

PATTERN OF PEDIATRIC POISONING AND BITES IN A TERTIARY CARE HOSPITAL OF WEST BENGAL, INDIA

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ABSTRACT:

Introduction: Accidental poisoning in children is an emergency both for the family and internist. **Objective:** To find out the pattern of pediatric poisoning in a tertiary care hospital of West Bengal. **Methods and materials:** It was a record based study, conducted in the Pediatrics Department of Burdwan Medical College and Hospital, Burdwan, West Bengal during January to March 2013 among 297 children admitted with poisoning and bites during 1st January to 31st December 2012. **Result:** Male were 61.6%. Majority of cases 104 (35%) belonged to 2 - 4 years age group. Overall, Kerosene poisoning was commonest (30.6%), followed by snake bite and unknown poisoning. Among 4-6 years group, snake bite was common (19.5%). About 72.4% were discharged from the hospital and 1.3% expired. Proportionate mortality rate due to poisoning was 0.4%. **Conclusion:** All medicine or poisons should be put in cupboard lock up or out of reach to the children. Small infants should not be left unattended.

Key-words: Pediatric poisoning, Pattern of poisoning, Kerosene, Snake bite

INTRODUCTION

Load of poisoning cases reported in India is gradually on the rise. As the accidental poisoning in children is often an emergency both for the family and the internist, notwithstanding death due to poisoning in these age group is considerably low, still it constitutes a major bulk of hospitalization in comparison to the total case reported. This poisoning may be accidental, homicidal or suicidal. In the current scenario, accidental poisoning is the most prevalent in the age group of 1-6 years¹ clearly revealing that the child inquisitiveness and adult carelessness are equally responsible as casual factor. Sometimes exposure to non-poisonous substances or suspected poisoning necessitates hospitalization and increase unnecessary burden to the hospital.²

Technically, poison is any substance which is introduced in the living body can there of produce ill-effects or even death by virtue of its local or constitutional effects or both. Administration of even a medicine, which is otherwise indented to cure a disease, may be referred to as poisoning if the dose and manner of use is not medically justified. Hence, goes a famous saying-“the dose makes the poison”. Geographical differences also play a role in the variation of the poisoning. Therefore periodic review of current data on poisoning from various centers is essentials for providing the ever changing information.³

Study reveals that 90% of toxic exposure in children occurs in home and mostly involve a single toxic substance whose ingestion is the most common route of poisoning, followed by inhalation, topical application and IV/IM administration. The commonly used poison may be medicinal or non-medicinal (i.e. common household or naturally occurring object), which may be organic or inorganic. On the basis of recent studies it can be concluded that kerosene poisoning is the most prevalent type of poisoning found among children.²

The purpose of studying poisoning cases is primarily determination of the occurrence of use of various toxic substances (poison), the corresponding area wise distribution of type of poisoning in the demographic area, the resulting complication in affected individuals, effectively received and duration of treatment received, proportional mortality (if any) - where several socio-demographic variation serve the purpose of the retrospective study conducted. The resulting evaluation is instrumental in prevention and management of future cases, along with providing proper education of children and guidelines to the parents or guardians to curb future possibilities of the incidents. Thus the study was undertaken to find out the pattern of pediatric poisoning in a tertiary care hospital of West Bengal.

MATERIALS AND METHOD

It was a record based observational, descriptive study, cross-sectional in design conducted in the Pediatrics Department of Burdwan Medical College and Hospital, Burdwan, West Bengal during January to March 2013. All the children with poisoning and bites who were admitted in the Department of Pediatrics, during the reference period i.e. 1st January to 31st December 2012 were the study subjects. Total 297 poisoning patients admitted during this one year constituted our study population. Patients under 7 years of age are admitted in Pediatrics Department of Burdwan Medical College and Hospital. Data were collected in a predesigned schedule from the admission register and discharge register of Pediatrics ward. Collected data were compiled on Microsoft Excel worksheets (Microsoft, Redwoods, WA, USA) and analyzed by means of proportion.

RESULTS

Total admission in Pediatric Medicine ward in 2012 was 21060 and poisoning cases comprised of 1.41% (297 / 21060) of total admission. Sex wise, most of them 61.6% (183) were male and female were 38.4% (114). About 71.4% were Hindus and the rest 28.6% (85) were Muslims, and 70.4% were from village and 29.6% were from urban area. Majority i.e. 35% of the admitted cases belonged to 2 - 4 years age group, closely followed by 34.7% in 0 - 2 years of age group. About 12.8% children belonged to 6 - 8 years age group (Table1).

Overall, kerosene poisoning contributed maximum number of pediatric cases 91 (30.6%) followed by unknown poisoning (10.8%) and organo-phosphorus poisoning (9.1%). In the age group 0-2 years, kerosene poisoning was the most common form of poisoning (50%), followed by unknown poisoning (12.6%). In the 2-4 years age group, though kerosene poisoning was most common, but the proportion was slightly lower (30%) compared to the previous age group followed by organo-phosphorus poisoning (10%) and snake bite (10%). Among 4-6 years group, snake bite was the leading cause (19.5%) followed by terpine oil poisoning (12%). In 6-8 yrs age group snake bite (40%) and unknown bite (16%) were leading cause of poisoning followed by kerosene oil poisoning (8%) (Table 2).

Sex wise, among the males, commonest type poisoning was kerosene (32.2%), followed by snake bite (16.4%) and organo-phosphorus poisoning (10.4%). In females also, commonest mode of poisoning was

kerosene, though the proportion was less compared to male, followed by unknown poisoning (15%) and terpine oil poisoning (9.7%).

Seasonal variation of the poisoning cases fluctuates in a pattern such that the most cases i.e. 28.1% were admitted between the month April and June followed by Oct to Dec 25.1%. In July to September 24% were admitted and January to March had least number of patients i.e. 22.9%.

Out of the total poisoning cases admitted, 72.4% (219) were discharged from the hospital, 25.6% (76) went absconding, while 0.7% (2) had left the hospital against medical advice (LAMA), and 1.3% (4) expired. Apart from absconded (76), LAMA (2) and expired (4) patients, majority of the patients i.e. 47.4% (104/219) stayed in the hospital for 2 – 3 days, followed by 39.2% (86/219) who stayed for 1 day. Total death in pediatric ward was 1011 from all causes and among them 4 pediatric patients died due to poisoning, thus proportionate mortality rate of poisoning was 0.4%.

DISCUSSION

Present study revealed the proportion for 2012 was 1.41%. In our study nearly 70% cases reported in 0-4 yrs age group, and 61.6% of cases were male. Lall SB et al also found that 55.8% of cases were from pediatric age group 1 - 4 years of age.⁴ According to Rashid AKM et al, 1 - 3 years was the most vulnerable age group to be affected in 2004 - 2005 in Khulna Medical College in Pakistan.⁵ While Khadka SB et al reported 2 - 5 years was the common age of poisoning for children among 67 cases of poisoning, who attended emergency of Kathmandu Medical College Teaching Hospital in one year study period.⁶ Our results are in accordance with hospital-based reports from other countries.^{3,4}

In a study done in Kathmandu revealed male female ratio was 1.2:1. Most vulnerable age group was 1 - 5 years and 11 - 15 years.⁷ A recent study from the United States of America showed that children under 5 years of age had a significantly higher average annual rate of poisoning-related visits to emergency departments than other age group.⁸ Similar to our findings, kerosene was the most frequent poisoning reported from most of the centers.³ Contrary to this Chhetri UD found most common cause of poisoning was pesticide, kerosene and drugs.⁷ In present study, 4 (1.3%) patients expired while most of admitted patients were discharged when they get well. Chhetri UD found in their mortality of 6% much higher than our study.⁷

Preventive measures are small children should never be left unattended. Drugs, pesticides, hot things, and sharp instruments should be kept out of reach of children and in child proof container in separate places. Pesticide should not be sold to children. Age and sex are factors to consider in evaluating a child's risk for poisoning. In addition, developmental and environmental factors may contribute to the risk of a poisoning event.⁹

As children become mobile, they are able to maneuver through the home; they learn to open cabinets and to examine the contents.⁹ As children begin to walk, they may be able to grab items that were previously out of reach.⁹ Improved fine motor skills enable toddlers to open simple screw on caps or bottle tops. Normal curiosity and desire for oral stimulation may cause children to place new objects directly into the mouth for tasting or swallowing.⁹ Well-meaning preschoolers may try to help by using toxic cleaning products or by attempting to self-administer medication.⁹

CONCLUSION

It can be concluded from the present study, that poisoning continues to be an important cause of morbidity and hospital admission in pediatric age group. Small children are inquisitive; they explore everything and put it in mouth; so all medicine or poisons should be put in cupboard lock up or out of reach to them. Accidental poisoning is common in the pediatric age group. Poison and medicine should not be put together in same place or shelf; moreover it should not be stored inside the house for long time. Small infants should not be left unattended. Parents and the teacher should understand psychology of the child and behave accordingly.

APPENDIX

Table 1: Distribution of the study population according to age

Age (years)	Number (Percentage)
0 - 2	103 (34.7)
2 - 4	104 (35)
4 - 6	52 (17.5)
6 - 8	38 (12.8)
Total	297 (100)

Table 2: Distribution of the study population according to the type of poisoning in different age group.

Type of poisoning	Age group (years)				Total
	0 - 2 No. (%)	2 - 4 No. (%)	4 - 6 No. (%)	6 - 8 No. (%)	
Kerosene	51 (50)	32 (30)	5 (10)	3 (8)	91 (30.6)
Organo-phosphorus	9 (8.7)	11 (10)	5 (10)	2 (5)	27 (9.1)
Terpine	5 (5)	8 (7.7)	6 (12)	2 (5)	21 (7.1)
Insecticides	7 (6.8)	4 (3.8)	2 (4)	0 (0)	13 (4.4)
Medications	3 (3)	5 (4.8)	1 (1.9)	2 (5)	11 (3.7)
Plant products	2 (1.9)	7 (6.7)	5 (10)	1 (2.5)	15 (5.1)
Chemicals	4 (3.9)	3 (3)	4 (8)	1 (2.5)	2 (4)
Killers	2 (1.9)	6 (5.7)	2 (4)	1 (2.5)	11 (3.7)
Unknown poisoning	13 (12.6)	10 (9.5)	6 (12)	3 (8)	32 (10.8)
Snake bite	2 (1.9)	11 (10)	10 (19.5)	15 (40)	38 (12.8)
Other bites and stings	1 (1)	1 (0.1)	1 (1.9)	2 (5)	5 (1.7)
Unknown bites	4 (3.9)	7 (6.7)	4 (8)	6 (16)	21 (7.1)
Total	103 (100)	105 (100)	51 (100)	38 (100)	297 (100)

Insecticides: Insecticides, Urea, Pesticide, Gammaxene

Medication: Antipsychotic, Clonazepam, Ciprofloxacin, Alprazolam

Plant products: Dhatura, Oleander, Verandah

Chemicals: Chemicals, All out (mosquito repellants), Dettol, Deseal, Petrol

Killers: Rat flea, Ant and lice killers

Other bites and stings: Dog bite, Scorpion bite, Bee sting

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