Original Research Paper

Trend of Male Poisoning at North Karnataka from 2008-2013

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Abstract

Acute poisoning is an imperative medical emergency moreover one of the leading causes of death. It affects uniformly all countries, religions, communities moreover all ages and income groups. The aim of the study was to find the commonest age group among male victims and choice of poisoning in North Karnataka. This study was accomplished at KLE University's J. N. Medical College, Poison Detection Center, Belgaum, North Karnataka, during the period of 29 September 2008 to 28 February 2013. Total 682 cases of poisoning were registered in our study period. All the poisoning cases were screened and investigated. The commonest age group affected among males was between 21 to 30 years. This study serves as pilot project for more detailed retrospective and prospective studies in the future. Organophosphorus compounds were the most generally abused essence.

Key Words: Bromodilone, Male, North Karnataka, Organophosphorus, Poisoning

Introduction:

Every day approximately 700 deaths have been reported due to poisoning around the world. [1, 2] Incidence of poisoning, as reported is 13-fold higher in developing countries than in highly industrialized nation.

According to WHO (1999) more than three million poisoning cases have been reported out of which 251,881 deaths occur worldwide annually, of which, 99% of fatal poisoning occur in developing countries, predominantly among farmers due to various kinds of poisons, including poisonous toxins from natural products handled. [3]

The cause, pattern, results of poisoning in particular community depend on a variety of factors such as easy availability of particular poison, the sophistication of the populace, the stress of environment and the quality of medical care. [2] In South East Asia pesticide ingestion is endemic [4] whereas in Pakistan, urban population is mostly exposed to house hold chemicals. [5]

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Pesticides were manufactured for the protection of crops from pests but now the days they are one of the most important tool of poisoning and causing significant morbidity and mortality. Although plenty of data is available regarding the pattern of poisoning in India, there is few information regarding common age group of male and profile of poisoning especially from northern Karnataka.

An information about the magnitude of poisoning cases not only help in early diagnosis and treatment but also can help in evaluating old and introducing improved preventive measures. Considering the background, the present study aimed to analyze the common age group of male involved and choice of poisoning.

Material and Methods:

This study was carried out from 29 September 2008 to 28 February 2013. During this period total 682 cases of poisoning were registered in Poison Detection Center, Forensic Medicine & Toxicology, J.N. Medical College, and KLE's Dr. Prabhakar Kore Hospital & MRC, Belgaum, Karnataka, India.

All poisoning cases were screened by color test & thin layer chromatography and further confirmed by UV Spectrophotometer as well as enzymatic analysis.

The various agents involved in poisoning cases were categorized under the heading of pesticides, drugs, alcohol & others.

Pesticides mainly comprised of Organophosphorus compound, Bromodilone, Pyrethyroid and other. Drugs encompassed mainly were sedative/ antidepressant. Alcohol cases were mostly due to consumption of

ethanol and phenol usually in combination with primary compound. Indigenously designed data collection forms were used to obtain data including the demographic origin of patients, age and gender as well as poison involved.

Result:

During the year 2008-2013, total 682 cases of acute poisoning were recorded among which 363 cases were males. The majority of the poisoning cases were in the age group of 21-30 years. (Table 1)

In our study majority cases of poisoning was due to pesticide, among which 68% cases were due to Organophosphorus compound, followed by 20.69% drugs mainly sedative and few cases of alcohol poisoning. (Table 2)

Discussion:

According to the WHO, every year along with three million acute poisoning cases 2,20,000 deaths has been registered. [3]

Majority of fatal poisoning cases has been registered from developing countries. We conducted this study to know the pattern of poisoning in male subjects at Belgaum region during the study period i.e. from 29 September 2008 to 28 February 2013. In this study we, observed that out of 368 cases 270 (73.36%) cases of poisoning were due to pesticides followed by drugs (54) and alcoholic compounds (39). In that 221 were solely due to Organophosphorus compound followed by Bromodilone, which itself is quite big in number.

Like other studies [6-8] this study also reveals the similar trend that pesticides are predominating over the other poisons. This may be due to green revolution and industrialization; they are used as household items of the agriculturists. [9]

Mortality rate due to poisoning is increasing every year in developing countries. Many studies reported the mortality rate between 11- 34%. Other studies also reported more than double male mortality rate compare to female mortality. [1, 6-8, 10-12]

This male predominance also indicates that males are more exposed to stress associated with occupational hazards, liability and competition which not only increases the mental stress but also has deleterious effect on physical health as well.

When it becomes difficult to overcome from stress, subjects go under depression. Sometimes takes wrong steps like suicide by consuming poison. Maximum poisoning cases (37.5%) had been reported in this study were basically from young age group(21-30 years) followed by 20.65% in age group 31-40 years. Other studies also reported the similar pattern. [8, 10, 11, 13-15] This can be explained on the basis that age group of 21-30 years are most experimental in life. At this particular period of life, the youngsters are keen to take risk and have high expectation from life which sometimes doesn't fulfill their requirements. This leads them into depression.

The majority of the poisoning cases were in the age group of 21-30 years. The medical drugs involved as poisoning tools are benzodiazepine, diazepam and Paracetamol. Use of insecticide (Organophosphorus) as one of the commonest tool of poisoning and in age group 21-30years, are the striking feature of this study. Every year approximately 1000,000 population died due to poisoning only. [16]

Compare to other unnatural death like RTA injuries, burns, snake bite and assaults, this itself is quite big number. [17] The figures collected from other unnatural causes of mortality showed positive or negative variation but death rate due to poisoning is increasing every year. Mortality due to poisoning is one of the leading problems of developing countries.

According to WHO; every year 99% of fatal poisoning out of 251,881 occur in developing countries. [2] The country like India, where insecticides/ pesticides are easy available and accessible due to agricultural economy could be the strong reason of its use as poisoning tool. In the North Karnataka, use of Organophosphorus as pesticide in agricultural field is very common practice and may be the reason of common poisoning tool also.

In Jawaharlal Nehru Medical College and KLE's Dr. P. K. Hospital and MRC, where study was undertaken has well established Poison Detection Center which not only helps in identification and treatment of poison but also provide the information on poisoning. It is one of the well-established and qualified tertiary care hospitals in this zone of Karnataka, but highly possibility is that most of the poisoning cases might not registered here.

Hence, this study may not represent the true epidemiology of poisoning cases in this part of Karnataka but it definitely indicates the poisoning problem in this zone. These data also reflect the success and failure of much government or Non-government organization (NGO) intervention on poisoning. In country like India, efforts from government and private sector have been made but still not sufficient.

Poisoning is a preventable and we can reduce the death rate due to poisoning. We have to develop effective preventable strategies and should keep keen observation on their

applications. In north Karnataka pesticide poisoning is the commonest problem which can be reduced by mass awareness, strict control on its use, sales and storages and legislation.

Government and private sector combindly can establish Poison Information Centers (PIC) especially on poison prone zones.

These Poison Information Centers will provide identification of unknown poisoning, general information and guidance for treatment of such cases. Development of interpersonal relationship through proper counseling can also reduce the mortality due to poisoning drastically. All these strategies and efforts may increase some economical load on government but it will save plenty of valuable life.

Limitation of Study:

Number of patients in this study is very small nevertheless it may be taken as an initial step to conduct more studies about the comparative role of acute Organophosphorus poisoning in male.

Conclusion:

This study provides update information on epidemiology of acute poisoning among Male populace in north Karnataka, India.

Organophosphorus, followed by antidepressant drug (Benzodiazepine) was commonest cause of mortality in our study. Most important in the management in order to have a good outcome is rapid transport to hospital, early diagnosis and complete atropinization.

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Table 2: Types & Patterns of Poisoning

Type of Poison	Pattern of poisoning		Cases	Total
Pesticide	Organophosphorus		221	270
	Bromodilone		22	
	Pyrethyroid		14	
	Carbamates		13	
Drugs	Sedatives	Diazepam	17	54
		Benzodiazepine	33	
	Paracetamol		04	
Alcohol	Phenol		15	39
	Ethanol		24	
Poisonous herb	Dhatura		05	05
Grand Total				368

Table 1
Frequency and Causative Agent in Poisoning Cases

Age grps (Yrs)	Frequency	Insecticide	Sedatives	Drug Paracetamol	Bromodilone	Alcoholic group	Dhatura
0-10	12	08	02	01	---	01	---
11-20	70	50	07	01	05	05	02
21-30	138	95	18	01	11	13	---
31-40	76	49	10	---	06	10	01
41-50	30	16	07	---	----	05	02
51-60	28	22	02	01	----	03	---
61-70	10	07	01	---	----	02	---
71-80	04	01	03	----	---	---	---
Total	368	248	50	04	22	39	05