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Research Paper

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Spectrum of Organophosphorous Poisoning In A Tertiary Care Hospital

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ABSTRACT

Organophosphorous compounds are extensively used as insecticides in agriculture, and hence are easily available for poisoning. The type of organophosphorous compound causing poisoning depends on its availability. This is a descriptive study undertaken in a tertiary care centre to know the type of organophosphorous compound causing poisoning and the route of entry. Oral route was the most common portal of entry of the poison (82.8%). Parathion and Diazinon were the most common compounds of poisoning. Severity of poisoning depends on the amount, type of poisoning and the portal of entry. It is essential to take adequate measures to prevent this type of poisoning.

Introduction

Pesticide poisoning is very common in agricultural areas. . Hospital based studies from various parts of developing countries have shown that poisoning with organophosphorous compounds is the most common type of poisoning. Organophosphorous compounds are widely used today for a variety of purposes most commonly as insecticides. Not only are they powerful inhibitors of cholinesterase, but they may be directly cholinergic. They have also been used for treating myasthenia, glaucoma, dermal parasitosis, and the compound triortho-cresylphosphate is a valuable additive for petrol and some lubricants. As insecticides those compounds with relative low toxicity to man are chosen.

There are presently a large number of organophosphorous compounds available commercially. As insecticides majority of organophosphorous compounds have contributed to the increasing yield of agricultural products. Unfortunately they are also important cause of accidental or suicidal poisoning. The Clinical presentation depends on the specific organophosphorous compound (OP) consumed, the quantity absorbed, and the type of exposure. The current study was undertaken to know the type of organophosphorous compound consumed among the cases of poisoning and the portal of entry.

Methodology:

It is a descriptive study of 70 patients of OP poisoning admitted to casuality of a tertiary care hospital in central Karnataka. A thorough history was taken from the relatives and the attendants who brought the patient to the hospital and in mild cases History from patients, regarding the type, quantity ,route of entry of the poison , approximate time of poisoning, the duration between poisoning and hospital admission. Many relatives brought the poison container found at the location. The trade name of the poison along with the chemical nature as printed on the container of poison was noted in such cases.

Results:

The study includes 70 patients who consumed organophosphorous compound and admitted to the hospital. 60% of patients were males and 40% were females. Age of these patients ranged from 11 to 50yrs. Most of the patients (60%) were between 16-25yrs.and 34.28% were agriculturists.

Name of the poison consumed and the portal of entry was available for 65 cases where the container of the poison consumed was made available by patient's relatives, friends or attenders.

Portal of entry of the poison in to the body was oral in 58 (82.8%) cases and skin in 12 (17.15%)cases. In 12 patients the poisoning was through the skin by contact during spraying the organophosphorous insecticide to the agricultural field.

Severity of poisoning varied. Based on clinical features they were classified as mild 60%, moderate 24.29% and severe 15.71%.

Parathion (metacid, Folidol) and Diazinon (Tik-20) were found to be the commonly consumed organophosphorous compounds which were consumed by 27.14% and 25.71% persons respectively.

Of the 58 patients with oral route of entry of the poison, the amount of poison consumed was known by the history given by patients attendants or patient himself or by observing the amount of the poison left in the container in 53 patients. The quantity of poison consumed varied from less than 10 ml to more than 100ml. In 5 patients it was not possible to know the amount of poison consumed.

Table 1: Type and Nature of poison consumed and portal of entry.

SlNo	Chemicals and Trade name	Portal		Total	Percentage
		Skin	Oral		
01	Parathion (Metacid, Folidol)	4	15	19	27.14
02	Diazinon (Tik-20)	-	18	18	25.71
03	Monocrotophos (Nuvocron, Hilcron)	3	3	6	8.57
04	Endosulphon (Hildon)	1	4	5	7.17
05	Methylcarbomate (Tugon)	-	5	5	7.14
06	Penvil (Hilfen)	1	3	4	5.12
07	Guinolphos(Ekalax)	1	1	2	2.86
08	Endrine (Lindane)	-	2	2	2.86
09	Formothion (Ahthio)	1	-	1	1.43
10	Penthion (Dald, Labacio)	-	1	1	1.43
11	Thiomiton	1	-	1	1.43
12	Dimethoate (Roger)	-	1	1	1.43
13	Unknown	-	5	5	7.14
	Total	12	58	70	100.00

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Table 2 –amount of organophosphorous compound consumed.

Sl.No	Quantity	No.of Cases	Percentage
1.	0-10 ml	31	53.44
2.	11-50 ml	8	13.79
3.	51-100 ml	2	3.44
4.	101 ml and above	7	12.06
5.	½ pkt.	3	5.17
6.	1 Pkt	2	3.44
7.	Unknown	5	8.62
	Total	58	100.00

Discussion

Insecticides and pesticides like organophosphorous compounds are commonly used poisons owing to easy availability.

World Health Organization estimates that one million serious unintentional poisonings occur every year and an additional two million people are hospitalized for suicide attempts with pesticides.[1] Methyl parathion - also known as Metacid is the most commonly ingested OP pesticide. Though accidental poisoning can occur following exposure or inhalation, serious poisoning often follows suicidal ingestion.

Malathion and Diazinon were the commonest compounds causing poisoning in the present study in comparison with studies conducted at Nepal and Manipal where Methyl Parathion was the commonest compound of poisoning. Dimethoate was the commonest compound in other study.[2,3]

Methyl parathion was the most common (35.74%) poison followed by Diazinon (28.62%) chlorpyriphos in a study conducted by Banerje et al. Methyl Parathion was the most common poison in a study conducted at Chennai. A similar study in turkey showed dichorvos as the common poison consumed. The variation in type of poison consumed depends on the availability of the pesticide.

REFERENCE

1.Gunnell D, Eddleston M, Phillips MR, Konradsen F. The global distribution of fatal pesticide self-poisoning: Systematic review. BMC Public Health. 2007;7:357. [PMC free article] [PubMed] | | 2. Karki P, Hansdak SG, Bhandari S, Shukla A, Koirala S. A clinicoepidemiological study of organophosphorous poisoning at a rural based teaching hospital in East Nepal. Trop Doct 2001; 31(1): 32-4. | 3.Karalliedde L, Senanayake N. Acute organopshophorous poisoning in Srilanka. Forens Sci Inter 1988; 36: 97-100. | 4. Vikram P, Arun M , , Saralaya K M Singh Bhoopendra .Spectrum of Organophoshorous Poisoning in Manipal. Indmedica 2005; 5. (2) | | 5.Chataut J, Adhikari RK, Sinha NP, Marahatta, SB.Pattern of Organophosphorous Poisoning: A Retrospective Community Based study kathmandu university medical journal 2011 ;.9 (2)34;30-34 | 6.Banerjee I, Tripathi SK, Roy S . huClinico epidemiological characteristics of patients presenting with organophosphorous poisoning. N Am J Med 2012 ;Sci,4(3);147-150 |