

AN ANALYSIS OF ACUTE FATAL POISONING CASES COMING TO MORTUARY OF BPKIHS, DHARAN

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ABSTRACT

Acute poisoning is the major cause of suicide and public health problem all over the world. Since morbidity and mortality due to poisoning has been found higher in our region too, it was aimed to explore trends of poisoning with its medicolegal aspects in our setup. 149 fatal cases of acute poisoning sent for postmortem examination in BPKIHS Mortuary from March 14, 2010 to 2011 were prospectively studied. The detailed information was collected from: the inquest report and other relevant papers; interview with the police, relatives, neighbors and autopsy findings. Detail descriptive statistics was used. Majority victims were males belonging to 15-24 yrs age group. Maximum (29.5%) had primary level education and nearly half of the victims (49.7%) were unemployed. More than two third (69%) were married and housewives. Most of the victims (34.2%) consumed poison in late evening (8-11 pm) at home. Organophosphorous compounds (87.2%) were the commonest poison used. Majority (87.2%) of cases were suicidal, socioeconomic (48.32%) being the commonest cause. Suicidal note was absent in maximum cases (95.3%). 93% died in their first attempt. Acute fatal poisoning consuming organophosphorus compounds is commonest in young adult males. Youth employment and proper counseling for stressful situations seems necessary to reduce these fatalities.

Keywords: acute poisoning, organophosphorus, suicide

Though the law does not define in definite terms what a poison really is, but for a working definition we may state that a poison is a substance which, when introduced into or applied to the body, is capable of injuring health or destroying life. It may therefore be swallowed, applied to the skin, injected into the tissues, or introduced into any orifice of the body.¹ Poisonous compounds for

various domestic and agriculture purposes (e.g. drugs, pesticides, insecticides etc.) are being misused so commonly due to easy availability that maximum cases of poisoning can be seen almost every day all round the year in casualty.

Poisoning is the major cause of suicide all over the world and being a public health problem worldwide, is one of the most common reasons for attendance at hospital emergency department. In Nepal too, poisoning is second commonly adopted mode of suicide due to depression, family disputes, illiteracy, and unemployment. Apart from this, accidental poisoning is also quite common.

As there is great number of morbidity and mortality due to poisoning in this region, this study was very much required, so that it would be helpful in overall reduction of such cases. Knowledge of multiple factors associated with fatal poisoning is important to both emergency physicians and public health practitioners in local setup because the pattern of poisoning varies from country to country and over time, sometimes even rapidly. Our study was aimed to explore the different causes of poisoning in our setup and its medico-legal nature. In addition it attempted to study the different types of poisons being consumed in this region. The expected, regional data on poisoning would be very helpful in planning rational use of resources for the prevention and management of poisoning and in targeting research.

MATERIALS AND METHODS

This prospective study conducted at B. P. Koirala Institute of Health Sciences, Dharan from March 14, 2010 to March 13, 2011, investigated 149 fatal cases of acute poisoning brought to mortuary.

All the dead bodies with a definite history of acute poisoning referred for the medico legal examination were included in our study. Cases with doubtful

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Table 1: Age and sex of the victims

Age range (Years)	Sex		Total
	Female	Male	
0-14	4 (66.7%)	2 (33.3%)	6 (100.0%)
15-24	26 (47.3%)	29 (52.7%)	55 (100.0%)
25-44	24 (55.8%)	19 (44.2%)	43 (100.0%)
45-64	15 (39.5%)	23 (60.5%)	38 (100.0%)
65 and above	3 (42.9%)	4 (57.1%)	7 (100.0%)
Total	72 (48.3%)	77 (51.7%)	149 (100.0%)

Table 2: Educational status of the victims

Education of victim	Frequency	Percent
Bachelor	2	1.3
Higher secondary	32	21.5
Illiterate	41	27.5
Intermediate	24	16.1
Primary	44	29.5
Secondary	6	4.0
Total	149	100.0

Table 3: Personal income of the victims

Income (thousands)	Frequency	Percent
Ten	02	1.3
Eleven	08	5.4
Twelve	03	2.0
Four	10	6.7
Five	14	9.4
Six	16	10.7
Seven	14	9.4
Eight	05	3.4
Nine	03	2.0
Nil	74	49.7
Total	149	100.0

history of poisoning and/or chronic poisoning were excluded. The detailed information about the cases was collected from different sources including: the inquest report and other relevant papers brought by the police along with the dead body in fatal cases; interviewing the police personal accompanying the dead body; interviewing the relatives, neighbors, friends or other persons accompanying the dead body; and autopsy examination findings. The details pertaining to each case were filled in proforma (questionnaire). All collected data were entered in the Microsoft Excel Work Sheet and was analyzed using descriptive statistics in SPSS 10.0 version.

RESULTS

Altogether 465 cases were autopsied during the study period out of which the acute poisoning fatality cases were 149 which is 32% of total cases. Hence we can say that poisoning make one of the most common reason for unnatural deaths in this region.

In the casualty altogether 861 cases of poisoning visited out of which 149 died. Hence the overall mortality came to be 17.3% in case of poisoning which suggest that in poisoning, mortality is very high.

DISCUSSION

Our study was aimed to explore the different causes of poisoning in our setup and its medico-legal nature. In our study, more than half victims were males with maximum victims^{5, 6, 8, 13} (37%) belonging to age group 15-24 yrs. However; Kafley² and Prasad³ found female preponderance. About three fourth of victims were aged between 15-44 years^{2, 5-9, 13}. However, victims above 65 years and below 14 years have equal prevalence (4%). Thus males and females both are poisoning victims at a younger age. Preponderance of young adult and adult can be due to the fact that this is the age when people face different challenges of life and stress to cope up the expectations of life and sociological and psychological problems causes them to commit poisoning victims.

Table 4: Marital status of the victims

Marital status	Sex		Total
	Female	Male	
Widower	2 (2.8%)	7 (9.1%)	9 (6.0%)
Widow	2 (2.8%)	0	2 (1.3%)
Unmarried	11 (15.3%)	23 (29.9%)	34 (22.8%)
Married	56 (77.8%)	47 (61.0%)	103 (69.1%)
Divorced	1 (1.4%)	0	1 (0.7%)
Total	72 (100.0%)	(100.0%)	149 (100.0%)

Table 5: Occupation of victims

Occupation of victim	Sex		Total
	Female	Male	
Business	2 (2.8%)	7 (9.1%)	9 (6.0%)
Farmer	6 (8.3%)	16 (20.8%)	22 (14.8%)
Housewife	41 (56.9%)	0 (0%)	41 (27.5%)
Job	0 (0%)	1 (1.3%)	1 (0.7%)
Laborer	7 (9.7%)	28 (36.4%)	35 (23.5%)
Retired army/ job	1 (1.4%)	4 (5.2%)	5 (3.4%)
Student	15 (20.8%)	21 (27.3%)	36 (24.2%)
Total	72 (100.0%)	77 (100.0%)	149 (100.0%)

Our study found maximum (29.5%) victims were those educated up to primary level, closely followed by illiterate (27.5%) and the lowest being educated up to graduate and above (1.3%). Similar studies done by Mukerjee²⁰ revealed that illiterates comprised 24.6% of total number of suicides whereas literates, though below matriculate, comprised 57.1% of the total suiciders. About 83% of poisoning victims were either illiterate or went only up to high school so it can be correlated that education has a negative effect of poison consumption. Among females more than half the

victims were housewife (56.9%) and among males were laborers (36.4%) followed by students (27.3%) and farmers (20.8%). This is in accordance of study by Dash⁶ and Singh⁵ where house wife and students are mostly the victims. Due to sociological and familial pressure from husband and family, house wife constituted the largest group to consume poison. Student's number consuming poison is also

Table 6: Family type of victims

Family type	Frequency	Percent
Joint	58	38.9
Nuclear	64	43.0
Single	27	18.1
Total	149	100.0

Table 7: Time of incidence

Time of incidence	Frequency	Percentage
12-3 am	26	17.4%
4-7 am	20	13.4%
8-11 am	14	9.4
12-3 pm	15	10.1%
4-7 pm	23	15.4%
8-11 pm	51	34.2%
Total	149	100%

Table 8: Place of incidence

Place of incidence	Frequency	Percent
Indoor	121	81.2
Outdoor	28	18.8
Total	149	100.0

alarming and this may be due to pressure of study, failure in study and even failure in relationship and love due to tender age.

More than 2/3rd of the total victims of poisoning were married with female preponderance⁶. It may be due to increase socioeconomic and physical burden after marriage especially after birth of children. The Police Research Bureau (1980) of India

Table 9: Condition of victims when brought to hospital

Condition of victim	Frequency	Percent
Alive	15	10.1
Dead	89	59.7
Unconscious	45	30.2
Total	149	100.0

showed that amongst 76 suicide cases, 43 were married and 33 were unmarried. Pradhan supported our findings reporting three fourth of suicide victim belonging to nuclear family¹⁷. It indicates that the burden of the family was solely on one person and there was no one else to share the responsibility/problems. Contrary to our findings of time of incidence being maximally at late evening (8-11 pm), Rao²¹ reported it between 4 pm to 8 pm. The place of incidence in more than 3/4th of cases

Table 10: Nature of poisoning

Nature of poisoning	Frequency	Percent
Accidental	4	2.7
Suicidal	130	87.2
Unknown	15	10.1
Total	149	100.0

Table 12: Suicide note present or not

Suicidal note	Frequency	Percent
Absent	142	95.3
Present	07	4.7
Total	149	100.0

was indoor²². Majority of the victims did not leave any suicide note perhaps due to the fact that they were illiterate or poorly literate.

Overwhelming majority of cases was suicidal^{4-7, 13}. Due to easy availability and the thinking that poisoning will be less painful; poisoning is one of the commonest methods of suicide. However, Theodore Vougiouklakis⁸ and Qian L⁹ findings were contrary to ours. Socioeconomic status was the commonest

Table 13: Previous attempt of suicide

Previous attempt of suicide	Frequency	Percent
Four time	01	0.7
First attempt	121	93.0
Once	8	6.1
Total	130	100.0

cause^{23, 24} for suicide (48.32%) followed by psychological (36.24%). Among the socioeconomic cause, poverty and family quarrel were the commonest. Among the psychological chronic alcoholism (12.8%) and depression (12.1%) were commonest cause. It may be due to the political riots, unlimited strikes going on in the country during that period.

Table 14: Duration of survival

Duration of survival	Frequency	Percent
> 7 days	6	4.0
1-7 days	13	8.7
Spot	89	59.7
Within 24 hours	41	27.5
Total	149	100.0

Table 11: Causes of poisoning

Cause of poisoning		Frequency	Percent
Accidental	Accidental	4	2.7
	Affair of husband	4	2.7
	Business loss	1	0.7
	Family quarrel	26	17.4
Socioeconomic	Job termination	1	0.7
	Poverty	27	18.1
	Raped	2	1.3
	Torture by husband & family	11	7.4
	Unemployment	5	3.4
	Excessive alcohol intake	19	12.8
	Depression	18	12.1
	Failure in exam	3	2.0
Psychological	Loneliness	5	3.4
	Loss of relative	1	0.7
	Failure in love	4	2.7
	Psychological	4	2.7
Physical	Chronic disease	4	2.7
Unknown	Unknown	10	6.7
Total		149	

Table 15: Source of poison

Source of poison	Frequency	Percent
Home	62	41.6
Market	56	37.6
Unknown	31	20.8
Total	149	100.0

Contrarily Paudyal BP¹⁵ & Dash⁵ in their studies found that the duration of survival was very less in majority of cases. In majority of cases, poison was present at home. Hence it can be presumed that the presence of poison at home due to agriculture use could be the reason of intake of poison even for a very petty stressful reason. In overwhelming majority of cases (87.2%), organophosphorous compounds^{3, 4, 7, 11, 12, 14-16} were used as poison followed by aluminium phosphide⁶ and yellow oleander. Since Nepal is agriculture based country, organophosphorous compounds are easily available in almost each house so it becomes poison of choice for maximum number of victims. Acute fatal poisoning consuming organophosphorus compounds is most common in young adult males. Youth employment and proper counseling to counteract the stressful situations seems necessary to reduce

Table 16: Types of poison

Type of poisons	Frequency	Percent
Aluminum phosphide	02	1.3
Oleander	01	0.7
Organophosphorous compound	130	87.2
Unknown	16	10.7
Total	149	100.0

these fatalities. In addition, some policy has to be made to control the easy availability of the poison in the society.

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