ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 68 . 16
PubMed - National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 5, Issue –4, August - 2020, Page No. : 106 - 112

To study the clinical profile of the deliberate self poisoning in tertiary care setting, IGMC Shimla

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Citation this Article: Dr Susheel Thakur, Dr Parmod Kumar Jaret, Dr Vivek Kaushal, "To study the clinical profile of the deliberate self poisoning in tertiary care setting, IGMC Shimla", IJMSIR- August - 2020, Vol – 5, Issue - 4, P. No. 106 – 112.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: Profile of deliberate self poisoning in an area depends upon a variety of factors, ranging from access to and availability of poison, socio-economic status of the individual, cultural and religious influences, etc.

Methods: The study was a cross sectional observational study which was conducted in department of Medicine, Indira Gandhi Medical College, Shimla over a period of one year starting from 1st July, 2018 to 30th June, 2019.

Results: In our study, 130(97%) patients reported with oral ingestion of substance for deliberate self poisoning. Only 4(3%) patients were admitted with use of parenteral route for poisoning namely heroin or cocaine.

Conclusion: In this observational study conducted in tertiary health care setting, Maximum number of patients were in the age group of 20-29 years (mean 33.2 years), with male to female ratio of 1.27:1. The most common agents of poisoning included organophosphates (32.8%), followed by Paraquat (11.2%).

Keywords: Poisoning, Organophosphates, Profile.

Introduction

WHO defines Suicide as an "act of deliberately killing oneself"[1].According to latest WHO report (2018) on mental health approximately 800000 people die due to suicide every year. Suicide is the second leading cause of death among 15–29-year olds. Seventy nine percent of global suicides occur in low and middle-income countries. Ingestion of poisoning, hanging and firearms are among the most common methods of suicide globally[2].

Methods of suicide are diverse throughout the world. The method used for suicide has also been cited as important to determining risk among particular subgroups of individuals. Poisoning is defined as unfavourable complication caused by the use of drugs, chemical substances and other materials. The nature of poisoning is classified into accidental, non-accidental, deliberate self-poisoning, which may be covered under section 304-A (IPC). Deliberate Self-Poisoning (DSP) is one of the most common methods of suicide and is widely spread all over the world[3] Deliberate self poisoning cases are increasing because of tension and

worry in today's fast life especially in developing countries, DSP has become an important health problem.

Profile of deliberate self poisoning in an area depends upon a variety of factors, ranging from access to and availability of poison, socio-economic status of the individual, cultural and religious influences, etc. Deliberate self poisonings form a major problem in developing countries, though the type of poison and the associated morbidity and mortality varies from one place to another and it may change over a period of time .Easy availability and low cost of hazardous chemicals play a major role in suicidal, homicidal and accidental poisonings in developing countries. In developed countries, the rate of mortality from poisoning is very low, varies only from 1 to 2 per cent but in developing countries like India, it is significant, varies between 15 to 30 per cent and is the fourth most common cause of mortality especially in rural India[4]. In North India, aluminium phosphide (ALP) and organophosphate poisonings (OPP) are common agents used for deliberate self poisoning[8]. These substances are widely used to control pests and insects and have become major contributors of deaths due to poisoning.

Material And Methods

Study Design: The study was a cross sectional observational study which was conducted in department of Medicine, Indira Gandhi Medical College, Shimla over a period of one year starting from 1st July, 2018 to 30th June, 2019.

Study Population: The study included all consecutive patients admitted with alleged history of self poisoning in the Department of Medicine, IGMC, Shimla.

Inclusion Criteria

1. Patients hospitalised with deliberate self poisoning in casualty.
2. Patients aged > 18 years
3. Those who consented to participate in the study.

Exclusion Criteria

1. Patients in whom deliberate self poisoning is not the presenting complaint
2. Patients not willing to give consent.

Methodology

- All the patients who presented to emergency with complaint of deliberate self poisoning during the study period and satisfy the inclusion criteria were included in the study.
- A written informed consent was taken from all participants. A detailed history with duration of symptoms was taken and recorded as per the case recording format. All patients were subjected to detailed clinical examination and relevant laboratory investigations as per Proforma.
- In case if patient was not able to give consent because of intoxicated state or unconsciousness then the subject was included in study only if guardian or responsible attendant gave consent.

Statistical Analysis

Data collected was entered in excel sheet and accuracy of data entered was checked. Categorical variables were expressed as frequencies and percentages. It was done using latest available version of Epi Info.

Observations

The present study entitled “Clinical profile of deliberate self poisoning in tertiary care setting- A hospital based cross sectional study” was conducted in Department of Medicine, Indira Gandhi Medical College Shimla (HP) over a period of one year.

During this period 134 cases of poisoning were studied who were admitted in General Medicine wards. Detailed history taken and thorough examination,

investigation and follow up of all the patients was done in accordance of proforma enclosed.

Table 1: Age and sex distribution of subjects

Age Group	Male	Female	Total	Percentage
10-19	02	01	03	2.2%
20-29	33	26	59	44%
30-39	19	17	36	26.9%
40-49	12	9	21	15.7%
50-59	5	3	8	6%
>60	4	3	7	5.2%
Total	75 (56%)	59(44%)	134	100%

The age of study population ranged from 18 to 78 years with mean age of 33.27 years. Out of total 134 cases of Poisoning, 75 subjects (56%) were male and 59 subjects (44%) were female, with the male to female ratio was 1.27:1 Most of the patients were in the age group of 20 to 29 years 59 (44%), followed by the patients in the age group of 30 to 39 years 36 (26.9%) and only 3patients(2.2%) belonged to age group below 20 years.

Table 2: Distribution of patients according to locality

		Male	Female	Total
Areas.	Urban	16(53.3%)	14(46.66%)	30(22.3%)
	Rural	59(56.73%)	45(43.26%)	104(77.6%)

104 patients (77.61%) belonged to rural setting and 30(22.38%) belonged to urban setting.

Table 3: Agents of poisoning

Agent of Poisoning	Number	Percentage
Organophosphorous	44	32.8%
Paraquat	15	11.2%
Zinc/Aluminium phosphide	12	9%
Herbicides	11	8.2%
Pyrethroids	7	5.2%
Organophosphorous &Pyrethroids	7	5.2%
Overdose of commonly used over the counter medication	5	3.7%
Carbamates	3	2.2%
Anticoagulant	3	2.2%
Organochloride	2	1.5%
Substance Abuse/ Recreational Drugs	2	1.5%

Others	23	17.2%
Total	134	100%

Table 4: Route of exposure

Route of exposure	Number	Percentage
Oral	130	97%
Injection	4	3%

In our study, 130(97%) patients reported with oral ingestion of substance for deliberate self poisoning. Only 4(3%) patients were admitted with use of parenteral route for poisoning namely heroin or cocaine.

Table 5: Setting of poisoning

Setting of poisoning	Number	Percentage
Home/Household	52	38.8%
Outside	82	61.2%

52 (38.8%) of all poisonings occurred at home or within household and 82 (61.2%) occurred outside home.

Table 6: Cause of poisoning

Cause of Poisoning	Male	Female	Total
Family feud	17	40	57
Poverty Unemployment	30	3	33
Love And Emotional Problems	4	11	15
Substance/Drug Abuse	11	1	12
Others	8	2	10
Extra Marital Affairs	3	1	4
Mental Disorder	2	1	3

Nearly half 57 patients(42.5%) of the poisoning cases resulted due to family feud,33 patients (24.6%)of poisoning cases were due to poverty and unemployment. In 15patients(11.2%) of poisoning cases the circumstances pointed towards love and emotional problems. 29 patients(21.7%)of deliberate self poisoning were due to some other causes like substance or drug abuse, extra marital affairs, mental disorders and others/unknown. It was interesting to note the gender variation in the underlying motive for deliberate self poisoning that family feud was most common reason among females, whereas poverty and unemployment was major factor among males.

Table 7: Addiction history

Addiction history	Number	Percentage
Yes	6	4.5
No	128	95.5

Table 8: Psychiatric illness history

Psychiatric illness	Number	Percentage
Yes	18	13.4%
No	116	86.6%

In the current study, 6(4.5%) patients had a positive history of addiction and 18(13.4%) of patients had history of psychiatric illness. None of the patients had a history of a previous suicide attempt.

Discussion

In our study there were 75 males (56%) and 59 females (44%). In study by Ahuja H[5] et al in tertiary level ICU setting of Northern India, a total of 67 patients were admitted with acute poisoning and majority were males (n=46, 69%).In a study by M. Shoaib Zaheer[6] et al a total of 104 patients were enrolled in the study with 62 males (59.6%) and 42 females (40.4%) which is in accordance with our study. Similarly in a study by Hossain AKMM[7,8,] et al, poisoning of male (64%) predominated over female (36%).

The present study indicates that there were more number of male poisoning cases compared to females and our findings are similar with the other studies carried out by Kumar[9] et al. (2010) there were more male patients than females, with 52.15% (n = 1161) and 47.84% (n = 1,065) male and female, respectively.

In a study by Dhattarwal SK et al [10], males were more vulnerable to deaths from poisonings than females, with several studies reporting twice as many deaths in them. This trend is reflective of the greater stress and strain, occupational hazards and the better accessibility of poisons to them, as mentioned in 'Essential of Forensic Medicine and Toxicology by Reddy KS[11] .

The most patients were in the age group of 20 to 29 years old (44%), followed by the patients in the 30 to 39 years old age group (26.9%) and the patients in the age group below 19 years were the lowest in number (2.2%).

In a study by Gururaj G[12] in 2004 in Bangalore it was observed that most of cases were in age group of 16 to 29 years 50.55% followed by 30 to 39 years age group with 24.16% of cases followed by 40 to 49 years with 14.49% cases. Similarly in a study by Patel JD[13] et al, in 130 cases majority of victims fall in 21-30 years (44.44%) and in a study by Sandhu SS[14] et al there were 61 (46.56%) patients between age group of 21 to 30 years which is in accordance to our study.

The majority of our patients belonged to the age group of 20-40 years, which is the most active and yet the most vulnerable to stressors like examination failure, unemployment, marital problems etc [15].

The most common agents of poisoning included: organophosphates 44 (32.8%), paraquat 15 (11.2%), zinc phosphide and aluminium phosphide 12(9%), herbicide 11(8.2%) and pyrethroids 7(5.2%). Use of the organophosphorus compounds is more in rural

areas that urban because of their utility as insecticides, pesticides and fungicides to protect the crops[16].

Sandhu SS[17] et al found that organophosphate poisoning affected greater number of cases i.e. 27.48% followed by Aluminium Phosphide 6.1%. A number of non-fatal cases were recorded in persons handling fruits sprayed with an organic phosphorus insecticide.

Mittal N[18] et al (2013) in a prospective study which included 102 patients of poisoning observed that the major types of poisonings included organophosphorus compounds (16.3%), aluminium phosphide (12%), drug overdose (10.8%) and corrosives (6%).

Conclusion

In this observational study conducted in tertiary health care setting, Maximum number of patients were in the age group of 20-29 years (mean

33.2 years), with male to female ratio of 1.27:1. The most common agents of poisoning included organophosphates (32.8%), followed by Paraquat (11.2%). In majority of cases, the route of exposure to poison was oral. Nearly half (42.5%) of the poisoning cases resulted from family quarrels, whereas 24.6% cases were due to poverty and unemployment. In the current study, 6(4.5%) had a positive history of addiction and 18(13.4%) patients had history of psychiatric illness.

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