Research Paper Medical Science

Incidenceepidemiological Trends of in Poisoning Poisoning

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ABSTRACT

Hundreds of thousands of people are dying around the world each year from the effects of the use, or misuse, of pesticides. Poisoning represents large epidemic problem in the growth of developing countries in present era. One of the commonest mode of un-natural deaths all over the world are suicidal deaths and poisoning due to pesticide consumption remains the commonest, particularly in countries like India and Sri Lanka. Sri Lanka has one of the highest rates of suicide in the world (29 Per 100,000 population in 1980). There is no strong law and guidelines for the sale and storage of pesticides, which is so commonly used in the farms in Yavatmal district. The present study was conducted to evaluate the poison deaths in the Yavatmal region of Maharashtra. This study was conducted on the autopsy cases brought to the mortuary, Shri Vasantrao Naik Government Medical College, Yavatmal, Maharashtra. 2560 medico-legal autopsy were performed in the mortuary, Shri Vasantrao Naik Government Medical College, Yavatmal, during the period from 1stNovember 2010 to 31stOctober 2013. Out of these 826 cases were suspected to have died of poisoning thereby constituting 32.26% of total un-natural deaths. Maximum cases were from 3rddecade of life and males outnumbered females. Data thus collected was analyzed statically.

KEYWORDS Pesticide, suicide, poisoning.

Introduction

Every death represents a tragic waste of human life and resources, whether accidental, suicidal or homicidal. Death due to poisoning is no exception. It has increased gradually in the last 8-12 years in India. WHO estimated that the worldwide incidence of acute pesticide intoxication has doubled during 1970s-1980s1. As per WHO, three million cases of acute poisoning with 2,20,000 deaths occur annually worldwide particularly among agricultural workers. About 99% of these deaths occur in developing countries. This figure could be just the tip of the iceberg since most cases of poisoning actually go unreported, especially in third world countries (Gupta et al)2.

Pesticides are chemical compounds that are used to kill pests, including insects, rodents, fungi and unwanted plants (weeds). Pesticides are used in public health to kill vectors of disease, such as mosquitoes, and in agriculture, to kill pests that damage crops. The increase in poisoning incidence can be blamed to the rapid in the field of science and technology and vast growth in the industrial and agricultural areas. A number of chemical substances, which were developed to save the agricultural products from rodents and various pests, so as to protect the human beings from starvation, are in fact themselves becoming man – eater. Vector-borne diseases and those with intermediate hosts are among the major causes of illness and death in many tropical and subtropical countries. Such diseases, which include malaria, , dengue, leishmaniasis, lymphatic filariasis , significantly impede economic and social development. A key to control these vectors is pesticides.

Maharashtra is a known for paddy, sugar cane and wheat crops. But Yavatmal is a district of cotton also known as cotton district in Maharashtra and Organophosphorus compound pesticides are most commonly used. Also Organophosphorus compounds are widely used for insecticidal purpose, particularly in this Malwa belt, where cotton is a major crop(Gorea et al)3

Acute, deliberate self-poisoning with agricultural pesticides is a global public health problem but reliable estimates of the incidence are lacking. . Exposure to pesticides is usually suicidal due to easy availability. When suicidal, it is termed as deliberate self-harm (DSH), and results in a higher mortality than when accidental.

Ingestion of poison is a most common medical emergency in Shri Vasantrao Naik Govt. Medical College, Yavatmal. In this study the incidence of fatal poisonings in last three is demonstrated.

Material and Methods

This study consisted of 826 autopsy cases brought to the morgue of ShriVasantraoNaik Govt. Medical College, Yavatmal, during the period from 1stNovember 2010 to 31stOctober 2013. Total 2560 medicolegal autopsy were performed during this period. The data was collected regarding age-sex and marital status from the police inquest and from the relatives of deceased. All the data thus collected was analysed.

Results

2560 medicolegal autopsy were performed in the morgue of Shri Vasantrao Naik Govt. Medical College, Yavatmal, during the period from 1stNovember 2010 to 31stOctober 2013. Out of these 826 cases were suspected to have died from poisoning there by constituting 32.26% of total deaths.

In our study 35.95% of total cases belongs to age group of 3rd decade followed by 18.64% to the 4th decade, 16.10% to the 5th decade, 15.25% cases in 2nd decade and 0.84% cases in the first decade of life. 66.95% of total cases were males and 33.05% were females. 32.54% of the males and 42.85% of females victims were in the age group of 3rd decade.

In the present study shows that 69.85% cases were married in comparison with 30.15% cases which were un-married out which the males (69.25%) and female (71.06%) were married.

Discussion

During this study 2560 medicolegal autopsy were performed in the morgue of Shri Vasantrao Naik Govt. Medical College, Yavatmal, during the period from 1stNovember 2010 to 31stOctober 2013. Out of these 826 cases were suspected to have died from poisoning there by constituting 32.26% of total deaths. A study conducted by Dalal et al4 showed the percentage of poisoning cases to be 17.8% in 1994. It is no different from medicolegal deaths observed in same area during 1997-2001.5 this depict the In current study, more number of poisoning are due to socioeconomical reasons like monsoon-dependent cultivation practice, agriculture-based economy, crop failures, exorbitant rates of interest and indebtedness to private usuries, financial crisis, increased work and labour pressure which lead to constant anxiety coupled with an easy availability of insecticidal poisons, as it is purchased and kept at forms and houses for use . The male : female ratio was 2:1. The finding were consistent with the study conducted by Jain et al5 in which the incidence of male victims was 69%. The study conducted by Behera et al 6 showed ratio of male –female victims was 2.7:1 consistent with the present study. Many other studies also showed similar trends like Singh et al8 – 2.7:1, Sharma and Bhullar7 – 3:1 and Mohanty et al9 – 2.9:1 as the ratio of male : female victims. The present study concurrence with other studies i.e Dash et al9 found that 40.5% of cases belongs to 3rd decade, 21.6% in 4th decade, 20.9% in the 2nd decade. Similar trend was observed by Gupta and Vaghela9 which showed that 43.1% cases in the 3rd decade of life. The incidence of poisoning is decreasing on either sides reaching minimum incidence in the extremes of ages. This showed that most of victims were the most productive age groups leading to loss of family income.

70 % of victims were married which is in consistent with the study conducted by Gupta et al2 in which 74.8% victims were married. A similar trends was also observed by Dhattarwal and Dalal11 which showed that 66.6% victims were married.

Conclusion

Poisoning accounts for 32.26% of total deaths i.e major cause of death in rural India Males outnumbered females with ratio being 2.0:1. Most of the victims (35.95%) belongs to 3rd decade with minimum incidence in the extremes of the age i.e loss of earning member to family. Yavatmal region of Maharashtra is therefore defamed for farmer suicide zone.

Recommendations:

Incidence of poisoning can be easily prevented by community based strategies. New policies need to be introduced and evaluated at regular interval.

A legal measure has to be made more stringent on account of control of sales, distribution and storage. Financial crises socially in agricultural can be reduce by proper harvesting planning, technical expertise and loan facility at lowest interest rate as possible.

Social efforts like developing satisfactory interpersonal relationship through proper counseling can check the high incidence of poisoning in young and married population by the way of effectively tackling the social, marital and psychological problems. Involvement of NGO's and voluntary organization should be enforced for community development.

By bringing changes in framing practice – Integrated pest management and plant biotechnology.
Direct restrictions of pesticide use – by pesticide restriction programmes.

Medical efforts: Poison information centers should be set up along with first aid facilities and manpower provisions at PHC level, as immediate treatment can help in saving the lives in many cases.

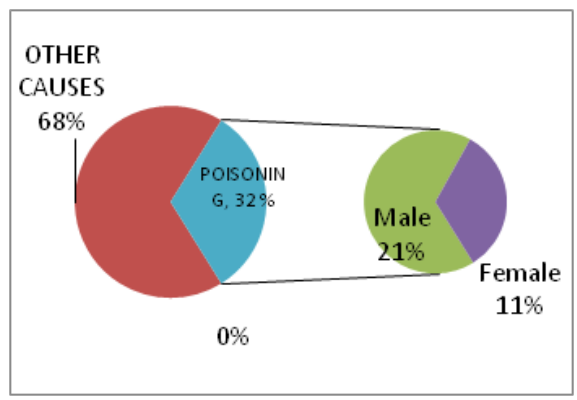

Figure 1 : Representation of poisoning (study victims) as cause of death to total death victims and related sex proportion

Table 1 : Age & sex wise distribution of study victims

Age in decades	Male		Female		Total
	No. of cases	%	No. of cases	%	
1st decade	4	0.72	3	1.09	7
2nd decade	70	12.65	56	20.5	126
3rd decade	180	32.54	117	42.8	297
4th decade	79	14.28	75	27.4	154
5th decade	122	22.06	11	4.02	133
6th decade	21	3.79	11	4.02	32
7th decade	63	11.39	0	0	63
8th decade	14	2.53	0	0	14
Total	553	100	273	100	826

Table 2 : Marital status of study victims

Marital status	sex				Total
	male		female		
	No of cases	%	No of cases	%	
Married	383	69.25	194	71.05	577 (69.8 %)
Un-married	170	30.75	79	28.95	249 (30.1%)
Total	553	100	273	100	826 (100 %)

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