 DOI: 10.18231/2394-6776.2017.0032

A descriptive study on fatal and non-fatal paediatric poisoning cases in a tertiary health care centre

Rajesh M.[1], Rajeev KH[2,*]

[1]Associate Professor, Dept. of Forensic Medicine & Toxicology, Kannur Medical College, Kannur, [2]Professor, Dept. of Community Medicine, JJM Medical College, Davangere, Karnataka

***Corresponding Author:**
Email: palegar_aashish@yahoo.com

Abstract

Introduction: Accidental poisoning in children is a global problem. Most of the poisoning are unintentional and preventable cause of morbidity and mortality. In India, commonest agents of paediatric poisoning were kerosene, medicines, household cleaning products and pesticides.

Objectives: To assess pattern of poisoning among paediatric age group in a tertiary health care centre.

Materials and Method: A cross-sectional study was conducted in a tertiary health care centre for a duration of one year. The children aged less than 18 years who were consumed or exposed to poisoning were included in the study. The data were collected in a structured clinical proforma after taking consent from parents. Data were entered in Microsoft Excel and descriptive statistics used for analysis.

Results: Among 59 cases, 52.5% were males and the mean age was 8.17±5.42 years. Most of the poisoning occurred at home and common type of poisoning was kerosene, medicines and snake bite (20.3% each). About 71% were accidental in nature whereas 27% was suicidal in nature. In 84.7% cases mother was the first person to know about poisoning, 95% of cases discharged healthy and proportion of deaths was 3.4%.

Conclusion: The paediatric posioiniong was more among the children aged >10 years. The common type of poisioning was kerosene, medicines and snake bite and most of them were accidental. Eventhough, the mortality proportion was less, but, almost one qaurter of them consumed poison for committing suicide which was a disturbing trend. So addressing this issue at large in schools and homes may decrease the trend of suicides among teenage children.

Keywords: Paediatric Poisoning, Fatal and non-fatal poisoning, Tertiary health care centre.

Introduction

Accidental poisoning in children is a global problem and is the twelfth leading cause of admissions in paediatric wards in India.(1) Most of the poisoning are unintentional and poisoning in children is a medical emergency and preventable cause of morbidity and mortality. Knowledge about the nature, magnitude, outcome and predictors of outcome is necessary for the management.(2) In sharp contrast to developing countries, where majority of poisoning are due to common nontoxic household products, most of patients require hospitalization because of severe symptom related to dangerous nature of toxins ingested.(3)

In India, many studies showed the commonest agents of paediatric poisoning were kerosene, medicines, household cleaning products and pesticides. In the overall number of incidents of poisoning, paraffin and the drugs remain the principal agents responsible for paediatric exposures and poisoning, with increasing incidents due to household cleaning products and pesticides. (4-10)

So, with this background, we conducted this study with an objective to assess the pattern of poisoning among paediatric age group in a tertiary health care centre.

Materials and Method

Study Design: It was a hospital based cross sectional study.

Study Setting: Done in a tertiary health care centre in a South Indian City.

Study population: The children aged less than 18 years attending the tertiary health care centre were included in the study.

Inclusion Criteria: The children who were exposed to poison (including exposure to snake bite and scorpion sting) and aged less than 18 years were included if they or their parents willing to participate in the study.

Exclusion Criteria: If there was no definite history of ingestion of poison available, those children were excluded from the study.

Study Duration: 1 Year (January – December 2016).

Sample Size: All Fatal and nonfatal paediatric poisoning cases (including snake bite and scorpion sting) reported to the tertiary health care centre for the period of one year were included. A sample of 59 children were included in the study according to inclusion criteria.

Data Collection: After explaining the purpose of the study and after taking informed written consent from the parents the data was collected from those who were willing to participate in the study. The data were collected in a structured clinical proforma.

Data Analysis - Data were entered in Microsoft Excel and descriptive statistics in the form frequencies,

proportions, mean and standard deviations were analysed using EpiData Analysis V2.2.2.182.

Results

Socio-demographic Details: A total of 59 children who were exposed to poison (including snake bite and scorpion sting) were included in the study and the mean age of the study population was 8.17±5.42 years. Among them, 52.5% (31) were male children and 47.5% (28) were females. Most common group of children come to hospital with poisoning was more than 10 years group (45.8%). About 76.3% (45) were belong to Hindu religion and 54.2% (32) were hailing from rural background. About 44% (26) were belong to upper lower socio economic class (Table 1).

Paediatric Poisoning Profile: Among the cases, 44.1% (26) children were exposed to or consumed poison during the evening time (5pm to 9pm) followed by during the afternoon (11.9%) and almost two third of poisoning occurred at home only. The common type of poison exposed were kerosene, prescribed medicines and snake bite (20.3% each) followed by pesticide (17%). All the participants had the exposure for the first time and exposure to one child in the family was 96.6% (57). The most method of poisoning was accidental (71.2%) followed by suicide (27.1%) and homicide (1.7%). The poisoning exposure was first seen by mother in 50 cases (84.7%) and 96.6% parents were able to tell to which poison child was exposed or consumed. All the children have sought the treatment and among them 94.9% (56) were discharged healthy but 2 cases (3.4%) were succumbed to death because of poisoning (Table 2). The forensic science laboratory report of the poison contents were shown in Table 3.

Table 1: Sociodemographic characteristics of study participants

Sociodemographic variables	Values (n=59) (%)
Age (in years)	
• Mean ± SD	8.17±5.42
• Median	8
Age (in years)	
• Less than 3 years	15 (25.4)
• 3 years to 10 years	17 (28.8)
• >10 Years	27 (45.8)
Gender	
• Male	31 (52.5)
• Female	28 (47.5)
Religion	
• Hindu	45 (76.3)
• Muslim	14 (23.7)
Residence	
• Rural	32 (54.2)
• Urban	27 (45.8)
Socioeconomic Class	
• Lower	05 (08.5)
• Lower Middle	18 (30.5)
• Upper Lower	26 (44.1)
• Upper Middle	10 (16.9)
• Upper	0
Total	59

Table 2: Paediatric Poisoning Profile of the study population

Paediatric Poisoning Profile	Number (%)
Time of Poisoning	
• Morning (5am-12pm)	14 (23.7)
• After Noon (12pm-5pm)	10 (16.9)
• Evening (5pm-9pm)	26 (44.1)
• Night (9pm-5am)	07 (11.9)
• Do Not Know	02 (03.4)
Type of Poison	
• Insecticide	06 (10.2)
• Pesticide	10 (17.0)
• Kerosene	12 (20.3)
• Prescribed Medicines	12 (20.3)
• Snake Bite	12 (20.3)
• Scorpion Sting	01 (01.7)
• Others	06 (10.2)
Place of Poisoning	
• At Home	37 (62.7)
• Outside Home	22 (37.3)
Method of Poisoning	
• Accidental	42 (71.2)
• Homicidal	01 (01.7)
• Suicidal	16 (27.1)
Number of Children Exposed	
• One	57 (96.6)
• Two	02 (03.4)
First Seen By	
• Mother	50 (84.7)
• Father	06 (10.2)
• Grand Parents	01 (01.7)
• Other Relatives	01 (01.7)
• Friend	01 (01.7)
Parents Awareness about Poison	
• Yes	57 (96.6)
• No	02 (03.4)
Outcome	
• Discharged Healthy	56 (94.9)
• Discharged against Medical	01 (01.7)
• Advice Succumbed to Death	02 (03.4)
Total	59 (100)

Table 3: Forensic Science Laboratory Report of Poison

Forensic Science Laboratory Report of Poison	Number (%)
Not Applicable or not available	28 (47.5)
Poison Content	
• Aluminium Phosphide	02 (03.4)
• Antiepileptic Drugs	10 (16.9)
• Lindane	02 (03.4)
• Organophosphorus	09 (15.2)
• Paracetamol	04 (06.8)
• Phenol	02 (03.4)
• Pyrethroid	02 (03.4)
Total	59 (100)

Discussion

Pattern of poisoning in a region depends on variety of factors such as availability of poisons, socioeconomic status, religious and cultural influences. In children kerosene, pesticides and household cleaners are commonly involved and is almost entirely accidental.[4] In our study, the common age group affected was >10 year children which was different compared to other studies done by Kohli et al, Abbas SK et al and Brata GV et al which showed commonest age group as less than 3 years.[3,6,7] Slightly more male children were affected in our study compared to females and it was similar to other studies.[3,5] Around 50% of the cases were from rural background and belong to upper lower class which was different compared to study done by Kohli et al where it was more urban cases reported.[3]

In our study, the commonest time of consumption of poisoning or exposure to poisoning was evening. In our study, the common type of poison was kerosene, prescribed medicines and snake bite and it was similar to other studies where they reported Kerosene as the commonest followed by prescribed medicines but prescribed medicine was more common in study done by Abbas et al.[2,3,5,7-10,6] Almost one fifth of the cases were reported about snake bite and scorpion sting in our study which was more compared to other study.[8] This increase cases may be due to more cases reporting from rural areas where there are more chances of snake bite and scorpion sting. The most common method of poisoning reported in our study was accidental and it was similar to other studies but the proportion of suicidal cases reported were more in our study.[2,3,9] This increase in proportion was suicidal cases were may be due to the more number of study participants were belong to age group more than 10 years in our study. Most of them were teenage children having suicidal tendencies is a matter of concern. In majority of cases mother was the first person to know about the poisoning which may be due to most of the mothers in India will be house makers.

Majority of the children were discharged healthy and mortality proportion in our study was same as study done by Nabeel et al whereas it was less compared to studies done by Jayashree et al, Brata GV et al and Guptha S et al.[2,5,7,8]

Limitations of the Study

The sample size was small and treatment provided details were not completely available, so could not included in the analysis.

Conclusion

The paediatric posioiniong was more among the children aged >10 years and it was more during the evening time. The common type of poisioning was kerosene, medicines and snake bite and most of them were accidental. Eventhough, the mortality proportion was less, but, almost one qaurter of them consumed poison for committing suicide which was a disturbing trend. So addressing this issue at large in schools and homes may decrease the trend of suicides among teenage children.

Acknowledgments

We immensely thank all the children and parents who were participated in our study by providing us their valuable time and co-operation.

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