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INCIDENCE OF GERIATRIC POISONING AT KASTURBA HOSPITAL MANIPAL, SOUTH INDIA

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ABSTRACT

Geriatric poisoning is a common medical emergency associated with a high morbidity and mortality. In developing countries like India, the poisoning emergencies are becoming a major cause of mortality in elderly. Studies done worldwide on poisoning cases are more or less concentrated on the adult population and hence there is an inadequate data on the elderly. This study is taken up to understand the number of elderly poisoning cases (based on gender). A ten year retrospective study from January 1999 to December 2008 was conducted at the Department of Forensic Medicine & Toxicology, Kasturba Medical College, Manipal, to understand the magnitude ofgeriatric poisoning cases amongmales and females at Kasturba Hospital, Manipal. Males were predominantly affected (male: female::3.76: 1). Our study looks at the difference in place and outcome of poisoning among males and females to identify population at risk and give suggestions so as to reduce the morbidity and mortality in elders.

Keywords: Geriatric, Poisoning, Gender

INTRODUCTION

Poisoning is an important health hazard and one of the leading causes of morbidity and mortality worldwide. Nearly one million people are affected globally every year **[1]**.

The mortality worldwide is estimated to be 0.6% of all deaths per year as per World Health Organization (WHO). In India deaths due to poisoning accounts for more than 50,000 people every year **[2]**. Poisoning affects all age groups viz. pediatric, adult and geriatric.

Although only a small proportion of elderly account for toxicological exposures but once exposed, it constitutes high mortality **[3]**. Compared to young adults, the elderly are at increased risk for poisoning and the other drug related adverse effects. They are also at enhanced risk of drug interactions because of the increased number of medications they may be consuming, therapeutically. The incidence of adverse drug effects increases steadily with age leading to serious consequences, viz prolonged hospitalization or permanent or serious disability or the final outcome, the death **[3]**.

Studies done worldwide on poisoning are more concentrated on the adult population and hence there is an inadequate data on the extremes of age groups namely pediatrics and geriatrics. The geriatric age group in true sense is the most vulnerable group due to insecurity in the elderly.

The present study attempts to gather geriatric poisoning cases in Manipal, and the associated gender differences to know the incidences in male category as suicidal deaths in males due to farming problems, even at elderly age group is an increasing problem of concern in our developing country. By our study we also want to formulate recommendations that could probably help to reduce the morbidity and mortality due to poisoning in elderly.

MATERIAL AND METHODS

The data of 10 years (January 1999 to December 2008) was collected for the present retrospective study at the Kasturba Hospital, Manipal, a tertiary care teaching hospital, situated in coastal Karnataka, South India.

All the poisoning cases admitted to Kasturba Hospital, Manipal, in the geriatric age group (above 60 years) **[4, 5]** during the study period were included.

The relevant data like age, sex, place of poisoning and outcome was obtained from the Clinical case records from Medical records department of the hospital.

The data obtained was tabulated and analyzed using SPSS (Statistical Package for Social Services) 11 software.

RESULTS

A total of 91 cases of poisoning in the geriatric age group were admitted to the hospital, during the period of 10 years from January 1999 to December 2008, as depicted in the **Table 1**.

In the present study, we observed that the males outnumbered the females, male to female ratio being 3.76:1, as depicted in the **Table 2**.

Most of the poisoning cases (70.3%) occurred at home in both the genders, males being 76.4% and female 47.4%; male to female ratio based on percentage in outdoor poisoning being 1.7:1, as depicted in the **Table 3**.

It was observed in our study that, 74.73% of cases reported to our hospital had survived while 25.27% cases had expired. It was clearly noted that the increased percentage of survived was seen among female (78.95%) as compared to males (73.61%) and male to female ratio based on percentage in outcome being 0.93:1, as depicted in the **Table 4**.

DISCUSSION

Rise in poisoning is a global phenomenon seen in all age groups and all strata of people. This increase in the incidence of poisoning in recent times is due to stress related to academics in children, job related in adults and loss of social security in old people. It is not only the adult population that is affected by poisoning but of late, even children and old people are affected. As medical men, it is our duty to prevent this rise of morbidity and mortality due to poisoning cases. The present study was undertaken to study the geriatric poisoning so as to reduce the morbidity and mortality.

Prevalence of males was more in our study when compared to females. These findings are in concurrence with the case series reported from southern India **[6]** and Tehran **[7]**. In the Indian context, men are considered to be the sole bread earners of the family and have certain responsibilities to fulfill, like financial, psychological and physical requirements of the family. Failure to fulfill these responsibilities may result in frustration and stress leading to intentional poisoning. The factor that could be responsible for female poisoning cases, during this age group is due to the hormonal changes that take place, during their post menopausal period.Studies done at National Poison Information Centre, Dublin **[8]**, showed that the poisoning victims were predominately females, indicating the varying geographical trend.

It was also observed in our study that a majority of incidences (Sixty-four out of ninety one) of geriatric poisoning incidents took place in the patient's own home, which may be attributed to the non-ambulant nature of the elderly individuals and their restricted mobility. These findings are similar to the studies done in Ahmedabad and Dublin **[8, 9]**. We also observed that the poisoning incidents

had taken place outside home in 52.6% of women and 23.6% of men, which showed that elderly require care from their relatives not just at home but also outdoor too. Hence our study helps in sending across a message to all physicians that patient's relatives has to be specifically explained about the continuous care that elderly should receive and especially women in their postmenopausal phase as they are prone to hormonal changes which can cause adverse mood fluctuations.

Our study showed high mortality rate (25.3%), which could be attributed to the vulnerability of these age group for accidental hazards and to the reducing physiological ability of the body of an elderly as a result of advancing age causing deteorating body response. International studies revealed the mortality rate ranging from 1 to 14% **[7, 8]**. The high mortality rate in our study could also be attributed to the poisons consumed which are commonly the highly toxic agricultural substances. The low mortality rate observed in studies conducted at Tehran **[7]** and Dublin **[8]** can be attributed to the consumption of therapeutic drug which may necessitate the consumption of large dose for fatal outcome.

In the present study, the poisoning cases were divided based on gender differences to know the incidences in male category as male poisoning cases in geriatric age group is a problem of growing concern in our developing country. By this study, we are trying to bring to the notice of the society that irrespective of the age group both the genders are affected and hence every elderly person irrespective of gender requires the same amount of care while dealing with these poisoning cases. Also an increased continuous care, love and affection, which they are due for, are required to be given, to each elderly person

Our study was limited to a single hospital study and hence this study needs a further research on a wide area to give a better area based findings.

CONCLUSION

In our study we observed that males were affected more often than the females and seventy percent of geriatric poisoning cases occurred inside the house. It was also noticed that seventy-five percent of geriatric poisoning patients survived as appropriate first aid measures were taken and immediate medical intervention was given to treat the poisoning.

Following measures are suggested to decrease the morbidity and mortality amongst the geriatric population:

- Providing social security schemes for the elderly to reduce the financial stress factor.
- Setting up of geriatric hospitals and rehabilitation centers.
- Educating the population of safe handling of pesticides.
- Psychiatric and psychological counseling of the elderly and their family members.
- Use of large print labeled containers, for medications and poisonous substances.
- Caution in prescribing medication, to avoid multiplicity of drugs and their interactions.

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Table 1: Year Wise Distribution of Cases of Poisoning in Geriatric Age Groups (n=91)

S. No.	Year	Number of cases
1.	1999	10
2.	2000	7
3.	2001	10
4.	2002	8
5.	2003	5
6.	2004	12
7.	2005	4
8.	2006	10
9.	2007	11
10.	2008	14
	Total	91

Table 2: Gender Distribution (n=91)

Gender	Number of cases	Percentage
Male	72	79 %
Female	19	21 %

NOTE: Male to Female ratio being 3.76:1

Table 3: Place of Poisoning (n=91)

Gender	Poisoning		Total
	Indoor	Outdoor	
Male	55(76.4%)	17(23.6%)	72(100%)
Female	9(47.4%)	10(52.6%)	19(100%)
Total	64(70.3%)	27(29.7%)	91(100%)

NOTE: Male to Female ratio based on percentage in indoor poisoning being 1.6:1

Table 4: Outcome (n=91)

Gender	Outcome		Total
	Survived	Expired	
Male	53 (73.61%)	19 (26.39%)	72 (100%)
Female	15 (78.95%)	4 (21.05%)	19 (100%)
Total	68 (74.73%)	23 (25.27%)	91 (100%)

NOTE: Male to Female ratio based on percentage of survival outcome being 0.93:1