Original Article

Frequency of Organophosphorus Poisoning in an Emergency Department of Tertiary Care Hospital in Peshawar

Muhammad Abas Khan[1], Sadaf Abdullah[1], Ruknud Din[2], Naveed Afridi[1] and Aizaz Ullah[1]

ABSTRACT

Objective: To define the, demographic distribution, frequency and results of organophosphorus poisoning cases in emergency department of Lady Reading Hospital, Peshawar.

Study Design: Descriptive cross-sectional study

Place and Duration of Study: This study was conducted at the Emergency Medicine Department, Lady reading hospital Peshawar from February 2024 to July 2024.

Methods: A descriptive cross-sectional study was directed over 6 months in the Emergency Department. This study enrolled 200 patients who were confirmed Organophosphorus poisoning. Data was composed on mode of poisoning, demographics, clinical outcomes and mortality.

Results: Out of 200 poisoning cases, 78patients (39 percent) were mainly due to organophosphorus compounds. Most of the patients were females that is 67.9%, with the greatest age group which was affected was between 18 to 30 years (56.4percent). The principal mode of poisoning was suicidal (intentional) ingestion (74.3 percent). The rate of mortality was 7.7 percent.

Conclusion: Organophosphorus poisoning is predominant in Peshawar, mostlyamongst young females with suicidal intention. There is acritical want for mental health policies and regulation and control of pesticides to decrease the load of Organophosphorus poisoning.

Key Words: Organophosphorus, Poisoning, Emergency Department

Citation of article: Khan MA, Abdullah S, Din R, Afridi N, Aizaz Ullah. Frequency of Organophosphorus Poisoning in an emergency department of Tertiary Care Hospital in Peshawar. Med Forum 2025;36(7):44-46. doi:10.60110/medforum.360709.

INTRODUCTION

In Pakistan organophosphorus (OP) products are extensively used pesticides for agriculture. Organophosphorus compounds are regularly used in both intentional and accidental cases of poisoning due to their low cost and easy availability. Internationally, pesticide poisoning is responsible for a projected 20 percent of suicides, with excessive cases from South Asia[1].

Organophosphorus poisoning accounts for a main public health problem in Pakistan, mainly in Khyber Pakhtunkhwa, because agricultural practices are most common here.

[1.] Department of Emergency Medicine / Nephrology Ward[2], Lady reading hospital Peshawar.

Correspondence: Dr. Sadaf Abdullah, Assistant Professor, Emergency Medicine Department, Lady Reading hospital Peshawar.
Contact No: 03339794301
Email: abdullahsadaf2@gmail.com

Received: March, 2025
Reviewed: April, 2025
Accepted: May, 2025

Earlier studies have revealed a growing tendency in self poisoning, with most common being organophosphorus agent[2]. The World Health Organization estimated that there are about 2 to 5 million cases of insecticide poisoning occur yearly, leading to an excess of 200,000 deaths internationally[3].

Various studies have stated different prevalence rates organophosphorus poisoning is various regions. A systemic review done in India and Nepal raised a significant concern about OP poising. The review has done analysis of 9 studies, comprising of 1469 participants and emphasized on effective management protocols[4]. Another study which is published in international journal of research in medical sciences emphasized the significance of appreciating the clinical profile of patients presenting with organophosphorus poisoning to increase management results[5]. The Peradeniya organophosphorus poisoning gage is recognized as a possible predictive marker for organophosphorus poisoning consequence. The association of physicians of India established that the scale can help foretell patient's outcome and guide management choices[6].

The purpose of this study is to assess the frequency, outcomes and demographic outlines of organophosphorus poisoning in patients who presents to the Department of emergency of Lady reading hospital (LRH), Peshawar.

Rationale

Regardless of the identified load of poisoning related to pesticides in Pakistan, local data pertaining to Peshawar is very rare. Our this study will

- Deliver local statistics on frequency of organophosphorus poisoning.
- Provide guidance to the hospitals to get prepared for cases of OP poisoning.
- Help to make preventive policies comprising mental health care.
- Help government in making policies for harmless pesticide usage and guidelines.

METHODS

This cross sectional study was conducted in emergency medical department of lady reading hospital Peshawar from February 2024 to July 2024.sample size was of 200 patients was calculated using who sample size calculator based on incidence of 15% organophosphorus poising in general population[7]. Confidence interval was kept95% with the precision of 5%. Data Collection was done using Organized forms to record Clinical features, Demographics (gender, age), poisoning mode (accidental, intentional, occupational) outcomes of organophosphorus poisoning (recovery, LAMA (left against medical advice), death,

Inclusion Criteria

Patients with confirmed organophosphorus poisoning history were included in the study. Patients of all genders aged equal to or more than 12 years and with Presentation of the patient within 24 hours to 48 hours of organophosphorus ingestion were included in the study.

Exclusion Criteria

- Patients presenting with mix poisoning (other materials added with organophosphorus).
- Patients reluctant to take part in the study.
- Long-lasting exposure without acute symptoms.

RESULTS

Out of 200 cases, 78poisoning cases (39percent) were due to organophosphorus poisoning.in these patients gender distribution was as following. Of the 78 case of the organophosphorus poisoning female patients were 53(67%). The number of male patients were 25(32.1%) table no 1.the age of the most patient with organophosphorus poisoning was between 18 to 30 years (56%) table no 2.and the most common mode of poisoning was suicidal (74.3%) followed by accidental 14(20.5%) and occupational 4(5.1%) table no 3. outcome was as such. Recovered cases were 65(83.3 percent). mortality 6(7.7%). Left against medical advice 7(9%) represented in graphic representation of overall outcome of the patients.

Table No 1: Gender distribution

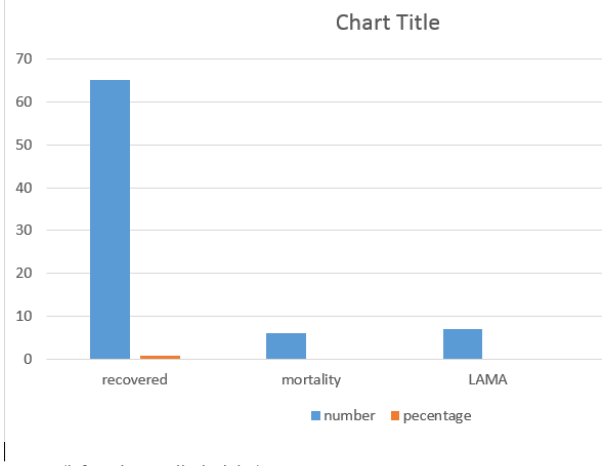
Gender	Number of cases	percentage
female	53	67.9%
male	25	32.1%

Table No 2: Age distribution

Age Group	Number	percentage
13–17 years	10	12.8%
18-30years	44	56.4%
31-50 years	18	23.1%
>50 years	6	7.7

Table No 3: Mode of Poisoning

Mode	Number	Percentage
Suicidal	58	74.3%
Accidental	16	20.5%
occupational	4	5.1%



LAMA (left against medical advice).

Figure No.1: Graph representation of overall outcome of the patients.

DISCUSSION

The study concludes that 39 percent cases of poisoning in Lady reading hospital are due to poisoning with organophosphorus compounds. This is similar to preceding research done in Pakistan, which reported frequencies with a range bettween30 percent to 50 percent[8, 9].

The frequency of females (67.9 percent) and young adults (56.4percent) suggests that poisoning with organophosphorus is repeatedly linked to psychosocial and domestic stressful situations, chiefly disputes after marriages, stress due to education, and shortage of mental health care, related with other nativestatistics[2,10]. So in our study the degree of poisoning was slightly high in females comparative to males. Conferring to a prospective research completed in India, poisoning was observed more in males with male to female ratio of 1.3:1[11]. Unhappiness and tension due to marital clashes can be the source of higher poisoning rate[12]. This is showing a dissimilarity between research done in Peshawar (Pakistan) and Bangalore (India).

Great number of the cases in our study included the persons amongst the ages of 18 to 30 years. Extreme number of cases 44 (56.4%) were amongst the age group 18-30 years. The results of our research study are comparable to the study done in allied hospital Faisalabad and Navi Mumbai where the rate of ingestion of poisoning was utmost amongst the age group 20 to 29 years[13, 14].

The 2nd age group that was involved in poisoning with organophosphorus compounds was the teenage group. It displayed up to 10 cases (12.8 percent) amongst age group 13 to 17 years.it is similar to the research done in Karachi[15]. The total death rate which is 7.7 percent is slightly lesser than specified in some South Asian research, probably reproducing improved critical care facilities but still displays a considerableburden[1].

Short Comings

There are plentiful causes as to why the study is inadequate. Most of the data was collected grounded on history taken from the attendants of the patients and the clinical examination of the patient. There was no laboratory investigation to confirm the poisoning with organophosphorus compounds. Besides this only one big hospital of the district was encompassed in our research which restricted the results to a small number of the total population.

Causative Elements

The main cause of organophosphorus poisoning is the easy availability of insecticides, lack of rules and laws for insecticide trades and inadequate readiness of psychiatric facilities in rural regions.

CONCLUSION

Poisoning due to organophosphorus compounds is still a very health load in Peshawar, upsetting mostly females of younger age with suicidal intentions. This study recommends Strict laws to be implemented forinsecticidetrades.it also recommends Community mental health programs for prevention of suicidal attempts.it also stresses the need for public awareness drives on safer insecticide usage and Strengthening of emergency management procedures in cases of poisoning with organophosphorus compounds.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Muhammad Abas Khan, Sadaf Abdullah
Drafting or Revising Critically:	Ruknud Din, Naveed Afridi, Aizaz Ullah
Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

Conflict of Interest: The study has no conflict of interest to declare by any author.

Source of Funding: None

Ethical Approval: No.86/LRH/MTI Dated 15.01.2024

REFERENCES

1. Das RK, et al. Epidemiology of acute pesticide poisoning in South Asia. Toxicol Int 2021; 28(2):83-90.
2. Khan MA, et al. Organophosphate poisoning: A cross sectional study in Khyber Pakhtunkhwa. Pak J Med Health Sci 2021; 15(2): 459-463.
3. Craven JS. Pesticides and World COVID-19 deaths. J Community Med Public Health Care 2022;9:103.
4. Alrawili, et al. Prevalence and management outcomes of organophosphorus poisoning in emergency departments: systemic review. Int J Med Developing Countries 2024;82:846-854.
5. Bhattad, et al. Clinical profile of patients with acute organophosphorus poisioning in atertiary care hospital. Int J Res Med Sci 2022;10(10): 2236-2239.
6. Gagarin Y, et al. Clinical profile and outcome of organophosphorus poisoning in a tertiary care center. A prospective observational study. Int J Med Res Review 2020;8(2) DOI: https:// doi. org/ 10. 17511/ijmrr.2020.i02.02
7. Imran S, Awan EA, Memon MIS, Memon A. Frequency and Outcomes of Organophosphate Poisoning at Tertiary Care Hospital in Nawabshah. J Liaquat uni Med Health Sci 2017;16(02):118-20.
8. Shah A, et al. Trends of poisoning in tertiary care hospital Peshawar. J Postgrad Med Inst 2020; 34(1):58-62.
9. Ahmed S, et al. Pattern of poisoning cases in a tertiary care hospital in Pakistan. Pak J Med Sci 2022;38(3):598-602.
10. World Health Organization. Suicide worldwide in 2022: Global health estimates. Geneva: WHO; 2022.
11. Mate VH, Dhande PP, Gonarkar SB, Pandit VA. A Prospective Observational Study on Pattern, Severity and Outcome of Different Poisoning Cases in a Tertiary Care Hospital, India. J Basic Clin Pharma 2017;8:154-7.
12. Abubakar S, Githa K, Kiran N. A study on pattern of poisoning cases in a tertiary care hospital, Bangalore. Ind J Pharma Practice 2014;7(1):13-7.
13. Ahmad E, Ashraf M, Ehsan S, et al. Frequency of Acute Poisoning Cases Presented to Allied Hospital Emergency during March, 2017 to February, 2018. APMC 2019; 13(4):292-5.
14. Patil A, Peddawad R, Verma VC, Gandhi H. Profile of acute poisoning cases treated in a tertiary care hospital: a Study in Navi Mumbai. Asia Pac J Med Toxicol 2014; 3(1):36-40.
15. Shahid M, Khan MM, Khan MS, Jamal Y, et al. Deliberate self-harm in the emergency department: Experience from Karachi, Pakistan. Crisis 2009; 30(2):85-9.