

CLINICAL SPECTRUM AND OUTCOME OF ACCIDENTAL POISONING IN CHILDREN

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Abstract

Introduction: Childhood poisoning is an important health problem which is usually accidental and is responsible for serious morbidity with mortality all over the world.¹ Accidental poisoning is the second most common cause of death in Iran. This descriptive study is designed to assess the clinical spectrum and outcome of poisoning among children. **Materials and Methods:** This study was conducted in Liaquat University Hospital Hyderabad over a period of one year from 1st January 2007 to 31st December 2007. A total of 62 children up to 12 years of age admitted for acute poisoning to children ward were included. The cases were studied to see the clinical spectrum, complication and out come of the poisoning. In one year period a total of 62 children including 35 (56.45%) boys' and 27 (43.54%) girls presented with acute poisoning. **Results:** Maximum number of cases with poisoning was seen in the age group 1-5 year. Kerosene oil was the commonest form of ingredient used followed by drugs. The most common systems involved were cultural nervous system (CNS), respiratory and GIT. Over the period 2 (3.22%) children died, one of them was poisoned by lice killer liquid and other by insecticide. Most of the cases of poisoning are due to common household products and drugs. It is therefore necessary to educate the population on preventive measure.

INTRODUCTION

Childhood poisoning is an important health problem which is usually accidental and is responsible for serious morbidity with mortality all over the world.¹ Accidental poisoning is the second most common cause of death in Iran.² Majority of cases of accidental poisoning occur in home environment.³ In developing countries household substances and insecticides are the common causes of poisoning.⁴ The main reason in accidental poisoning are lack of supervision by the parents as well as storage of poisonous substances in easily accessible places.

This study was designed to see the clinical spectrum and outcome of childhood poisoning in cases admitted to our Hospital during the last one year.

PATIENTS AND METHOD

Children up to 12 years of age presented with acute poisoning, admitted to paediatric department of Liaquat University Hospital, Hyderabad during the time period of 1st January to 31st December 2007 were enrolled in the study. Both urban and rural communities were studied as this hospital drains a vast area. The detailed history regarding the type of poison, time of seeking medical attention, clinical features, and duration of hospital stay, complications and outcome were recorded.

RESULTS

Among the sixty two cases of acute poisoning 35 (56.45%) were boys and 27 (43.54%) girls, the mean age was 4 years (Table 1). Table 2 and 3 shows the agent and system involved in accidental poisoning. Among the various types of poisoning the most common was due to kerosene they were seen in 27 cases (43.54%), of these 11 took 2- 3 sips of oil, among them 5 had vomiting. In 16 patients the amount taken was unknown. Eleven children who aspirated the oil presented with cough and dyspnoea, 2 patients were drowsy, 3 were irritable, 2 presented with unconsciousness, one of them left against medical advice another was discharged with improvement. Two cases were reported to ingest diesel and petrol, both presented with respiratory distress, cough and they were discharged on improvement.

Table 1: Age and Sex distribution of cases.

Age	Sex	No	%
	M - F		
1 – 5 year	26 - 21	47	75.80%
5- 10 year	05 - 03	08	12.90%
> 10 year	04 - 04	07	11.29%
Total	35 - 28	62	100%

Poisoning by organophosphate compound was seen in 6 (9.67%) children, 3 were exposed and 3 took by mouth. All these children presented with vomiting, headache, salivation, sweating, fits, constricted pupils and unconsciousness. Three cases (4.83%) of poisoning by insecticide such as anti lice liquid and DDT presented with vomiting, respiratory distress drowsiness and unconsciousness, 2 (3.22%) of them expired.

Table 2: Agents responsible for accidental poisoning.

Agent	No	%
Kerosene	27	43.54%
Petrol/ diesel	02	3.22%
Organophosphate	06	9.67%
Corrosive/chemical	03	4.83%
Insecticide	03	4.83%
Opium	02	3.22%
Dhatura	02	3.22%
Cactus plant milk	01	1.16%
Drugs	15	24.19%
Antipsychotic	06	9.67%
Unknown drug	05	8.06%
Analgesics	02	3.22%
Digoxin	01	1.16%
Iron	01	1.16%

Table 3: System involved in accidental poisoning.

System involved	No	%
CNS	27	43.54%
Respiratory	20	32.25%
GIT	15	24.19%
Skin	04	6.45%
Asymptomatic	03	4.83%
General symptoms	01	1.16%

Chemicals such as detergent soap, naphthalene balls and hair colour contributed to 3 (4.83%) admissions, all had vomiting, and one had oral ulceration. Plant poisons such as dhatura seeds taken by 2 (3.22%) children both presented with dryness of mouth, vomiting, fever, giddiness, delirium and dilated pupils, milk of cactus plant was taken by 1 (1.16%) child and had vomiting, opium was given as medicine to 2 (3.22%) children both had hypothermia, respiratory depression and coma.

In the medicinal product group the psychotropic drugs were ingested by 6 children (9.67%), 3 of them presented with extra pyramidal sign and symptoms such as drooling and involuntary movements of extremities others presented with drowsiness, confusion and tremors. Analgesics were ingested by 2(3.22%) children, tablet digoxin by 1 (1.61%) child who presented with cardiac arrhythmias cyanosis, unconsciousness and referred to Karachi on parent's request. Iron tablets were taken by 1(1.61%) child whereas in 5 (8%) cases information regarding the nature of drug was not given and drug were prescribed to other family member but fortunately none of them showed any serious sign and symptom.

Most of the families of children sought medical help within 2 hours, one case of organophosphate and other with diesel ingestion were referred from Taluka Hospital to our unit after 3 – 5 days. In most of the cases the treatment included supportive symptomatic therapy however specific antidote such as atropine and contrathion were given to 4 (6.45%) patients. Gastric lavage was performed on 12 (19.35%) children who ingested poison.

The out come of accidental poisoning, majority of cases were discharged home within 48 hours after receiving appropriate treatment, the maximum duration of stay was 5 days in one case of kerosene poisoning (Table 4). During the study period of 1 year, 2 (3.22%) patients were lost due to acute poisoning, one of them was 8 years old girl who ingested DDT. On admission she was unconscious with irregular respiration and died within 3 hours despite intensive resuscitation. The other patient was 18 months old girl who ingested lice killer liquid, admitted unconscious and died after 24 hours of admission.

Table 4: Outcome of accidental poisoning.

Out Come	No	%
Discharged	53	85.48%
Died	02	3.22%
Lost to followup	04	6.45%
Referred	01	1.16%

DISCUSSION

Acute poisoning in children due to drugs and household products is a common and urgent clinical problem all around the world.⁵⁻⁷ Globally approximately 3 million acute poisoning and 220,000 deaths from pesticide exposure have been reported annually.⁸ In developing countries like Pakistan, India and Bangladesh household products and pesticides are the common causes of poisoning.⁹

Other studies showed that 0.9% of all paediatric admissions (n = 6788) during the study period were due to acute poisoning which were similar to an-

other study but much lower than the study at Khulna where it was 4.7%.^{10,11} The commonest age group involved in acute poisoning in our study was 1–5 years this finding is consistent with other studies.^{12–14} Child at this age is not able to differentiate between safe or dangerous things and have higher tendency to search and put every thing in their mouth. Majority of children were male as boys tend to be more energetic which increased the liability.¹⁵ This male predominance is also reported in another Pakistani study.¹⁶

In the present study household products constitute the major cause of accidental poisoning in children, similar findings reported in a study by Kumar.¹⁷ Among household products kerosene was the leading poison taken due to its high use as cooking fuel and lightening in the house. This substance was usually stored in the soft drink or mineral water bottle and is easily ingested by children. Among the 27 cases of kerosene ingestion 13 developed respiratory distress requiring hospitalization, CNS symptoms were noted in 6 and gastro-intestinal symptoms in 7 patient. Kerosene has been reported as important and leading household product taken accidentally by children in other studies with occurrence of 50.93% and 30%.^{18,15} Petrol and diesel were taken by 2 patients both developed respiratory distress. Due to easy availability of organophosphate compounds, its poisoning was seen in 6(9.6%) cases in the present study that is much higher as compare to the previous report.¹⁹

Plant poisoning constituted 8% of cases in our study, of which 40% were due to dhatura, 20% was due to consumption of cactus plant milk and 40% were due to opium because of its use as traditional medicine in some families to sedate the children by their mothers. All these patients presented with CNS and GIT symptoms and signs. Buch et al reported plant poisoning in 13.4% cases while Khurshed reported more than 15% plant poisoning in their study with more than 50% of cases due to dhatura.^{20,19}

Among household chemicals, corrosive poisoning was seen in 1 (1.61%) child who ingested detergent powder and presented with nausea, vomiting, mouth ulceration and managed conservatively and recovered without any complications. The other 2 children had taken naphthalene balls and hair colour both presented with vomiting.

Drugs were the most frequent offending agents in some countries.¹⁴ In our study 15 (24.19%) children ingested various available medicines. Psychotropic were taken by 6 (9.67%) children, 3 of them presented with features of extrapyramidal involvement, others were drowsy and confused, one left against medical advice and others were discharged after improvement with management. Analgesics

were taken by 2 (3.22%) who presented with skin rashes representing allergic response to drug that was managed by stomach wash, anti histamine and steroids. One girl ingested 10 tablets of digoxin and was admitted in serious arrhythmia she was referred on parents request to Karachi after first aid. Information regarding the nature of drug was not available for 5 (8%) children who presented with mild symptoms such as nausea and vomiting. There was no death due to accidental ingestion of drugs in our study. Most of the families of children with acute poisoning needed medical attention within 2 hours.

During the one year study period, 2 patients were lost due to poisoning yielding an overall mortality rate of 3.22%, one of these patients was 8 year old girl who ingested DDT 2 hour prior to hospitalisation. At admission she was unconscious, with irregular breathing and died within 3 hours despite intensive resuscitation. The other patient was 12 years old girl who ingested lice killer liquid, received unconscious with respiratory distress and died within 24 hours due to cardiopulmonary arrest she did not respond to emergency management. Mortality rate in other studies reported from Turkey was 0.4% that is much lower than in our study but in Indian study it was 4.66% that is higher than in our study.^{14,10} In Lahore and Multan reported mortality rates were 8% and 15% respectively.^{21,22} Majority of the cases were discharged for home within 48 hours. The maximum duration of stay was 5 days in one case. All parents were given relevant information before the child discharged from hospital.

It is **concluded** that younger children are more liable to have accidental poisoning mainly due to inappropriate storage of dangerous household products and negligence by the parents. To prevent poisoning in home environment child resistant container for storage of drugs and other dangerous substances is one of the most important interventions in the reduction of poisoning incidence along with public education on preventive measures.

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