IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 14, Issue 12 Ver. IX (Dec. 2015), PP 08-10
www.iosrjournals.org

Evaluation of Organophosphorus Poisoning Cases In A Rural Block of West Bengal

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Abstract : *Organophosphorus poisoning results from exposure to organophosphate (OP) which causes the inhibition of acetylcholinesterase, leading to the accumulation of acetylcholine. This nerve poisoning is a common problem in rural areas. The Present study was conducted to analyze the OP poisoning cases in a rural block, Sabang, Paschim Midnapur, West Bengal. Poisoning cases admitted from January 2014 to December 2014 were included the study. The socio demographic profile and outcome were studied*.
Keywords *- Organophosphorus poisoning, Rural block*

I. Introduction

Poisons are subtle and silent weapons which can be easily used without violence and often without arousing suspicion. At present date due to vast development in the field of life, like industries, medicines and agriculture; a significant amount of new compounds have appeared as new poisonous substances. Organophosphorus (OP) compound can produce significant pesticide related illness and death in developing countries including India[1]. According to WHO, three million acute poisoning cases 22,000 deaths occur in developing countries particularly among agricultural workers. This figure could be just the tip of the Iceberg, since most cases of poisoning actually go unreported specially, in the third world countries[2]. Acute Organophosphorus poisoning is a medical emergency and the patients are invariably admitted to the hospitals through emergency services. The poisoning may be suicidal, accidental or homicidal. Because the Organophosphorus compounds are readily available and relatively cheap and have a rapidly lethal action even in smaller doses, they are widely used as suicidal poison[1]. Present study aimed to analyze particularly the social factors and clinical outcomes of Organophosphorus poisoning cases in rural block of West Bengal.

II. Material And Methods

This study reviewed cases of acute OP poisoning those were admitted in Sabang Rural Hospital, Sabang, Paschim Midnapur from January 2014 to December 2014. Base line demographic profile i.e. age, sex, marital status education, occupation, seasonal variation and duration of hospital stay and outcome of poisoning cases were studied. Total 114 cases were included in this study.

III. Results And Tables

Table 1: Table showing the Socio-Demographic wise distribution of those affected by Organophosphorus poisoning. (n=114)

Age group (years)	Males (%)	Females (%)	No. of cases (%)
Up to 10	0	3 (02.63%)	3 (02.63%)
11 – 20	3 (2.63%)	23 (20.17%)	26 (22.8%)
21 – 30	20 (17.5%)	21 (18.42%)	41 (35.9%)
31 – 40	9 (7.89%)	11 (9.64%)	20 (17.5%)
41 – 50	1 (0.87%)	10 (8.77%)	11 (9.64%)
51 – 60	6 (5.26%)	3 (2.63%)	9 (7.89%)
Above 60	0	4 (3.50%)	4 (3.50%)
Marital Status			
Married	27 (23.68%)	47 (41.22%)	74 (64.91%)
Unmarried	12 (10.52%)	28 (24.56%)	40 (35.08%)
Educational level			
Up to class V	7 (6.14%)	28 (24.56%)	35 (30.70%)
Up to class X	30 (26.31%)	43 (37.71%)	73 (64.03%)
Above class X	2 (1.75%)	4 (3.50%)	6 (5.26%)

Table 2: Table showing the Occupation wise distribution of those affected by Organophosphorus poisoning. (n=114)

Status	No. of cases	Percentage
Farmer	30	26.31
House wife	69	60.52
Student	18	15.78
Business man	5	4.38
Govt. employee	2	1.75

Table 3: Table showing the Season wise distribution of those affected by Organophosphorus poisoning. (n=114)

Season	No. of cases	Percentage
Summer (Mar-May)	16	14.03
Rainy (June-Aug)	27	23.68
Spring (Sep-Nov)	25	21.92
Winter (Dec-Feb)	46	40.35

Table 4: Table showing the Duration of Hospital Stay & Death Wise Distribution of those affected by Organophosphorus poisoning. (n=114)

Days	No. of cases (%)	Death	
		No. of cases	Percentage
1-3	9 (7.89%)	2	2.63%
4-7	63 (55.26%)		
8-15	36 (31.57%)	1	
16-30	5 (4.38%)		
>30	1 (0.8%)		

IV. Conclusion

Organophosphorus poisoning is common in rural areas of West Bengal as our rural societies are agriculture based and Organophosphorus compounds are cheap and easily available. In our present study majority of patients (35.9 %) were in the age group 21 -30yrs similar to the study conducted by Karki P & Sahin HA et al[3,4]. These group of people are active and prone to various stress. Three cases were below 10years, out of which two were accidental poisoning. Male cases attempted suicide due to lack of employment, poverty, poor harvesting and other stress related factors. In female it is mainly social and marital disharmony in rural areas.

Both married and unmarried people were affected, married were more affected. This is due to early marriage, stress in family life and low family income in the rural areas. This study correlates well with the study conducted by Kora SA et al[1]. Our study revealed that less educated people were more prone to suicide by Organophosphorus poisoning. This is explained by the fact that the study was conducted in the rural areas and the education status of the people are poor in the rural areas. Our study showed that the victims were mainly farmers, housewives and students. In rural areas, majority of the people are involved in various types of agricultural activities. They are not economically strong and they suffer from mental stress in day to day life. Poor housewives suffered from excessive burden and disharmony in family life. Students are less stress tolerable.

This study revealed that the common seasons of OrganoPhosphorous poisoning were winter (40.35%) & Rainy seasons (23.68%) respectively. This conformed to the study conducted by Kora SA et al[1]. This is explained by the availability of Organophosphorus poisoning for cultivation and the accessibility to residual poison at home after harvesting. Our study showed hospital stay of majority of patients from admission to recovery was 4-7 days (55.26 %). This correlated with the findings of the study conducted by Karki P, Sahin HA & Siwach SB et al[3,4,5]. The mortality from Organophosphorus poisoning in our study was (2.63%), which was similar to the study Kora SA & Sahin HA et al[1,4]

It is evident that increasing number of young population are becoming the victims of Organophosphorus poisoning. It is essential to improve upon the legislation aspects on the availability of Organophosphorus compounds. Likewise it is prudent to straighten the preventive measure like educating people through drug awareness programme and promoting poison information centers. Upgradation of peripheral rural health care facilities with orientation programmes on management of poisoning cases will prevent any casualties & save more lives.

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