



A RETROSPECTIVE STUDY ON POISONING CASES PRESENTING TO EMERGENCY IN ACS MEDICAL COLLEGE AND HOSPITALS.

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ABSTRACT

Poisoning is a serious problem all over the world, but its type, morbidity and mortality vary from country to country. According to the WHO, more than three million poisoning cases with 251,881 deaths occur worldwide yearly, of which 99% of fatal poisonings occur in developing countries, like India particularly among agricultural workers. Pattern and type of poisoning in a region depends on availability of poison, socio economic status of the population and people, religious and cultural and family influences, occupation prevalent in the region and likewise. Organophosphorus poisoning occurs very commonly in southern India, where farmers form a major group of the population who commonly use organophosphorus compounds like parathion, malathion as insecticides. A retrospective analysis of all poisoning cases admitted to ACS Medical College Hospital, Chennai from February 2021 to July 2021 was done to study the pattern of poisoning reported among patients brought to casualty of ACS medical college & Hospital. Acute poisoning is a common medical emergency in developing countries due to easy availability of poisonous substances and its low cost. So, it was necessary to know the demo-graphic profile & pattern of poisoning cases at ACS Medical College Hospital, Chennai. Data was collected using a from case records, MRD department & Emergency Medicine department and the data was analyzed and presented.

KEYWORDS :

INTRODUCTION:

Definition of Poison:

Any substance that can cause severe organ damage or death if ingested, breathed in, injected into the body or absorbed through the skin.

Many substances that normally cause no problems, including water and most vitamins, can be poisonous if taken in excessive quantity.

Acute poisoning is exposure to a poison on one occasion or during a short period of time. Symptoms develop in close relation to the degree of exposure. Absorption of a poison is necessary for systemic poisoning. In contrast, substances that destroy tissue but do not absorb, are classified as corrosives rather than poisons. Furthermore, many common household medications are not labeled with skull and crossbones, although they can cause severe illness or even death. In the medical sense, toxicity and poisoning can be caused by less dangerous substances than those legally classified as a poison.

Toxicology is the science which deals with properties, action, toxicity, detection, estimation and treatment of poisons.

Chronic toxicity deals with diseases cause by, or associated with abnormal exposure to chemical substances.

Forensic toxicology deals with the medicolegal aspects of harmful effects of any poison on the human body. Chronic poisoning most commonly occurs following exposure to poisons that bioaccumulate, or are biomagnified, such as mercury, gadolinium and lead.

Poisoning is a medical emergency and a patient is always immediately rushed to the hospital at the earliest possible moment, irrespective of the amount and nature of poison ingested.

According to the WHO, more than three million poisoning cases with 251,881 deaths occur worldwide yearly, of which 99% of fatal poisonings occur in developing countries, like India particularly among agricultural workers. Pattern and type of poisoning in a region depends on availability of poison, socio economic status of the population and people, religious and cultural and family influences, occupation prevalent in the region and likewise. Organophosphorus poisoning occurs very commonly in southern India, where farmers form a major group of the population who commonly use organophosphorus compounds like parathion, malathion as insecticides[8]. In addition, snakebite is a common acute medical emergency faced by rural people. Nearly 35,000–50,000 people die each year from snakebite, which is a common cause of morbidity and mortality in India[7].

In general, accidental poisoning is common in children and suicidal poisoning is common young adults. Most of the fatality rate is of suicidal poisoning by Organo-phosphorus compounds, which has been reported in southern India. Studies on preventive measures and nature of poison will be a useful tool in planning and management of critically ill acute poisoning cases.

Considering the outcomes of poisoning cases reported to hospitals it is found necessary to establish a poison information center which should be network with other PICs information centers in India and other countries by which identifying the poisons and managing cases will become more efficient. The present study was conducted with the objective of determining the socio-demographic profile and assessing the pattern and outcome of poisoning cases admitted at a tertiary care hospital, over a period of 6 months.

MATERIALS AND METHODS:

The present study is a retrospective study conducted in ACS medical college and hospitals, a tertiary care hospital in Chennai. The study was carried out in a retrospective manner for the period of 6 months February 2021 to July 2021. All cases

of poisoning, irrespective of age, sex, type and mode of poisoning, ingredients of poisons were taken as subjects. Data was collected from medical records department and Accident/MLC register that is available at the department of Emergency Medicine of the hospital. Data collection was performed according to hospital regulations after approval by institutional ethical committee and Permission was obtained from the Medical Superintendent of the hospital to allow us to access the information from the patients case sheet in the record section, strictly for purpose of this research. This study included a total of 81 cases diagnosed with poisoning at our emergency department within a 6 months period from February 2021- July 2021. Demographic details such as age, gender, occupation, type of poison, manner and route of poisoning, and outcome, AMA discharges was collected. The data compiled and then analyzed using Statistical Package for Social Sciences (SPSS) version 28 using standard statistical methods.

AIMS AND OBJECTIVE

- To study pattern of poisoning among patients brought to casualty of ACS medical college & Hospital.
- To enumerate commonly used poisons.
- To analyse associated factors for poisoning.

Ethical Consideration:

Permission to retrieve the case records was obtained from the institution authority. Ethical Clearance was obtained from Institutional Ethics Committee, ACS Medical College, Chennai, prior to the study. Confidentiality was maintained

RESULTS & OBSERVATIONS:

Table 1 shows that out of 81 poisoning cases recorded, 26 were Males and 55 were Females (M = 32%, F = 67.9%).

Table 1 Gender distribution of poisoning cases

| Gender | Number of cases | percentage |
|--------|-----------------|------------|
| Male | 26 | 32% |
| female | 55 | 67.9% |
| total | 81 | 100% |

Table 2 shows that most of the cases reported were observed in the age group of 19-30 yrs. (53 cases, 65.43%) in both genders followed by the age group of 31-40 yrs. (15 cases, 18.51%) and least in the age group of more than 41-60. 2 cases, 2.46%). Nil cases after the age group of 60yrs. The female predominance was seen in all age groups.

Table 2: Age-wise frequency distribution of poisoning cases

| Age in years | total | percentage |
|--------------------------|-------|------------|
| Less than or equal to 18 | 4 | 4.93% |
| 19- 30 | 53 | 65.43% |
| 31-40 | 15 | 18.51% |
| 41-50 | 1 | 1.23% |
| 51-60 | 1 | 1.23% |
| More than 60 | nil | 0% |
| total | 81 | 100% |

Table 3: shows that most of the poisoning cases were due to tablet poison consumption (24.69%), followed by rat killer(24.69 %), phenol poison(18.51%) Other cases of poisoning were due to OPC, plant poison, ant killer, unknown substance, paint thinner, lice killer.

Table 3: Type of poisons & distribution of cases

| poison | Number of cases | Percentage |
|------------------------|-----------------|------------|
| Prallethrin [all out] | 3 | 3.7% |
| Plant poison [datura] | 2 | 2.4% |
| Rat killer | 20 | 24.69% |
| Tablet poisoning | 26 | 32% |
| Phenol poisoning | 15 | 18.51% |
| Opc | 2 | 2.4% |

| | | |
|--------------------------|----|-------|
| Unknown substance | 4 | 4.93% |
| kerosene | 3 | 3.7% |
| Ant killer | 4 | 4.93% |
| Paint thinner | 1 | 1.23% |
| Lice killer (permethrin) | 1 | 1.23% |
| total | 81 | 100% |

Table 4: Seasonal variation in poisoning cases. Results indicate Maximum incidence of poisonings cases in the months of may, June, July (18.51% each).

| Month (2018) | case | Percentage |
|--------------|------|------------|
| Feb | 12 | 14.81% |
| March | 10 | 12.34% |
| April | 14 | 17.28% |
| May | 15 | 18.51% |
| June | 15 | 18.51% |
| July | 15 | 18.51% |
| Total | 81 | 100% |

The study results showed that 78 (96.29%) of cases were due to suicidal manner of poisoning, followed by Accidental (3.7%) and Homicidal (0%). (Table 5)

Table 5: Manner of poisoning

| Manner | Total number of cases | percentage |
|------------|-----------------------|------------|
| Accidental | 3 | 3.7% |
| Suicidal | 78 | 96.29% |
| Homicidal | nil | 0% |
| Total | 81 | 100% |

About Against medical advice discharges, 8 cases out of total 81 cases went on with AMA. Regarding alcohol dependence, 8 cases out of total 81 cases were known cases of alcohol dependence. On view of previous suicidal attempts, 6 cases out of 81 cases already attempted suicide.

DISCUSSION:

In the present study out of 81 poisoning cases, 32% were males and 67.9% were females. These findings are in consistent with other studies[8,9]. The high incidence among females may be because females are more exposed to stress, strain and marital and family conflicts compared to males.[10,11]. Low socioeconomic status, marital conflicts, family issues, work burden, financial trouble and parenting could probably be contributing factors for higher suicide rates among women. In the present study the most common age group involved was between 19-30 years followed by the age group between 31- 40 years. Thus, adolescent and young adults are at more risk compared to other groups. Similar observations were reported by other studies conducted by authors. [9-12]

In this study, results showed that (96.29%) of cases were due to suicidal manner of poisoning followed by Accidental (3.7 %) and Homicidal (0%). Most of the patients were given psychiatric counseling and drug therapy. Newly diagnosed depression was also seen in majority of patients secondary to failure in academic, financial crunch, domestic violence, family conflicts & problems in interpersonal adjustment. Other contributory factors were chronic alcoholism, financial stress, anxiety, psychotic disorder, impulsive disorder . The study results are in consistent with the various studies published in India.(9-12)

In present study, most of the poisoning cases were due to tablet poison consumption (24.69%), followed by rat killer(24.69 %), phenol poison(18.51%) Other cases of poisoning were due to OPC, plant poison, ant killer, unknown substance, paint thinner, lice killer.

The tablets that were used for suicidal purposes were mostly Antiepileptics, Antidepressants, Oral hypoglycaemic drugs, antihypertensive drugs, that are already available at home or given without proper prescription.

In rural areas, insecticide such as OPC are easily available and this is commonly used suicidal poison among farmers in southern parts of India.

But, in urban areas such as Chennai, a substantial amount of cases managed to get these Antiepileptics, Antidepressants, Oral hypoglycaemic drugs, antihypertensive drugs over-the-counter, without any prescription.

Followed by tablet poisoning, rat killer becomes the next most commonly used poison in our study. Rat killer is also easily available in stores in urban areas like Chennai.

CONCLUSION:

The present study highlights the poisoning cases admitted to ACS Medical College Hospital, Chennai over a period of six months (Feb 2021- May 2021), showing that females of 19-30 yrs of age group are the major victims followed closely by males in the same age group. It also points towards the commonest poison used is tablet poison with suicidal intention being the most common manner of poisoning. With nil fatality rate.

The incidence, trends of poisoning, the morbidity and mortality due to poisoning can be possibly reduced by strict surveillance over the sale on tablets and insecticides/pesticides, teaching the users regarding the safety measures, good treatment facilities (i.e. antidotes etc.) at rural and urban PHC's and CHC's. Establishing poison information centers at almost all tertiary care centers and implementing it with the aim of upliftment of the urban population and low socio-economic group of population.

Ethical Clearance:

Ethical Clearance was obtained from Institutional Ethics Committee, ACS Medical College, Chennai prior to the study. Confidentiality was maintained.

REFERENCES:

1. C.H. Linden and M.J. Burns, "Poisoning and drug overdose", in Harrison's Internal Medicine, E.Braunwald, A.S.Fauci and Kasper, Eds., p. 2595, McGraw-Hill, New York, NY, USA, 2001.
2. L.Vijaykumar, "Suicide prevention: the urgent need in developing countries", World Psychiatry: Official Journal of the World Psychiatric Association (WPA), vol. 3, no. 3, pp. 158-159, 2004.
3. R.K.Das, "Epidemiology of Insecticide poisoning at A.I.I.M.S emergency services and role of its detection by gas liquid chromatography in diagnosis", Medical Update, vol. 7, no. 2, pp. 49-60, 2007.
4. K.N. Ramesha, K.B.H.Rao, and G.S.Kumar, "Pattern and outcome of acute poisoning cases in a tertiary care hospital in Karnataka, India", Indian Journal of Critical Care Medicine, vol. 13, no. 3, pp. 152-155, 2009.
5. M.R. Amin, A.Basher, A.Sattar et al., "Baseline survey on cases of poisoning and its outcome in Bangladesh", Open Access Journal of Toxicology, Vol. 2, no. 2, pp. 1-6, 2017.
6. D.Tagwireyi, D.E. Ball, and C.FB.Nhachi, "Poisoning in Zimbabwe: a survey of eight major referral hospitals", Journal of Applied Toxicology, vol. 22, no. 2, pp. 99-105, 2002.
7. Banejee RN. Poisonous snakes and their venoms, symptomatology and treatment. In: Ahuja MM, editor. Progress in Clinical Medicine, Second Series. India: Heinemann; 2003. pp. 136-79.
8. Batra AK, Keoliya AN, Jadhav GU. Poisoning: An Unnatural cause of morbidity and mortality in Rural India. JAP2003;51:955-960.
9. Sheetu M. K. Jalkhanil, Naik J. D., Thakur M. S., Langare S. D., Pandey V. Retrospective Analysis of Poisoning Cases Admitted in a Tertiary Care Hospital. International Journal of Recent Trends in Science and Technology, Volume 10, Issue 2, 2014; 365-368
10. Rao CHS, Venkateswarlu V, Surender T, Eddleston M, Buckley NA. Pesticide Poisoning in South India - Opportunities for Prevention and Improved Medical Management. Trop Med Int Health. 2005; 10(6): 581-8.
11. Anand M, Bagali M.A., S.R. Hibare I, Ingale D.L., Gupta N, Bhuyyar C, Study of socio-demographic profile of poisoning cases at Shri B M Patil medical college hospital and Research Centre, Bijapur, International Journal of Current Pharmaceutical Review and Research; July 2012; 80-88
12. Dash SK, Raju AS, Mohanty MK, Patnaika KK, Siddharatha P, Mohanty S. Socio-demographic Profile of Poisoning Cases. JIAFM. 2005; 27: 133-8.
13. "Exam preparatory manual of forensic medicine" 2nd edition by Author: Dr.V.Dekal.