

Profile of Accidental Poisoning in Children: Studied at Urban Based Tertiary Care Centre

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Abstract

Objective: To study profile of accidental poisoning in 1yr –12 yr children admitted at Paediatric ward in Calcutta national medical college & hospital, (CNMCH) Kolkata from April 2018–March 2019 and their outcome. **Method:** All children admitted at CNMCH children ward from 1 to 12 year with accidental poisoning excluding all bites-including snake bite, scorpion sting etc. The age group, nature, type of poison, symptom complex & response to therapy were studied. **Result:** 201 children of 9 month to 12 year with accidental exposure to poisoning admitted in a tertiary care centre. Common age group affected in the study is below 3 yrs (75%). Boy child commonly affected & common poisoning was kerosene oil (52.2%) followed by turpentine oil (14.9%). Among medication, poisoning (4.97%) not only due accidental ingestion but due to overdosing. Other Rare causes of poisoning was Phenyl, Rat killer, Mosquito repellent/oil, bed bug killer etc. Mortality of the patient was 0.49 % .30% cases (>14 days) suffering was prolonged. PICU management was needed in 1.99% cases. **Conclusion:** Most common cause of accidental poisoning was kerosene ingestion in rural children. Male children of toddler age group was involved commonly.

Keywords: Accidental poisoning, kerosene oil, medications, turpentine oil.

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INTRODUCTION

Accidental childhood poisoning is a major health problem & is responsible for serious mortality and morbidity [1, 2]. Toxic exposure has become the most common cause of acute medical illness in many countries.

Toddlers & pre school children are prone to accidental poisoning because of unsafe environment & child's inquisitive nature to explore the environment.

Parental ignorance to a great extent contribute for some of accidental poisoning cases. Since the poisonous non- edible substance are transferred from their original containers or those substances placed carelessly from the usual place of storage and also lack of adequate storage facility is often contributing factor.

Peak incidence of kerosene oil poisoning occurs at summer season due to faulty storage habit of

kerosene oil at water bottle or beverage bottle .Thirsty children under 5 years can drink it unknowingly.

Medication toxicity not only due to accidental ingestion but also due to overdos [3]. Several factors interplay in the pattern of poisoning seen among children. The child's environment, the child's ability to explore ,parental beliefs, attitudes & socio economic status of the family affected, all have basis in the type of poisoning to which our children are susceptible [3].

The present study is to focus the attention on the pattern of poisoning seen among hospitalized children. Predominantly belongs to vulnerable section of society.

MATERIAL AND METHOD

Study Area: Paediatric emergency & in patient department of CNMCH, Kolkata.

Study Population: All children admitted at Paediatric Ward of 9 Month –12 year age with accidental exposure to poisoning excluding all bites -animal bite, snake bite & insect contact.

Study Period: ONE year (April 2018- March 2019).

Sample Size: 201 children admitted at CNMCH (age group 9 months to 12 years).

Sample Design: Prospective Observational Study.

Inclusion Criteria: All children admitted at inpatient department of CNMCH with accidental exposure to poisoning from 9 month -12 years.

Exclusion Criteria: Below 9 month age and above 12 year and bites of animals /insects and insect contact.

Study Method: All children (201) admitted at Calcutta National Medical college, Kolkata without/with symptoms of poisoning during April 2018 to march 2019 were the subject of study. The age group, the co-existing factors, the nature of poison & the symptoms complex, response to therapeutic management were studied in details. Outcome of final Management observed.

RESULTS

201 (Two hundred and one) children were hospitalized over a period of one year with mild to severe symptoms of poisoning. The age group of paediatric patient affected, gender, nature of poison involved in this study is shown in Table-1.

Table-1: Types of poison, age and sex incidence (fig in parentheses includes the incidence)

POISON	TOTAL NO OF CHILDREN	MALE	FEMALE	0-1 YEAR	1-3 YEAR	3-6 YEAR	6-12 YEAR
1.Kerosene oil	105(52.2)	72	33	-	80	21	4
2.Turpentine oil	30(14.9)	18	12	-	15	12	3
3.Medication	10 (4.97)	7	3	3	3	2	2
4.Deisel	6(2.98)	4	2	-	2	4	-
5.Mosquito repellent oil	6(2.98)	5	1	-	4	1	1
6.Rat killer	6(2.98)	4	2	-	3	3	-
7.Cuso4	6(2.98)	5	1	-	4	2	-
8.Pesticide	18(8.95)	13	5	-	8	8	2
9.Phenyl	6(2.98)	4	2	-	3	2	1
10.Veg.oil	3(1.49)	2	1	-	3	-	-
11.others	5(2.48)	5	0	-	2	3	-
	201	139 (69.1)	62(30.9)	3(1.49)	127(63.18)	58(28.85)	13(6.46)

Table-1 shows that common poison involved in this study are kerosene oil ingestion (52.2 %) among total admission. (201 children) followed by turpentine oil ingestion (14.9 %) and pesticide ingestion (8.95%).

Regarding kerosene ingestion, total 105 children admitted in one year study (52.2%) of which common age group involved are 1 to 3 years (toddler age.) Total 80 toddler affected among 105 children (76.2%). Male babies were commonly affected. The amount of kerosene oil ingestion had mild symptoms of toxicity like nausea, vomiting, pain abdomen, & occasional loose stool and some of them presented with respiratory distress (40%).

In study period, 6 children of toddler age group admitted 7 days after ingestion of poison with severe abdominal pain & respiratory distress, needed prolonged hospital stay and intervention. Outcome was good.

Turpentine toxicity: Total 30 (14.9%) children admitted in one year study period of which 18 (60%) children were male & rest 12(40%) were female. 15 children (50%) were of 1 to 3 years age group. Majority of them admitted with nausea & vomiting & outcome was good & stay in hospital for observation was 72 hours. Only 2 out of 30 turpentine poisoning admitted for a prolonged period of abdominal pain 7 feed intolerance. Majority of the patient presented with nausea, vomiting & diarrhoea.

Very few of them had serious toxic manifestation which need ventilator support (2/18 *100)=11.11%. Two out of 18 pesticide poisoning need ventilator support & aggressive therapy. Medication causing drug toxicity in our study were 4.97% (10 out of 201).

Table-2: Nature of the medication involved in poisoning

Name of the Drug	Number of cases Total (10)
1.Iron Tablet	4(40%)
2.Benzadiazepine group of drug	2(20%)
3.Phenothiazine	2(20%)
4.Antihypertensive group of drug	2(20%)

Table-2 Common age group of medication intake was <6 years. Iron intoxication was the cause of drug induced toxicity. Overdoses of iron preparation occur due to inadvertent intake of the medication.

Abdominal cramps, diarrhoea & lethargy were the symptom complex in iron poisoning. Phenothiazinetoxicity associated extrapyramidal symptoms, oculogyric crisis, restlessness, ophisthotonus & tremor. Majority of cases develop due to over dosage of medication given to suppress vomiting.

In our study period, among 201 children admitted in the hospital –only 1 patient presented with antihypertensive drug ingestion about 6-8 tablets & observation of 48 hour showed no untoward effect on health.

2 out of 201 children admitted with ingestion of sleeping pill of Grandmother. Minor effect occur on them& only symptomatic therapy needed. Discharge from hospital after 72 hours of observation without any significant health hazards. Mortality (1/201) 0.49% of hospitalized children outcome in our study. There is prolonged suffering>14 days admission needed & intensive care management given for 7 days positively in pesticide poisoning (organophosphorus) .Out of 18 pesticide poisoning [4]. Cases needs ICU management (4/18) i.e. 22.2%. One difficult case of paraquat poisoning which needs ventilatory support & ultimately died due to renal failure.

DISCUSSION

In the present study, we got overall poisoning out of 201 children 127 (63.18%,) children are in the age group 1-3 years.

Sitaram *et al.*, showed that majority of poisoning are in the age group of 1-3 years [4]. Another study Basu M *et al.*, showed that 54.3% cases of poisoning are in the age group of 1-3 years of age [5].

Ghosh VB *et al.*, showed that 80.7% of poisoning in the age group 1-5 years [6]. Sarkar AK *et al.*, showed that out 134 cases children belong to age group of 1-3 years are main victims [7].

So my study is corroborating with above mentioned study. In my study, we got 139 male child (69.1%) and 62 female child (30.9%) out of the total 201children. Gupta et al showed that poisoning in

children is more common in male child in comparison to female child and male to female ratio is 2.5:1 [8].

Budhothaki *et al.*, also showed that male children are more exposed with accidental poisoning in compare to female children and male to female ratio was 1.4:1 [9].

So my study is collaborating with above mentioned study. It suggests that male child are more exposed to poisoning accident as they have more physical activity in compare to female child.

Khadgawat *et al.*, showed that incidence of overall poisoning in children was 41.7 % in summer and 33.7% in monsoon [10]. The kerosene poisoning occurs throughout the year but peaking in summer and my study is collaborating with this study in respect of kerosene poisoning.

Regarding type of poisoning, Sarkar *et al.*, [7] showed that kerosene is the most common type of poisoning in compare to others. Basu M *et al.*, [5] showed that out of 451 cases ingestion of kerosene constituted more than half 54.44% of cases.

My present study is corroborating with the above mentioned study. In present study, we got 18 pesticides poisoning cases, out of them 4 cases needed ICU management (22.2%). One difficult case of paraquat poisoning needed ventilatory support and ultimately died. Mortality was only 0.49%.

Abed M *et al.*, a Saudi Arabian study showed that no case mortality due to poisoning in children [11]. This study corroborating close to our study as we found only one death out of 201children.

CONCLUSION

In our study, we conclude that poisoning in paediatric age group is common particularly in under 5year age group & poisoning can be preventable by some of the following measures like:

- To keep all products (non edible) in their original containers & to avoid in storing non-edible products in milk & beverage bottles.
- To keep all non-edible products like kerosene, turpentine, phenyl etc separate from foods.
- To avoid giving medicine to children in dark room.

- Children always mimic adult & to avoid poisoning or overdose not to take medicine in front of under 5 year children.
- Educational training programme through mass media to teach the parents regarding health hazards of common non-edible household products. At community level, baseline health care worker can also be trained in poison control and prevention.

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