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Research Article

CLINICAL OUTCOMES OF PATIENTS ADMITTED WITH ORGANOPHOSPHORUS POISONING IN A TERTIARY HOSPITAL IN LAHORE

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Abstract:

Background: Organophosphorus bug sprays are a standout amongst the most significant reasons for unplanned and self-destructive harming in Pakistan. There is a high mortality related with this condition. **Techniques:** The point of this investigation was to discover the recurrence, requirement for fake aviation route and ventilation, assess the administration and to decide the clinical results of organophosphorous harming patients in a tertiary emergency clinic . An aggregate of 177 patients were incorporated into this review think about more than 3 year. **Results:** Majority of the patients had ordinary respiratory rate while 44 were tachypnoeic. Out of the 49.15% patients requiring tracheal intubation, 40.1% required mechanical ventilation while 17.24% in the long run required tracheostomy. The span of ICU stay extended between 1 – 28 days with a normal of 6.51 days. The span of medical clinic stay extended between 1 – 63 days with a normal of 11.9 days. The in emergency clinic death rate was 18.6%. The administration of organophosphorous harming in this emergency clinic comprised of gastric wash and atropine. The utilization of pralidoxime, glycopyrrolate and enacted charcoal was not uniform. **End:** Organophosphate harming has fundamentally high rate of prerequisite for tracheal intubation and mechanical ventilation. Regardless of proper administration, it conveys a high danger of in-medical clinic mortality. Pillar of the board of these patients is gastric wash, atropine and mechanical ventilation.

Keywords: Organophosphorus poisoning; Tertiary hospital; Intensive care.

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INTRODUCTION:

Several Organophosphorus (OP) mixes are as of now accessible as bug sprays in horticulture just as family unit gardens.^{1,2} Easy accessibility of these adds to a regularly expanding inadvertent and self-destructive OP harming, particularly in creating countries.³ Operation act by restraining the cholinesterases and pseudocholinesterases by irreversibly authoritative to these compounds. This prompts amassing of acetylcholine at neurotransmitters, overstimulation and consequently interruption of neurotransmission.⁴ Exaggerated nicotinic and muscarinic impacts show up as an outcome of these actions.⁵ OP is a standout amongst the most significant reasons for harming in Pakistan and many creating countries.⁶ There are a few courses by which the OP may get consumed, for example, transdermal, gastrointestinal, inhalational and intravenous routes.^{4,7,8} Most basic supporters of OP harming incorporate unplanned presentation, suicide and maniacal attempts.^{4,9,10} OP harming is related with an extremely high death rate which is regularly credited to a postponement in conclusion or ill-advised administration. Early conclusion and fitting treatment, on the other hand, are regularly life-sparing, in spite of the fact that the clinical course of OP harming may be very extreme and require serious consideration the executives. It meant to discover the recurrence of OP harming in patients admitted to tertiary emergency clinic in Lahore, occurrence of respiratory disappointment and requirement for counterfeit aviation route and ventilation, the executives of OP harming and to decide the clinical results in these patients.

PATIENTS AND METHODS:

Subsequent to getting the endorsement from the Institutional thesis board of trustees, an aggregate of

177 patients were incorporated into this review contemplate. All patients determined to have OP harming admitted to Jinnah Hospital lahore ,from first January 2015 to 31st December 2017 (3 years) were incorporated. The quantity of in-patients in Jinnah hospital lahore from first January 2015 to 31st December 2017 were recorded. The accompanying information about every patient were gathered: statistic information, subtleties of harming, condition at affirmation, treatment given, course in the clinic, inconveniences, number of long periods of ICU remain, medical clinic remain and survival to emergency clinic release. The information were broke down utilizing SPSS 16.0 program (SPSS, Chicago, IL). Subjective information were broke down utilizing autonomous t test and quantitative information utilizing Chi-square tests to discover affiliation.

RESULTS:

Complete number of inpatients amid (2005-2007) was 1,36,567 and patients conceded with organophosphorus harming was 210. The recurrence of affirmation of OP harming to this medical clinic was 0.153%. Of the 210 patients with OP harming conceded amid this period, 33 patients were released from the emergency clinic against restorative guidance and subsequently were barred from the examination. The information of the rest of the patients (177) were assessed. The patient's age run was between 2 – 74 years with a middle of 29 years and a method of 35 years. Of these 15 were kids (< 16 years old) and 162 patients were grown-ups. About portion of them (79/162) were in the age scope of 16 – 30 years. Just 6 patients were > 61 years. About 84% of the patients were male (Figure 1).

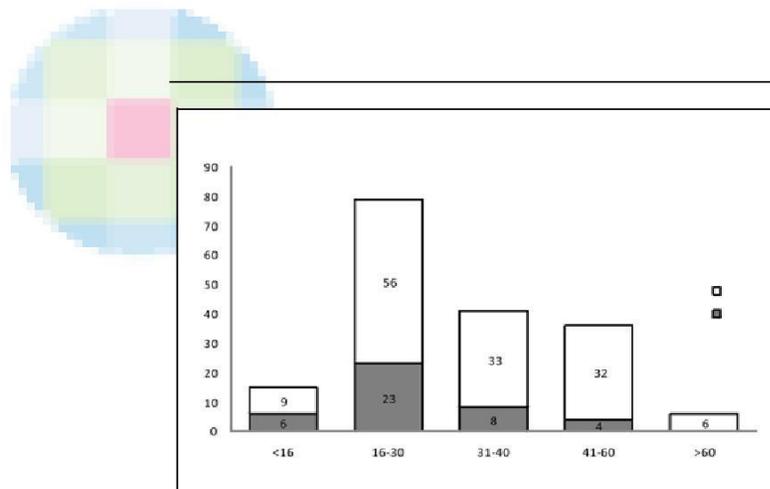


Figure 1: Demographic data: Gender distribution along age groups

Details of poisoning: The exact composition of the compound ingested was not known in 70 patients. The exact compound and its amount was variable (Figure 2). Only 6% mixed it with alcohol before consumption.

Clinical presentation

At affirmation, fourteen patients had respiratory capture, of which two were additionally in heart arrest.

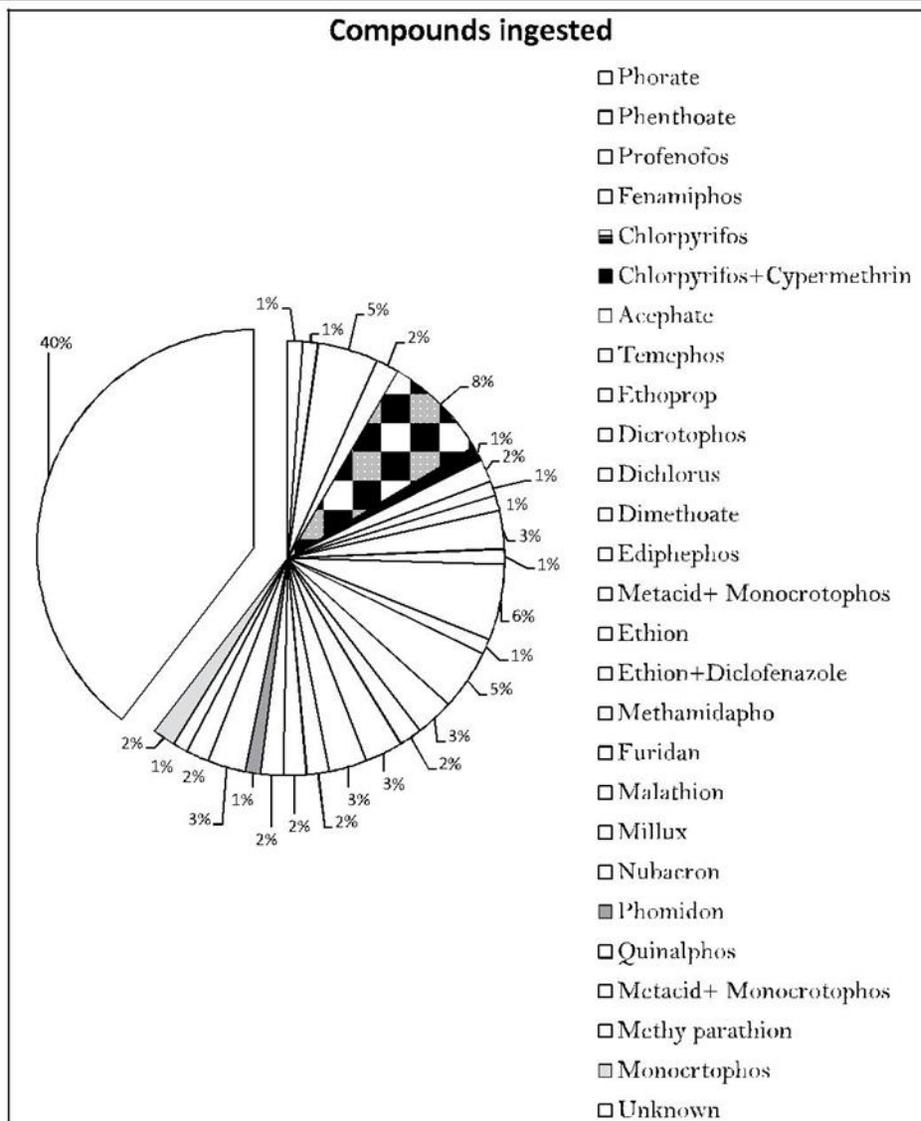


Figure 2: Different types of compounds consumed

Majority (119) of the patients had a typical respiratory rate of 14 - 25 breaths for each moment (bpm), 34 were somewhat tachypnoeic (respiratory rate 25 - 35 bpm) though 10 were dyspnoeic just as tachypnoeic (35 - 50 bpm). Seventy five patients showed at least a bit of kindness rate of < 100/min where as 100 patients had tachycardia at introduction with a middle pulse of 100. Most patients (166) were conceded with a typical circulatory strain. Four patients were conceded with unrecordably low blood weights while seven were hypotensive. Pupillary size

and emissions were variable. An extensive extent of patients (94) gave expanded students, while they were tightened in 28 patients. Students were typical and responding to light in 55 patients. Essentially, a vast extent of patients (99) presented with nil or insignificant discharges while over the top emissions were seen in 59 patients. Muscle control was observed to be typical in the greater part the patients (87), though it was grade 4 of every 22 patients. On confirmation, the serum cholinesterase was examined and recorded to be low in 140.

Treatment

Gastric wash was given to every one of the 177 patients while just 14 of them had tracheal cylinder in situ at the season of playing out the gastric wash. Emesis was accomplished just in 92 patients

Almost every one of the (171) patients got atropine. Glycopyrrolate was utilized in 44 patients as boluses and 5 patients got it as a mixture. Pralidoxime detail portion: 72 patients (40%) did not get pralidoxime while others were given a variable portion between 750 mg to 2 g. 3 patients got a portion up to 24 g in a day. Nearly half (49.15%, n = 87) of the patients required tracheal intubation. A dominant part (81.6%) of patients who were intubated likewise required mechanical ventilation. About one-fifths (17.24%, n

= 15) of the patients who required tracheal intubation in the end required tracheostomy. The number of days of necessity of mechanical ventilation was variable.

COMPLICATIONS:

Invasives in the chest X-beam were present in right around 33% (36.72%, n = 65) of the patients. The occurrence of intermediate disorder was low, with just 8 patients (4.5%) creating it.

The duration of ICU stay ranged between 1 – 28 days with an average of 6.51 days. 72.88% (n = 129) required ICU stay for 1 – 7 days, 38 (21.46%) for 8 – 15 days, 2 required 16 – 21 days whereas 8 required an ICU stay of > 21 days (Figure 3).

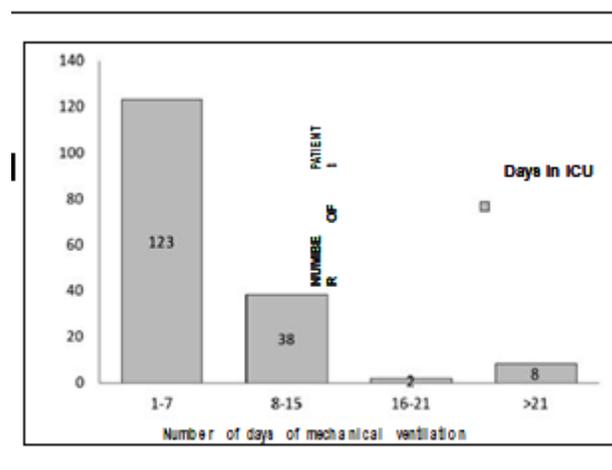


Figure 3: Duration of mechanical ventilation

DISCUSSION:

Operation harming is basic in the Pakistan situation. It establishes around 33% of all harming. In the current investigation, out of the 637 patients conceded with harming, 210 were found to have OP harming. Affirmation because of harming itself was not really normal thinking of it as comprised just 0.466% also, organophosphorus harming was 0.153% of all inpatients to medical clinic. The example was basically the equivalent consistently in all these three years. Information having a place with 177 patients could be utilized. Of the 177 patients, there were 15 youngsters. Incidental harming was the in all probability cause in more youthful kids, one of whom was of two years while mental obligation of youths couldn't be overlooked as 9 of them were youths. 91.5% of the patients conceded with OP harming were grown-ups, about half were between 30-60 years. A large portion of the patients (76.83%) were men in all age gatherings. This demonstrates that mental shakiness to the point of self-destructive

harming is most extreme among youthful men and men in beneficial age group. The subtleties of harming were not exceptionally clear taking all things together cases. In spite of the fact that the compound utilized was frequently known, the sum devoured was to a great extent obscure. There is a wide assortment of decisions for organophosphorus harming. Few patients wanted to blend it with liquor.

In writing survey obviousness, miosis, fasciculations and a low plasma cholinesterase level were observed to be of most prominent prescient incentive for respiratory disappointment. The present investigation did not give any huge factors to foresee respiratory disappointment. This was likely in light of the fact that most patients got treatment at essential (nearby) medicinal services focuses before being alluded to our tertiary consideration focus by which time, a large number of the traditional indications of OP were veiled.

The students were contracted just in 28 patients, widened in 94 patients while they were ambiguous in 55 patients. The discharges were over the top in 59 patients though less or negligible in 99 patients. This is on the grounds that our clinic is a tertiary referral focus and numerous patients have been dealt with somewhere else or there was progressing treatment with atropine before being alluded to us. The muscle control was lacking (Grade 0-2) in just 29 patients. It was Grade 3 out of 39 patients however the rest had Grade 4 or 5. In this way muscle shortcoming was not an overwhelming manifestation in most patients. In an investigation directed by Yamashita et al,¹¹ about ¾ of the seriously serum cholinesterase-discouraged cases required ventilators. Low cholinesterase levels (under half of ordinary) are said to be practically analytic of OP harming. In the present examination, no factual affiliation ($p>0.05$) utilizing Chi-square was found between cholinesterase level and the requirement for mechanical ventilation.

The pillar of treatment of organophosphorus harming incorporates gastric wash and atropine. Every one of our patients got a gastric wash, just 14 required tracheal intubation before gastric wash. So also practically all patients got atropine. Glycopyrrolate was utilized in < 25 % of patients (44/177). Glycopyrrolate is accounted for to cause less respiratory disease. In the present examination just 10 patients had desire pneumonia and none of the patients had clinic gained pneumonia.

There was wide variety in the utilization of pralidoxime. Both the portion and the recurrence of utilization fluctuated between doctors. While 72 patients (40%) did not get any pralidoxime, 2 patients got 750 mg, 5 patients got 500 mg, 77 patients (43%) got 1g, 2 got 1.5g and 19 patients got 2g. Directly, there is so much discussion in regards to its utilization and utility and may have been the explanation behind this wide variety. Few patients (28/177) were regulated initiated charcoal. Nonetheless, its utilization is likewise dubious.

The rate of respiratory entanglements was high among OP harming, one investigation by Du Toit PW et al¹² revealed that respiratory disappointment happened in 29.7% of the patients with OP harming. In the present investigation, in spite of the fact that the muscle tone appeared to be great on affirmation in numerous patients, about half (49.15%, $n=87$) of the patients required endotracheal intubation, larger part (81.6%) of whom additionally required mechanical ventilation. Hence, respiratory disappointment is a noteworthy confusion of OP harming. 33% of all patients created goal pneumonia though 3% created

clinic gained pneumonia. 15 patients (8%) required tracheostomy.

Luckily, moderate disorder was seen in just 4.5% of patients (8/177 patients), in past writing 205 was the rate reported.¹³ All these patients endure. Out of eight patients, six were intubated and ventilated. Other two did not experience any aviation route the board but rather were simply watched for further crumbling. These two had- a long ICU remain (15 days) and long remain at emergency clinic (63 days) and created yearning pneumonia. Among the patients who created middle of the road disorder, four patients devoured ethion compound, two patients expended phamidon, compound devoured by the staying two patients were obscure.

Frequency of mechanical ventilation and term of mechanical ventilation was reported in an investigation by Murat Sungur et al.¹⁴ Incidence of mechanical ventilation was 21.1%, length of mechanical ventilation 4.1 ± 3.2 days (mean \pm SD). In present examination, 106 patients (60%) did not require mechanical ventilation. Of the 71 (40%) patients who required mechanical ventilation, 54 patients (76.05%) required it for under 7 days. 14 patients (19.71%) required mechanical ventilation for over 10 days. This suggests half of all patients admitted to our clinic with organophosphorus harming would be relied upon to require mechanical ventilation however the greater part of them would require it for about seven days. Drawn out ventilation (> multi week) is relied upon to be seen in just around 1 out of 10 patients. Tracheostomy is commonly done in patients who are relied upon to require mechanical ventilation for over seven days. Patients conceded with organophosphorus harming would be relied upon to require tracheostomy just in about 20% of the people. This apparently was valid in our arrangement where 15/80 (18.75%) patients required tracheostomy.

Murat Sungur et al¹⁴ revealed ICU stay term of 5.2 ± 3.0 days. In the present examination, the term of ICU stay was somewhat longer than mechanical ventilation. No affiliation was found with ICU remain and survival ($p>0.05$) utilizing Chi Square. The vast majority of the patients had an ICU remain not exactly or equivalent to seven days ($n=129$). Of these cases, 96 patients endure (74.41%). None of the patients who had an ICU remain for over 7 days kicked the bucket ($n=48$). The length of clinic stay was significantly more, with 136 patients requiring as long as about fourteen days, 17 patients for 3 weeks and 24 patients requiring as long as about a month. This mirrors the staggering impact of

organophosphorus harming on body frameworks, essentially muscle control and that regardless of whether they don't require mechanical ventilation, release from emergency clinic requires some investment.

Death rate in the examination distributed by Murat Sungur et al¹⁴ demonstrated a mortality 27.6% and furthermore discovered that death rate in patients on ventilator was half, and not ventilated was 21.6%, Durham et al,¹⁵ Desilva et al,¹⁶ contemplates watched a mortality of 12 %, 16% separately. In the present investigation, larger part of patients (144/177, 81%) made due to medical clinic release. 33 patients (19%) did not endure, and death rate of patients on ventilator was 38%. The condition at affirmation was a significant factor. Two patients were conceded pulsless were revived and moved to ICU however kicked the bucket following two days. 14 patients had respiratory capture on confirmation. They were altogether revived however four of them created heart failure in this manner and kicked the bucket following four days. The staying ten patients made due with proceeded with consideration. Most patients gave a typical circulatory strain. Critical affiliation was found with systolic circulatory strain and survival, $p < 0.05$ utilizing autonomous t-test. Of the rest of the 27 patients who did not endure, heart failure was the significant reason for death. ICU remain in these patients was for a mean \pm SD of 3.48 \pm 2.16 days. No patients kicked the bucket because of nosocomial pneumonia. 22 (37.93%) out of 58 patients who created desire pneumonia as a complexity kicked the bucket. Huge affiliation was likewise found with penetrates in chest X-beam and survival utilizing free t-test, $p < 0.05$. No affiliation was found with age and survival, sex and survival, and in state of confirmation utilizing Chi-square.

CONCLUSION:

The recurrence of organophosphorus harming in patients admitted to Jinnah hospital, a tertiary care in lahore is 0.153%. The administration of OP harming in this clinic comprises of gastric wash and atropine. The utilization of pralidoxime, glycopyrrolate and initiated charcoal isn't uniform. Almost half (49.1%) of the patients require inclusion of fake aviation route and ventilation in OP harming, regularly for about seven days to ten days. Middle of the road disorder isn't normal. It is seen in just 4.5% of patients with OP harming. The term of ICU remain on a normal could be 7-10 days and emergency clinic stay 2-3 weeks. The length of ICU remain on a normal could be 7-10 days and emergency clinic stay 2-3 weeks. Clinical result relies upon the condition at affirmation. Larger part (almost 80%) patients of OP

harming admitted to this tertiary medical clinic get by to release.

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