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Original Research Article

Study of clinical profile of accidental poisoning in children

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ABSTRACT

Background: Accidental poisoning is an important cause of morbidity and mortality in children. Poisoning is one of the medical emergencies encountered in the emergency department. Accidental poisoning is common in toddlers and pre-school children. Aim of this study was to determine the agents of poisoning and demographic distribution of children brought to Rajarajeswari Medical College and Hospital with a history of accidental poisoning.
Methods: The study method was descripitive study done in pediatric department at Rajarajeswari Medical College and Hospital for 18 months, from 1 December 2017 to 31 May 2019. 25 cases were of accidental poisoning. Data was analysed by statistical analysis.
Results: The prevalence of accidental poisoning was 0.1%. There was male preponderance, 16 cases were male (64%) and 9 were female (36%), hydrocarbon (40%) was the most common household agent causing poisoning, followed by pyrethroid (24%), followed by NSAID'S (8%). Most common symptom was vomiting. The mean time elapsed to reach hospital was 97.80 minutes. In majority of the cases, hospital stay was for 2 days in (13 cases (52%)).
Conclusions: Children become victims of accidental poisoning. Most common agents of poisoning are household products and medications.

Keywords: Accidental poisoning, Medications, Poisoning in children, Risk factors

INTRODUCTION

A poison is a substance which if introduced in the living body or brought into contact with any part thereof will produce ill health or death by its constitutional or local effect or both.[1] According to WHO, mortality due to poisoning in children upto 4 years of age varies between 0.3 to 7 per 1,00,000 population across the world.[2] Poisoning is most commonly observed at 1-5 years of age and these children constitute 80% of all poisoning cases.[3,4]

In accidental poisoning host factors are young age especially preschool children, male sex, as well as curious and impulsive personality.[5,6]

Children are particularly at risk because of their curious and exploratory behavior and hand to mouth regard activities. By 2-3 years of age, the child's mobility and skills allow him to access any unlocked drawer of cupboard in the house.[7] The reason and manner of poisoning varies in different parts of the world and within the country. It depends upon the factors such as demography, socio-economic factors, education, local belief and customs.

The purpose of this study was to describe the epidemiology, pattern, duration and results of treatment of poisoned patients who were admitted to hospital.

METHODS

This was a descriptive study conducted at Rajarajeswari Medical College and Hospital from 1st December 2017 to 31st May 2019 (total 18 months). Twenty-five cases of accidental poisoning were studied.

Inclusion criteria

Patients admitted in the age group of 6months -18years with history of poison consumption.

Exclusion criteria

Age group less than 6 months, idiosyncratic reactions to drugs and food poisoning.

Study design it was hospital based cross sectional study.

Statistical analysis

Data was collected according to proforma. Data were collected using a pretested multi-structured questionnaire. The age and sex of the patients, duration taken to reach hospital, poisoning agents and duration of hospitalization were collected. Data was analaysed using SPSS 22 version software. Chi- square test was used as test of significance for qualitative data. All the cases with history of consumption was poison admitted in the hospital were selected. Detailed history including socio-demographic factors age, sex, socio-economic status, place of residence were collected and history related poison and types, symptoms, time elapsed to reach hospital and treatment given were considered. Socio-economic status was calculated based on modified Kuppuswamy classification which included occupation, income and education.

RESULTS

Total number of children with accidental poisoning was 25. The accidental poisoning prevalence was 0.1% in our study. Out of these, 16 (64%) were male and 9 (36%) were female. The most common age group was 2 to 3 years in (8 cases (32%)). Table 1 shows type of poison distribution. Majority of cases were of hydrocarbon poisoning in (10 cases amounting to 40%, kerosene in 4 cases), followed by pyrethroid poisoning in 6 cases (24%), medications in 3 cases, nonsteroidal anti-inflammatory drugs (NSAIDs) in 2 cases (8%), naphthalene in 2 cases (8%), mineral spirits in 2 cases (8%), corrosives in 1 case (4%) and carbamates in 1 case(4%).

Table 1: Type of poison distribution among subjects.

Type of poison	Count	%
Anti-Hypertensives	1	4.00%
Carbamates, Insecticide	1	4.00%
Corrosive	1	4.00%
Hydrocarbon	10	40.00%
Mineral Spirit	2	8.00%
Naphthalene	2	8.00%
NSAIDS	2	8.00%
Pyrethroid	6	24.00%

Table 2: Association between type of poison and characteristics of subjects in the study.

		Type of poison																p value
		Anti hypertensives		Carbamate, insecticide		Corrosive		Hydrocarbon		Mineral spirit		Naphthalene		NSAIDS		Pyrethroid		
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	
Age	≤24 Months	0	0.00%	1	100%	1	100%	6	60.00%	1	50.0%	0	0.00%	0	0.00%	3	50.0%	0.391
	>24 Months	1	100%	0	0.00%	0	0.0%	4	40.00%	1	50.0%	2	100%	2	100%	3	50.0%	
sex	Female	1	100%	1	100%	1	100%	3	30.00%	1	50.0%	0	0.00%	1	50.0%	1	16.67%	0.339
	Male	0	0.00%	0	0.00%	0	0.0%	7	70.00%	1	50.0%	2	100%	1	50.0%	5	83.33%	
Residence type	Rural	1	100%	0	0.00%	0	0.0%	3	30.00%	2	100%	0	0.00%	1	50.0%	1	16.67%	0.237
	Urban	0	0.00%	1	100%	1	100%	7	70.00%	0	0.00%	2	100%	1	50.0%	5	83.33%	
Time	≤180 min	1	100%	1	100%	1	100%	9	90.00%	2	100%	2	100%	2	100%	6	100%	0.980
	>180 mins	0	0.00%	0	0.00%	0	0.0%	1	10.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Outcome	DAMA	1	100%	0	0.00%	0	0.0%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	<0.001*
	Discharged	0	0.00%	1	100%	1	100%	10	100.00%	2	100%	2	100%	2	100%	6	100%	

Table 2 shows association between types of poison and characteristics of subjects in the study. There was no significant association between age, sex, type of residence and time with respect to type of poison. There was a significant association between outcome and type of poison. Based on residence 17 cases were from urban area (68%) and 8 from rural area (32%).

The informant was mother in 23 cases (92%) and father in 2 cases (8%). The socioeconomic status was lower middle in 9 cases (36%), upper middle in 9 cases (36%), upper lower in 5 cases (20%) and lower in 2 cases (8%). The mean time elapsed to reach hospital was 97.8 minutes.

Vomiting was most common symptom in our study. Table 3 shows mean age and time elapsed to reach hospital with respect to type of poison. The outcome of poisoning 24 cases 96% were discharged with no

mortality in our study. The duration of hospital stay was 2 days in 13 cases (52%).

DISCUSSION

The accidental poisoning prevalence was 0.1% in our study. Acute poisoning is one of the important cause of morbidity in children. A study done at Eskisehir Osmangazi University Hospital, one of the hospital for children in central Anatolia, Turkey. Acute poisoning was noted accounted for 2.31% of the cases referred to pediatric emergency unit. Poisoning has been reported to range from 0.21-6.2% in Turkey.[4] In this study it was male predominance.

Table 3: Mean age and time elapsed to reach hospital with respect to type of poison.

	Type of poison															
	Anti hypertensives		Carbamate, insecticide		Corrosive		Hydrocarbon		Mineral Spirit		Naphthalene		NSAIDS		Pyrethroid	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age	48.00		24.00		24.00		31.20	16.20	42.00	42.43	60.00	16.97	54.00	8.49	34.00	20.67
Time elapsed to reach hospital in mins	120.00		45.00		30.00		143.50	205.97	60.00	.00	37.50	10.61	112.50	95.46	65.83	27.28

Ozdogan et al, found the highest incidence of accidental poisoning was in age group 13 months to 4 years in their study.[7] In this study, most common poisoning was hydrocarbon poisoning and among hydrocarbons, kerosene was the commonest. Unsafe storage of medicines and household chemicals, low parental education, low socioeconomic status, larger family size (≥4 children), and history of previous poisoning are previously reported risk factors for acute unintentional childhood poisoning.[3,8,9] The strongest risk factors include inadequate supervision of the child, mother being employed during daytime, and parental concern of lack of family support. Maternal psychiatric illness has been associated with a significantly elevated risk of accidental poisoning.[10]

Medications are also common agents in poisoning. In this study, it was seen in 3 cases NSAIDs being most common. Vomiting was most common symptom of presentation. Accidental poisoning is one of the preventable causes of childhood morbidity and mortality. Proper parental education, safe storage of drugs, adequate supervision can prevent poisoning in children.

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REFERENCES

1. Reddy KSN. The essentials of forensic medicine and toxicology. 22nd Ed. Hyderbad, Andhra Pradesh. Sugunadevi; 2004.
2. Randev S, Grover N, Sharma H. Acute poisoning in children: seven-year experience at a tertiary care hospital of North India. Curr Paediatr Res. 2011;15(1):65-8.
3. Petridou E, Kouri N, Polychronopoulou A, Siafas K, Stoikidou M, Trichopoulos D, et al. Risk factors for childhood poisoning: a case control study in Greece. Inj Prv.1996;2(3):208-11.
4. Mutlu ME, Cansu A, Karakas T, Kalyoncu MU, Erduran ER. Pattern of pediatric poisoning in the east Karadeniz region between 2002-2006: increased suicide poisoning. Hum Exp Toxicol. 2010;29(2):131.
5. Kajala P, Jhavar L, Narsaria N, Dubey N K, Sankar J. Childhood Poisoning: Clinical Profile and Outcomes. Indian J Emerg Pediatr. 2011;3(2):55-9.
6. Aqeel M, Munir A, Khan A. Pattern and frequency of acute poisoning in children. Pak J Med Sci. 2009;25(3):479-83.
7. Ozdogan H, Davutoglu M, Bosnak M, Tutanc M, Haspolat K. Pediatric poisonings in southeast of Turkey: epidemiological and clinical aspects. Hum Exp Toxicol. 2008;27(1):45-8.
8. Kendrick D, Majsak-Newman G, Benford P, Coupland C, Timblin C, Hayes M, et al. Poison prevention practices and medically attended poisoning in young children: multicentre case–control study. Injury prevention. 2017;23(2):93-101.
9. Azizi BHO, Zulkifli HI, Kasim MS. Risk factors for accidental poisoning in urban Malaysian children. Annals Trop Paediatr. 1993;13(2):183-8.
10. Schmertmann M, Williamson A, Black D, Wilson L. Risk factors for unintentional poisoning in children aged 1-3 years in NSW Australia: a case–control study. BMC Pediatr. 2013;13(1):88.

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