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A profile of poisoning cases attending to Pondicherry Institute of Medical Sciences, Puducherry

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ABSTRACT

Introduction: Poisons are regarded as the silent weapons which can be easily used without arousing suspicion and without violence. Over the counter availability of poisons, knowledge regarding the fatality of poisons among the population, stress of the environment, and the quality of emergency medical care are the variety of factors which lead to poisoning in a community.

Aim: The ami is to study the distribution of the sociodemographic factors of agricultural poisoning cases admitted to Pondicherry Institute of Medical Sciences, Puducherry.

Methodology: A prospective study conducted at Pondicherry Institute of Medical Sciences, Pondicherry, from July 2013 to July 2016 and included 122 cases of poisoning.

Results: Of the 122 cases of poisoning cases, 82.78% were due to acts of suicidal poisoning, which constitute the major problem in poisoning. Organophosphate pesticide contributed for 68.85% cases of poisoning. Financial burden is responsible for suicidal poisoning in 73% of cases. Psychiatric illness contributed for poisoning in 11.5% of cases.

Key words: Accident, epidemiological factors, outcome, poison, suicide

INTRODUCTION

In the modern era, poisoning from occupational, accidental, and intentional exposure is a major developing world health problem. For victims of pesticide, recovery is not easy. For pesticide industry, it is business as usual. For medical practitioners, treating poisoning cases are just another source of income. Meanwhile, the government chooses to turn a blind eye to the issue, preferring to blame the victims for their ignorance and negligence in wrongly handling the pesticides. Over the counter availability of pesticides, knowledge regarding the fatality of pesticides among the population, stress of the environment, illiteracy, and lack of emergency medical care is some of the factors which expose a community to the hazards of poisoning.[1] Globally estimated there were 220,000 pesticide-related deaths every year worldwide, most of which were suicides.[2] 3,00,000 people die out, of which 99% are from Southeast Asia countries. In India, 6,00,000 people are exposed and 60,000 die every year due to pesticide poisoning.[3,4] The National Crime Report Bureau of India reports that 17,366 farmers committed suicide by pesticide poisoning in 2007 amounting to one suicide every 30 minutes. According to the National Crime Records Bureau (NCRB, 2012), every day, there are 81 deaths in India due to poisoning and 32.30% suicide victims consumed poison, of which insecticide comprised 16.1%.[5] In light of the above statistics, the current study is designed to study the trends of poisoning cases attending to Pondicherry Institute of Medical Sciences, Puducherry, with particular reference to various epidemiological parameters. An attempt is also made to put forward certain remedial suggestions to counteract the menace.

MATERIALS AND METHODS

The current prospective study was conducted at Pondicherry Institute of Medical Sciences, Pondicherry, from July 2013 to July 2016 and included 122 cases admitted with poisoning. The Institutional Ethics Committee clearance and consent from either subjects/their close kith and kin were obtained. Detailed case history, personal history, circumstances as to poisoning, treatment history, and outcome were obtained. All the data thus obtained are tabulated in pre-tested pr oforma, and the analysis was done using appropriate statistical methods.

OBSERVATIONS AND DISCUSSION

Age-wise distribution of cases: It is observed in the current study [Table 1] that, of 122 cases that are analyzed during the study period, most of subjects affected by the poisoning belong to the age group of 21–40 years amounting to about 62% of the cases followed by the age group of 11–20 years amounting to about 15% of the cases. People belonging to extremes of age are comparatively least affected. The probable reasons for this variability is easy availability of poisons, increased occupational exposure, economic issues, family disturbances, love failure

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and socio-demographic influences etc are quite common in younger and middle age group people when compared to people at extremes of age. Similar findings are noticed in the studies conducted by Sharma *et al.*[6] and Singh *et al.*[7]

Sex-wise distribution of cases [Table 2]: It is evident from Table 2 that males are commonly indulged in poisoning when compared to females amounting to 72% of the total cases. Male-to-female ratio observed in the current study is 2.5:1. This finding can be attributed to the fact that male dominance in occupations and other activities as cited under the age distribution is undisputable in the Indian subcontinent, and hence, a higher incidence of poisoning in males is quite justified. Exact findings were presented in a study conducted by Sharma *et al.*[6] Kanchan and Meninges[7,8] and contrary is presented by Mohammad Abdollahi.[9]

Distribution of cases as to poison consumed: It is indicated from Table 3 that the most common poison involved is organophosphate irrespective of sex amounting to 69% of cases followed by snake bite in 8% of cases, some or the form of tablets in 6.55% of cases. When data are analyzed gender wise, both male and female subjects are exposed to organophosphate poisoning as evident in 84 cases. As for as tablet poisoning, poisoning by alkali substances, female subjects slightly overnumbered male subjects. The predominance of organophosphates (OP) poisoning can be easily explained as India is an agricultural country, and OP compounds are commonly used pesticides naturally it forms chief compound for ` due to easy availability, financial difficulties faced by the farmers and agricultural laborer, and low cost for the compounds make them ideal compounds for suicidal poisoning comparatively apart from occupational exposure. Many similar studies produce similar findings.[9-12]

Distribution of cases as per manner of death: It is implied from the Table 4 that irrespective of gender, most of cases attended out institute for management are suicidal in nature as seen in 101 cases amounting to 82.79%, while accidental poisoning was reported in only 18% of cases. No cases are reported as to homicidal poisoning. Similar results were observed in many studies conducted elsewhere.[13,14]

Poisoning and pre-existing psychiatric illness: It is an established fact that person with severe psychiatric illness will have suicidal tendencies, and for which, poisoning is one of the most common way of commission. When cases are analyzed in these lines, it is evident from Table 5 that only 14 cases amounting 11.48% had psychiatric illness. It can be concluded that psychiatric illness forms an important predisposing factor for suicidal poisoning and hence should be identified early in the community and to managed effectively. A study conducted by Merrill and Owens[15] presented similar opinion.

Distribution of suicide cases as to cause for poisoning: Table 6 indicates various causes for suicidal poisoning in the community as observed in our study. It can be emphasized that financial worries are the prime causes for suicidal poisoning amounting

Table 1: Age-wise distribution of cases

Age group (years)	Number of cases *n* (%)
1–10	3 (2.46)
11–20	18 (14.75)
21–30	58 (47.54)
31–40	19 (15.57)
41–50	14 (11.48)
51–60	8 (6.56)
<60	2 (1.64)
Total	122 (100.00)

Table 2: Gender-wise distribution of cases

Gender	Number of cases *n* (%)
Male	88 (72.13)
Female	34 (27.87)
Total	122 (100.00)

Table 3: Distribution of cases as per poisoning

Type of poison	*n* (%)		
	Male	Female	Total
OP	63 (75.00)	21 (25.00)	84 (68.85)
Snake bite	9 (90.00)	1 (10.00)	10 (8.2)
Scorpion sting	5 (71.43)	2 (28.57)	7 (5.74)
Acid substances	2 (50.00)	2 (50.00)	4 (3.28)
Alkali substances	0 (0.00)	1 (100.00)	1 (1.22)
Tablets	3 (37.50)	5 (62.50)	8 (6.55)
spirit	1 (50.00)	1 (50.00)	2 (1.63)
Glass pieces	1 (50.00)	1 (50.00)	2 (1.63)
Alcohol	3 (100.00)	0 (0.00)	3 (2.45)
Unknown poison	1 (100.00)	0 (0.00)	1 (1.22)
Total	88 (72.13)	34 (27.87)	122 (100)

OP: Organophosphates

Table 4: Distribution of cases as to manner of death

Type of death	Male (%)	Female (%)
Accidental	17 (19.32)	4 (11.76)
Suicidal	71 (80.68)	30 (88.24)
Total	88 (100.00)	34 (100.00)

Table 5: Distribution of cases as to presence of psychiatric illnesses

History of psychiatric illness	Number of cases *n* (%)
Psychiatric illness present	14 (11.48)
Psychiatric illness absent	108 (88.52)
Total	122 (100.00)

Table 6: Distribution of suicidal poisoning cases as to cause of intake of poison

Cause for intake of poison	Male (%)	Female (%)	Total (%)
Financial	61 (85.92)	12 (40.00)	73 (72.28)
Love failure	1 (1.41)	3 (10.00)	4 (3.96)
Illegal contacts	4 (5.63)	5 (16.67)	9 (8.91)
Study problems	4 (5.63)	6 (20.00)	10 (9.90)
Psychological problems	1 (1.41)	4 (13.33)	5 (4.95)
Total	71 (100)	30 (100)	101 (100.00)

Table 7: Distribution of cases as to fatality

Type of poison	Male	Fatal outcome (%)	Female	Fatal outcome (%)
Organophosphate	63	18 (28.57)	21	4 (19.05)
Snake bite	9	6 (66.67)	1	0 (0.00)
Scorpion sting	5	0 (0.00)	2	0 (0.00)
Acid substances	2	1 (50.00)	2	0 (0.00)
Alkali substances	0	0 (0.00)	1	0 (0.00)
Aluminum phosphide	3	0 (0.00)	5	0 (0.00)
spirit	1	0 (0.00)	1	0 (0.00)
Glass pieces	1	0 (0.00)	1	0 (0.00)
Alcohol	3	1 (33.33)	0	0 (0.00)
Unknown poison	1	1 (100.00)	0	0 (0.00)
Total	88	27 (30.68)	34	4 (11.76)

to 60% of cases. The other noteworthy issues are a failure in studies and exposure of extramarital contacts. Appropriate intervention in the form of psychiatric counseling, teaching of financial planning in schools and colleges, and proper education will reduce the cases of suicidal poisoning. Similar findings were noticed in the studies conducted by other authors.[16-18]

Distribution of cases as to fatal outcome: It can be observed from Table 7 that a total of 61 cases included in this study had a fatal outcome amounting to 50% of cases, of which females died comparatively more than males amounting to 55.73% of total deaths. It is evident that deaths are quite common with organophosphate compounds in both sexes. However, males died more of snake bite and scorpion stings, while females died more in number due to aluminum phosphide tablets intake. The same findings were reflected in studies conducted in other parts of the globe.[19-21]

CONCLUSION

It is observed from our retrospective data and when compared with the current data that there is a rising trend in the number of poisoning cases as well varieties of poisoning cases attending to our institute. However, the factors provoking for poisonings such as socioeconomic status, frustration, family conflict, job problem, easy availability of the pesticides, drugs, and easy approachable placement of household still remain unchanged.

It expected to have a stringent surveillance as to sale and access of chemicals/medicines to the children at home and other public areas. It is also expected to have strict rules to be implemented as to selling of pesticides and psychotropic medicines to the public. Over counter sale of pesticides and medicines without prescription of registered physician or chemist/agricultural scientist is to be banned, and this ban is expected to be implemented strictly. All household harmful chemicals and medicines should be placed in a place that is not accessible to the children and psychiatrically ill persons. Poor people in our country usually in winter season live/sleep in a poorly ventilated room with burning firewood inside and often get poisoned with carbon monoxide inhalation. Proper precautions are to be taken while going out to fields in during night so as to escape scorpion stings and snake bites. Students from high school level should be taught as how to render first aid to the cases sustained with animal bites, stings, and snake bites.

There should be a wide propaganda regarding the function, addresses, and importance of poison control centers to the hospitals from primary care level to tertiary care levels so that any new variety of poisonings will be managed effectively by the guidance of said centers. Making availability of doctors, trained paramedical technicians, antidotes, and advanced resuscitation equipment will certainly bring down mortality and morbidity related to poisonings. All surviving poisoning cases are to be provided for the access of psychiatrist before being discharged from hospitals for early rehabilitation and prevention of further attempts of suicide by them.

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