Assessment of Pattern of Suicidal, Accidental and Homicidal Cases Along with the Sort of Poisoning in North Indian Population

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Abstract

Introduction: This study aims at determining the mode of suicidal, accidental and homicidal cases along with the sort of poisoning in north Indian population in relation to age, gender, profession, marital status, upshot of diverse cases of poisons and prerequisite of ventilatory support in dissimilar kind of poisonings.

Materials and Methods: The study includes patients who had been earlier exposed to the to poison either by domestic or farming pesticide, snakebite, toxic plants, stings, manufacturing pollutant, drugs or varied stuffs. The status of patients undergone through poisoning regardless of age, gender, sort as well as method of poisoning, constituent of poisons were recorded in a proforma as prescribed by WHO guidelines .**Results:** Poisoning was more during summer season was found to be having the majority of cases which comprised 35.0% of the total recorded incidents. Household and agricultural agents comprising of the 55.2% of the total were followed by bites and stings comprising 26.2% were allied with a large amount of poisoning**. Conclusion:** The prototype of poisoning in the current study is no exception with the patterns observed in most of the other associated studies, preponderance of fatalities comprised male and toxins used for agriculture affairs.

Keywords: *Poisoning, Suicidal, Accidental, Homicidal, Victims, Deaths*

Introduction

Suicidal deaths are counted approx a million each year whereas approx 3,70,000 deaths are reported due to conscious ingestion of pesticides every year. According to WHO, in the year 2012 an estimated count of 1,93,460 people died globally due to inadvertent poisoning. A total of 84% of these deaths happened in low-and middle-income nations. In the same year, an unintentional poisoning was reported causing the demise of more than 10.7 million years of vigorous life.[1] unfortunately the incidence of poisoning in India is rated highest in the world. Toxic exposure is considered to be one of the major causes of deaths. The count of deaths is estimated to be 50,000 each year from such incidence. Household agents were considered to be the major causes for such unfortunate events by National Poisons Information Centre, New Delhi. The total percentage of accidents arising from such incidents is reported to be 44.1% which is followed by incidents emerging from drugs 18.8% .Occurrences from agricultural pesticides mounts up to 12.8% followed by industrial chemicals with 8.9% . Animal bites and stings have a total percentage 4.7%. Plants, unknown factors and miscellaneous groups have lower percentages ranging 1.7%, 2.9% and 5.6% respectively.

In non-communicable diseases, poisoning is a major epidemic in the present era. The numbers of demises occurring from poisoning are so high that they are counted next only to the deaths arising from road traffic accident. Earlier , deaths from poisoning resulting from the consumption of pesticides were largely inadvertent

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.However, later on trouble-free accessibility, small price range, and unobstructed transactions led to an swell in suicidal and dangerous cases as well.[2] Three million cases of poisoning worldwide every year has been estimated by World Health Organization (WHO). Developing nations are of great concern in this regard as 99% of such cases have been reported in these countries.[3] Diverse geographical conditions, varied demography and differences in religious and cultural practices mark dissimilar cases in India and the frequency and mold of poisoning differ from one place to another. Therefore, it is enviable to carry out provincial studies sporadically to distinguish the level and fruition of the crisis. Aluminum Phosphate (ALP) and Organophosphate Poisonings (OP) are extensively used in western India to control vermin and insect and have turned out to be foremost providers of deaths resulting from poisoning.[4,5] Snake bite in addition is a frequent medical crisis faced by rustic inhabitants. Early identification, cure and preclusion are vital in reducing the load of poisoning associated wound in any nation. Studies concerning to the epidemiology of poisoning have been done in very meager number in north India as compared to western part of the country. This study aims at determining the mode of suicidal, accidental and homicidal cases along with the sort of poisoning in north Indian population in relation to age, gender, profession, marital status, upshot of diverse cases of poisons and prerequisite of ventilatory support in dissimilar kind of poisonings.

As per the latest census in 2011, the entire populace of Pune, a city in state of Maharashtra in India, was 9.4 million establishing it the 4th most densely inhabited district in India. The city accommodates numerous industrial vicinity which offers effortless convenience to huge number of compounds and pesticides which in turn upshots into remarkable use of these agents for poisoning. The agricultural diversity of Pune has another aspect of happenings as it brings forth tremendous use of pesticides for determined self-harm and accidental revelation along with amplification in animal bites and stings.

Materials and Method

The total period devoted to the study was three years. The study includes patients who had been earlier exposed to the to poison either by domestic or farming pesticide, snakebite, toxic plants, stings, manufacturing pollutant, drugs or varied stuffs. The status of patients undergone through poisoning regardless of age, gender, sort as well as method of poisoning, constituent of poisons were recorded in a proforma as prescribed by WHO guidelines .The patients up to the 6 miles west of the middle town are served by the emergency department. Data collection was executed in accordance with the hospital guidelines after appropriate endorsement by the hospital establishment. The set for the study was the emergency department of an inner city level-one trauma center with just about 85,000 visits per year.

Cross sectional study was made and deployed utilization of exposition removal of data from evidence offered at the public and private teaching hospitals correspondingly. The entire poisoning cases obtainable in the medical record section were incorporated in the work. Data compilation was made in Predefined manners. Chi Square test was conducted to establish the connection between the variables. $P<0.05$ was deployed to settle on importance.

Results

In the entire period of the study, a total of 1050 cases were assessed over a length of 3 years. Exclusions made in the study were marital status and professional background. The reasons behind the exclusions were inappropriateness and unavailability of data in many cases. Else, the gender, reason of poisoning, age, poisoning route, seasonal deviations and agents implicated in poisoning is in accordance with the records presented. A total of thirteen cases were accounted dead on admission.

As compared to women, the preponderance of fatalities was of men comprising 66.1% of the total (table No.1). The majority of victims were married.

Table 1.Age and gender wise allocation of poisoning cases

Age Group (years)	Male (%)	Female (%)	Total (%)
<10	72(6.85)	42(4)	114(10.85)
11-20	110(10.47)	78(7.42)	188(17.90)
21-30	195(18.57)	65(6.19)	260(24.76)
31-40	148(14.9)	58(5.52)	206(19.61)
41-50	90(8.57)	51(4.85)	141(13.42)
51-60	50(4.76)	35(3.33)	85(8.09)
>61	30(2.85)	26(2.47)	56(5.33)
Total	695(66.19)	355(33.80)	1050(100)

Poisoning was more during summer season was found to be having the majority of cases which comprised 35.0% of the total recorded incidents. Household and agricultural agents comprising of the 55.2% of the total were followed by bites and stings comprising 26.2% were allied with a large amount of poisoning .Table 2 need attention in this regard--

Table 2: Characteristics of Poisoning Cases Reviewed

Characteristics	Frequency	Proportion (%)
Sex		
Male	695	66.19
Female	355	33.80
Reason for poisoning		
Intentional	558	53.1
Accidental	456	43.4
Unknown	36	3.4
Route of Poisoning		
Ingestion	725	69.1
Injection	2	0.1
Inhalational	44	4.1
Bite/Sting	278	26.4
Eye	1	0.2
Season of Poisoning		
Summer	368	35.0
Monsoon	340	32.3
Winter	342	32.5
Agent Involved		
Household and Agricultural products	580	55.2
Animal Bites and Stings	276	26.2
Drugs	115	10.9
Plants and Miscellaneous	42	4
Unspecified	37	3.5

Discussion

The reason behind the elevated frequency of poisoning in the age group of 20-35 years might possibly be due to the familial, educational and service related strain. Moreover, the trouble-free accessibility of domestic agents in this manner clarifies the prevalence. Familial aggression, poignant standing of adolescent girls and their defenselessness to strain and anxiety for the duration of puberty is the cause for amplified feminine cases in age group of 13-19 yrs. Swift amplification in gratitude by farmers and collapse to repay due to the reason of ordinary catastrophe like draught could be the motive at the back of the augment in poisoning in times of summer period.[6,7] Being an agriculture nation, handling of pesticides in country like India is a customary ritual by farmers and their family associates.

Unfortunately self poisoning is a very old method of attempting suicide. There are various incidents accessible from diverse sections of the globe bestowing prominence to a variety of stuff maltreated for heightened poisoning. Western nations have soporific and numbing as major and frequent material mistreated, with transience variable changeable between 0.4% and 2.0%.[8,9] crop sprays and drugs have been reported as the frequently maltreated toxic materials in central Asian countries like Sri Lanka and Pakistan. Uganda, in African countries illustrate crop sprays and drugs with known transience rates ranging between 2.0% to 2.1%.[10,11] The anguish in any case of heightened poisoning relies on an amount of reasons like character of poison used, dosage frenzied, stage of obtainable medical amenities and the period of hiatus amid consumption of poison along with period of time taken to come to the hospital, etc.

The outcome of the work exemplifies that a sum of 1050 patients were taken into the admission at hospital due to heightened poisoning. 186 patients comprising the ratio of 8.3% of the total admitted patients reported dead because of poisoning. The conclusion of the current wok is in accord with a variety of reports from developed and emerging nations, which divulge a extensive hike in transience and morbidity happening because of poisoning.[12-15]

The outcomes of the work discovered an elevated prevalence of poisoning in male victims in comparison to the female patients in all age groups, substantiating added studies.[12-14] There are conclusions drawn from some other nations where the female ration has a predominance.[15,16] The greater part of such occurrences in male victims was from the age group of 21–30 years .The male prevalence seems to be the reason for major revelation to job-related vulnerability and strain as measured up with females in this part of the globe. Mortality resulting from organophosphates was maximum as per the present study which was very much alike to the study performed in South India. Aluminiumphosphide is experienced as the foremost reason of poisoning in South India. An amplified trending use of alcohol along with a toxic material for self harm was found, escalating the danger of aspiration, coma and respiratory breakdown leading to death. The possible reason for the maximum exposure during 6pm– 12 am might be the constant pondering over the problems in evening and in the night when victims had enough time after the routine tasks which ultimately resulted in harming themselves.

Conclusion

The prototype of poisoning in the current study is no exception with the patterns observed in most of the other associated studies, Preponderance of fatalities comprised male and toxins used for agriculture affairs. Some effectual steps to decrease the rate of poisoning and improvise the results may be as follows:

1) Poison information centers could of great use in this regard. However, there are certain such centers, which are operative in some places. This practice should be brought to a great level by making them prepared in every public hospital and government teaching hospitals.

2) Anti-dotes must be readily accessible in the primary health center.

3) Storages should be kept in good control in the houses of the farmers to prevent any unwanted situation arising from poison intake.

4) Lay persons should be made skilled by proper training on how to deal with poisonous substances.

The study was performed with hindsight by gathering the data from medical records. However, some crucial information was missed out of the records. These information were of social and economic stature of the patients, referred cases from other hospitals, intake timings of drugs and time of admission to the admission. Meager management and safeguarding of records was recurrently experienced in the public setting.

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