

CLINICAL PROFILE AND OUTCOME OF ACUTE PEDIATRIC POISONING IN URBAN TERTIARY CARE HOSPITAL

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ABSTRACT: Childhood poisoning is a significant public health problem. Poisoning though an important cause of morbidity and mortality in children, has received little attention over the years. Objective: To determine the clinical profile and outcome of acute poisoning in children admitted to tertiary care hospital in South India. **MATERIALS AND METHODS:** We retrospectively reviewed the hospital records of all children aged 1 month to 18 years with definite history of poisoning during the 2-years period from January 2013 to December 2014. We took the profile of all cases and noted their outcome. **RESULTS:** 50 patients presented with acute poisoning during the study period. Majority of children were in the age group between 12 to 18 years (30 cases, 60%). Median age of our patients was 10 years. The majority of our patients resided in urban areas. Drugs (40%), Kerosene oil (24%) and Insecticides (20%) were the agents most frequently implicated. 52% cases were suicidal in nature and the above children belonged to age group of 12 to 18 years. Almost all cases in 1-6 years age group were accidental in nature. One case of kerosene oil consumption died whereas outcome in other cases was good. **CONCLUSION:** Poisoning in pediatric age group is a common problem. Incidence of poisoning with suicidal intention is increasing with accidental poisoning due to kerosene oil consumption is still common in younger age group.

KEYWORDS: poisoning, suicidal, accidental.

INTRODUCTION: Acute poisoning in children is an important Pediatric emergency and is a worldwide problem. Poisoning is a common cause of morbidity and mortality in children. The cause and types of poisoning vary in different parts of world depending upon the factors such as demography, socioeconomic status, education, local beliefs and customs, also by availability and quality of medical facilities. Acute poisoning is common in children and in many cases it is preventable. With the increasing urbanization and rapid socioeconomic development in India during last decade, change in Pediatric poisoning profile can be expected. According to WHO, mortality in children due to poisoning up to 4 years of age varies between 0.3 to 7 per 100,000 populations in different countries of world.¹ There is paucity of such data from India.

Hence we have undertaken this study to determine the clinical profile and outcome of acute Pediatric poisoning in an urban tertiary care hospital.

MATERIALS AND METHODS: We retrospectively reviewed the hospital records of all the pediatric patients who presented with acute poisoning during the 2-years period from January 2013 to December 2014. We took profile of all cases of pediatric poisoning and noted their outcome. All children and adolescents aged less than 18 years with a definite history of poisoning

were included. Children who had food poisoning, snake bite and scorpion sting were excluded from the study. Data regarding age, sex, type of residence, type and quantity of substance consumed, time of ingestion, nature of ingestion, time of symptom onset, time of presentation to hospital, symptoms and signs, investigations, diagnostic and therapeutic interventions, and outcome was noted on a predesigned proforma. All the data from the duly filled proforma was transferred to a Microsoft Excel spreadsheet. We analyzed the data using SPSS 10. For statistical analysis, Fishers's exact test was used.

RESULTS: During the 2-years study period from January 2013 to December 2014, 50 children (28 females, 22 males) presented to the pediatric department with acute poisoning accounting for 4% of PICU admissions. Median age of these children was 10 years with range of 11 months to 17.5 years. The majority of our children, i.e., 30 (60%) were in the 12-18 years age group, while 0-6 year age group and 6-12 year age group comprised 12 (24%) and 8 (16%) of our patients respectively (Table 1). The girls outnumbered boys with a female to male ratio of 1.27:1. The majority, i.e., 40 (80%) of our patients resided in urban areas, whereas 10 (20%) patients resided in rural areas. In most of the children, i.e., 26 (52%) the poisoning was suicidal in nature whereas it was accidental in 24 (48%) (Table 1). Of the 30 children aged 12-18 years, 86.66% had suicidal poisoning, as compared to accidental (13.34%). However among 12 children aged 0-6 years, none had suicidal poisoning and all were accidental in nature. These differences were statistically significant with p value < 0.05. In the age group of 12-18 years, female to male ratio (1.5:1), was significantly higher when compared with the other age group. The immediate precipitating factor among the suicidal cases was varied like argument with parents, failure in exam and depression due to other causes.

Drugs (40%), kerosene (24%) and insecticides (20%) were the substances most frequently implicated in our patients. Among the drugs, antiepileptic medications were the most common agents implicated accounting for 60% poisoning due to drugs. Others were NSAID, thyroxine. Among the insecticides, organophosphorous compounds were the most common agents implicated accounting for 50% of poisoning due to insecticides.

The median time of presentation to the pediatric emergency for our patients was 2 hours (range=1 hour to 48 hour). The median time of presentation was larger for rural patients (6 hour) when compared to urban ones (2 hours) (p<0.05).

Fifteen patients (30%) were asymptomatic after 10-12 hours of observation. 35 patients (70%) had symptoms of poisoning at presentation or developed during the observation period. Major symptom in our patients was vomiting followed by pain abdomen, altered sensorium.

Routine investigations (haemogram, electrolytes) were available in 35 (70%) cases. Chest radiograph was advised for 10 patients including 8 cases with kerosene oil poisoning; and two patients with corrosive ingestion required endoscopy. Gastric lavage was done in 30 (60%) patients. No patient with kerosene poisoning underwent gastric lavage. Specific antidote was required in 7 patients: for organophosphorous (5), paracetamol (2) poisoning. Two patients of kerosene oil poisoning were ventilated.

15 (30%) patients remained asymptomatic and were discharged from hospital after 24hours of observation, while 35 (70%) required symptomatic or definitive treatment. Two

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patients died, both due to kerosene oil poisoning. Psychiatric counseling was done in all patients of suicidal poisoning.

Age in years	Accidental		Suicidal		Total		Total (M+F)
	M	F	M	F	M	F	
0-6	8	4	0	0	8	4	12 (24%)
6-12	4	4	0	0	4	4	8 (16%)
12-18	2	2	8	18	10	20	30 (60%)
Total	14	10	8	18	22	28	50 (100%)
Total (M+F)	24 (48%)		26 (52%)		50 (100%)		

Table 1: Distribution of 50 children depending on age and type of poisoning

Type of poisoning	No. of children	%
Tablets	20	40
Anti-epileptic drugs	12	
NSAID	4	
Multiple	3	
Thyroxine	1	
Kerosene oil	12	24
Insecticides	10	20
OP compound	5	
Organochlorine	2	
Others	3	
Corrosive	05	10
Unknown	03	6

Table 2: Major toxic agents involved (n=50)

Clinical features	No of children	%
vomiting	25	50
Pain abdomen	15	30
Altered sensorium	4	8
Pinpoint pupils	4	8
Respiratory distress	2	4
fasciculation	2	4
others	2	4

Table 3: Common symptoms in patients with poisoning

OTHERS: Loose stools, convulsion, hematemesis.

DISCUSSION: Poisoning among children is one among the most common medical emergencies encountered in Pediatric practice. Children are particularly at risk because of their curious and explorative behavior and hand to mouth activities. It is responsible for 0.33 to 7.6% of total admissions in pediatric wards at various hospitals across India. It is very likely that this reporting is an underestimate of the actual magnitude of this problem as many cases go unreported.²

Common age of presentation in our study was 12 to 18 years which is similar to a study done at a tertiary care hospital in Shimla³. But other Indian studies found 1 to 5 years as common age of presentation.^{4,5,6} Female to male ratio found in our study was 1.27:1, whereas most other Indian studies showed predominant male pattern. Drugs were the most common poisoning noted in our study followed by kerosene and insecticides. This is in contrast to most other Indian studies where kerosene and OP compound poisonings were leading causes. A study conducted in PGIMSR, Chandigarh showed equal incidence of poisoning with kerosene and drugs. In a study conducted at tertiary care hospital in Delhi, poisoning due to drugs was the second most common cause followed by kerosene.⁴ Anti-epileptic drugs were common among drugs in our study and this finding is similar to studies done at tertiary care hospital in Shimla and Dehradun.^{3,5} Kerosene was the most common hydrocarbon compound in our study and this is not different from most Indian studies. Most of our cases were suicidal in nature (52%, 26 cases) and all were in the age group of 12-18years. This finding is in contrast to studies done at tertiary care hospitals in north India and a study done in north Karnataka. The reasons for the attempt at suicide were varied: failure in exams, parental discord, and scolding from parents were the commonly cited reasons. The reason for more number of children with tablet consumption may be easy accessibility to those drugs as most of them were on treatment with anti-epileptics. Kerosene was second leading cause of poisoning in our study and most cases were seen in young children with accidental in nature.

The median time of presentation to our emergency department was 2 hours as most of our patients were from urban places. This finding is similar to studies done in tertiary care hospitals in north India. Vomiting was the common presenting symptom followed by pain abdomen and altered sensorium. Some patients were asymptomatic at presentation. The mean duration of hospital stay in our study was 2.5 days which is similar to study done at hospital in north Karnataka⁶. The mortality due to poisoning reported in previous Indian studies varies from 0 to 11.6%. In our study death occurred in two patients (4%).

CONCLUSION: Because of rapid socioeconomic development and with wider availability of LPG as cooking fuel, incidence of kerosene poisoning is decreasing. Poisoning due to drugs and toxins is on raise. More number of poisoning in urban adolescent population with suicidal intension is to be addressed. Accidental poisoning in younger children can be prevented by parental education, safe storage and use of child proof packing and containers for drugs and insecticides.

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