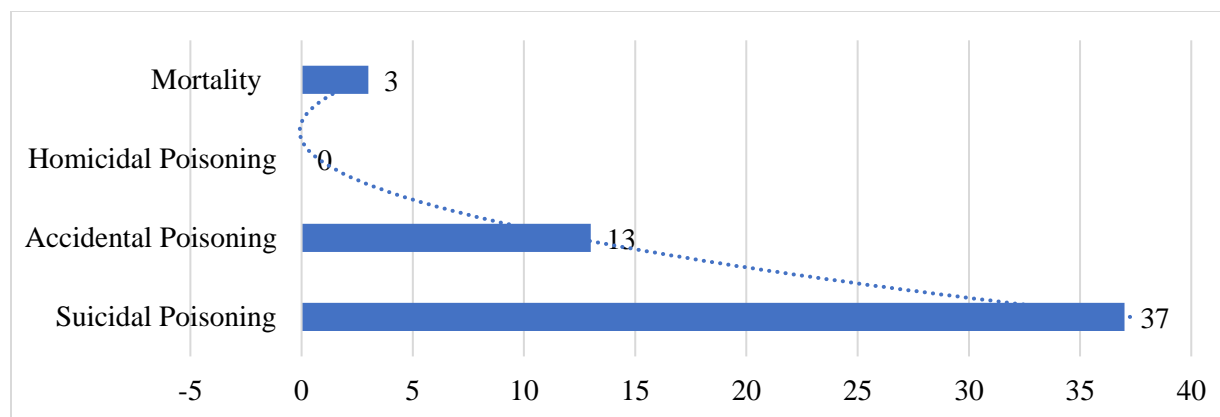


Table – III: Mode of Poisoning

Details	Number
Suicidal Poisoning	37
Accidental Poisoning	13
Homicidal Poisoning	0
Mortality	3



DISCUSSION:

For the protection of crops, the farmers used OP on a regular basis. If precautionary measures are not employed, it can result in dangerous condition through direct contact or inhalation. These pesticides are present in the homes of every farmer. So, there are more chances of occasional or intentional oral ingestion for suicidal attempts. Three percent of patients are hospitalized due to OP toxicities. In our study, the mean of the patients was (24 ± 6.17) years. In studies conducted in the Southern areas of Pakistan, the mean age of the patients is the same as reported in our research outcomes [13, 14]. As compared to females, male patients were more common. In other studies, the percentage of males was 75%, 60% and 53%. The age of 64% patients in our research study was in the bracket of 25 to 32 years; whereas, 79% patients were in the age bracket of 16 to 25 years [13 – 15].

The most common pathway of poisoning is oral ingestion. Although it can also occur through direct contact or inhalation during spray of OP pesticides [14]. The reason for this that suicidal attempt is the usual behaviour of poisoning [13, 14]. In people of young age, the incidence of suicide is more common [15]. The results of our research study were similar. Whereas, suicidal behaviour of poisoning was present equally in male and female; based on the results of other studies (12%, 9% and 8%), the death rate in our research was lower [13, 14, 16]. This was due to using of pralidoxime. Death rate can be minimized effectively due to pralidoxime. Also, in patients using pralidoxime, the mortality rate was zero [17].

CONCLUSION:

For suicidal attempts, young males commonly used OP pesticides. This pesticide is very harmful to health. Death rate can be minimized by the excessive use of pralidoxime for management.

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