

Spectrum of Clinical Presentations and Outcomes in Children with Poisoning at a Tertiary Care Center

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ABSTRACT

Objective: The purpose of this research was to better understand the severity and treatment options for paediatric poisonings at a major medical centre.

Study Design: Retrospective Study

Place and Duration: Niazi Medical and Dental College, Sargodha, From September, 2021 to February, 2022.

Methods: There were 65 children had age 6 months to 14 years were presented in this study. All the included patients had accidental poisoning. After obtaining written consent from the parents of participants, detailed demographic information including age, sex, place of residence, and weight, was determined. Symptoms of poisoning, causes and products containing poison substances were assessed. SPSS 24.0 was used to analyze all data.

Results: We found that 38 (58.5%) cases were males and females were 27 (41.5%). Most of the children 32 (49.2%) had age 6-months to 3 years, 20 (30.8%) had age 4-6 years and 13 (20%) had age 7-14 years. Diarrhea was the most common symptom found in 28 (43.1%) cases, followed by drowsiness and fever. Organo-phosphorus compounds was the most common poison substance found in 26 (40%) cases, kerosene oil in 15 (23.1%) cases, pharmaceutical drugs in 14 (21.5 %) cases, opioid poisoning in 7 (10.8%) cases and plant/atropine in 3 (4.6%) cases. Most common container of substance was bottle pack found in 22 (33.8%) cases, followed by spray bottle in 16 (24.6%) cases, glass in 11 (16.9%) cases and 21 (32.35) were others.

Conclusion: In this study, we found that young male children are more susceptible to poisoning. The most frequent symptoms of poisoning from organophosphorus chemicals are diarrhea.

Keywords: Accidental Poisoning, Children, Organo-phosphorous, Diarrhea

INTRODUCTION

According to estimates by the World Health Organization, 3,45,814 individuals died from poisoning worldwide in 2004, with 13% of those victims being younger than 20. [1,2] Acute poisoning killed almost 45,000 people under the age of 20 every year. Poisoning rates among children and young adults are estimated to be 1.8 per 100,000 globally, with a range of 0.6-11.6% in India. Even though nonfatal effects of kid poisoning are more common and equally worrying, there is a lack of data on these outcomes at this time. This is despite the fact that these injuries can have a significant impact on victims' lives, especially given their tender ages. [3,4]

Children's poisoning costs the healthcare system roughly \$300 (in 1996 dollars) each victim, according to research released in the United States in 2000 by Ted Miller.[5]The vast majority of child poisonings are accidental, happen in the house or the home environment, and are thus avoidable. Children's poisoning has decreased dramatically because to improved measures of prevention. However, greater data on the frequency, causes, and severity of poisonings is required for state health care planners to establish effective prevention initiatives. The prevalence and severity of childhood poisonings are heavily influenced by factors such as families' socioeconomic standing, cultural norms, the level of parental education, and access to medical care. Studies conducted in industrialised nations show that common household goods, not drugs or pharmaceuticals, are the leading cause of acute paediatric poisonings. This finding may be because to the widespread use of child-proof blister packaging and bottling for pharmaceuticals. Recent research from South Africa confirms that switching to kerosene stored in child-proof canisters has dramatically decreased the number of cases of acute poisoning among children. [6]

Most kids who accidentally ingested kerosene died quickly.[7] Other research conducted in Indian cities found similar patterns. On the other hand, Bhat NK et al. (2011) reported that insecticide poisoning is the most common cause of child poisoning in rural India. [8] Delhi was named the first kerosene-free city in India on June 17, 2014, following the successful implementation of the special programme "Delhi: A kerosene-free city Scheme,

2012." [9] As a result of this announcement, it is reasonable to assume that kerosene supply in Delhi has decreased, thereby altering the spectrum of childhood poisoning and necessitating new approaches to prevention.

Given the young age at which these injuries were acquired, survivors of childhood poisoning may be permanently disfigured. Insecticides and kerosene, both often found in homes, have been found to be swallowed by youngsters as poisons, according to studies conducted in India. Parental income and educational background influence both the frequency and severity of poisoning incidents. The number of people admitted to the hospital as a result of poisoning is influenced by a number of factors, including the poisoning's severity, the community's cultural norms and health care seeking behaviour, and the accessibility of local medical facilities [10-12]. Collecting information on the frequency and root causes of poisoning in children is crucial for designing effective preventative measures.

Nearly 1% of all hospitalised patients in India are admitted due to accidental poisoning, making it the eleventh most common reason for admission to paediatric wards.[13]

Kid-proof packaging and containers have helped reduce drug- and pharmaceutical-related poisoning deaths among children, although these safeguards are still lacking in many impoverished nations. In India, poisoning accounts for between 1% and 6% of emergency room visits involving children and 3.9% of visits to paediatric intensive care units. [14,15] Most poisonings in children under five years of age are the result of carelessness, but self-poisoning is a growing concern in the paediatric population. [15]

The purpose of this research was to better understand the clinical spectrum and prognosis of poisoning in children presenting to a tertiary care hospital.

MATERIAL AND METHODS

This retrospective study was conducted at Niazi Medical and Dental College, Sargodha, From September, 2021 to February, 2022, and comprised of 65 children. After obtaining written consent from the parents of participants, detailed demographic

information including age, sex, place of residence, and weight, was determined. Children with deliberate poisoning, poisoning brought on by ingesting a foreign body, aspiration, or food poisoning were not included.

Included children had age 6-months to 14 years. Information such as the poison's identity, the container in which it was kept, the symptoms that brought the victim to the hospital, the emergency care provided, the administration of any antidotes, the parents' familiarity with the poison, and the final outcome (discharge, death, transfer, or departure against medical advice) were all recorded. Participants were asked to describe the features of poisons they were familiar with. The nurses and kids were able to pinpoint the poison by using historical context (whenever possible). Every effort should be made to use the original containers for the poisons,. An inquiry was made to the attendant about the appearance and texture of the poison. SPSS 24.0 was used to analyze all data.

RESULTS

We found that 38 (58.5%) cases were males and females were 27 (41.5%). Mean weight of children was 13.2±3.14 kg. There were 40 (61.5%) cases from rural areas and 25 (38.5%) cases from urban areas.(table 1)

Table-1: Children with detailed demographics

Variables	Frequency	Percentage
Mean weight (kg)	13.2±3.14	
Gender		
Male	38	58.5
Female	27	41.5
Place of Living		
Rural	40	61.5
Urban	25	38.5

Among 65 cases, most of the children 32 (49.2%) had age 6-months to 3 years, 20 (30.8%) had age 4-6 years and 13 (20%) had age 7-14 years.(fig 1)

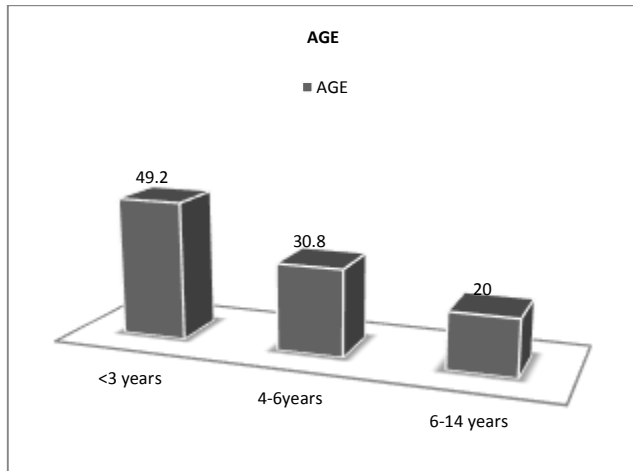


Figure-1: Children with distribution of age

Diarrhea was the most common symptom found in 28 (43.1%) cases, followed by drowsiness, fever, seizures, dysphagia and abdominal pain.(table 2)

Table-2: Presented symptoms among children

Variables	Frequency	Percentage
Symptoms		
Diarrhea	28	43.1
Drowsiness	12	18.5
Fever	10	15.4
Seizures	8	12.3
Dysphagia	4	6.2
Abdominal pain	3	4.6

Organo-phosphorus compounds was the most common poison substance found in 26 (40%) cases, kerosene oil in 15 (23.1%) cases, pharmaceutical drugs in 14 (21.5 %) cases, opioid poisoning in 7 (10.8%) cases and plant/atropine in 3 (4.6%) cases.(fig 2)

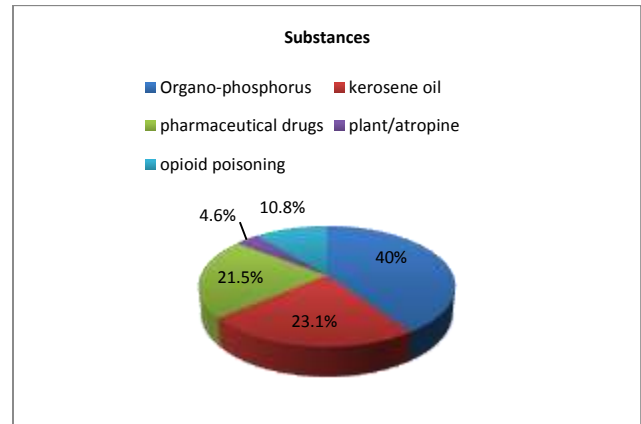


Figure-2: Substances of poisoning

Most common container of substance was bottle pack found in 22 (33.8%) cases, followed by spray bottle in 16 (24.6%) cases, glass in 11 (16.9%) cases and 21 (32.3%) were others.(table 2)

Table-2: Container of substances

Variables	Frequency	Percentage
Containers		
bottle pack	22	23.8
spray bottle	16	24.6
glass	11	16.9
others	21	32.3

DISCUSSION

Children at a certain age are naturally curious, and this curiosity often leads them into potentially dangerous situations. Poisoning is one of the most significant emergency visits to the paediatric emergency room, despite the fact that it is not rare. The paediatrician on call at the emergency room needs to be well-versed on the usual symptoms and treatments for various poisonings. Most cases of childhood poisoning are the result of unintentional exposure at home, and boys are at a higher risk than girls.[16]

In current study 65 children with accidental poisoning were presented. We found that 38 (58.5%) cases were males and females were 27 (41.5%). Mean weight of children was 13.2±3.14 kg. There were 40 (61.5%) cases from rural areas and 25 (38.5%) cases from urban areas. These findings were comparable to the previous studies.[17,18] Among 65 cases, most of the children 32 (49.2%) had age 6-months to 3 years, 20 (30.8%) had age 4-6 years and 13 (20%) had age 7-14 years. Limited data suggests that interventions to improve the environment can prevent childhood injuries, as determined by Bhatta S et al[19]. A retrospective investigation was conducted by Lee J. et al.[20] at a major hospital in Taiwan. There were somewhat more boys than girls in their sample (53.7% vs 52.3%). Of those who were poisoned, pharmaceutical medications accounted for 41.4%, with pesticides coming in second at 9.5%.

Diarrhea was the most common symptom found in 28 (43.1%) cases, followed by drowsiness, fever, seizures, dysphagia and abdominal pain.[19] Organo-phosphorus compounds was the most common poison substance found in 26 (40%) cases, kerosene oil in 15 (23.1%) cases, pharmaceutical drugs in 14 (21.5 %) cases, opioid poisoning in 7 (10.8%) cases and plant/atropine in 3 (4.6%) cases. Because OP compounds come in a variety of formulations, they can be utilized in a variety of contexts, including

as insecticides in agriculture and households and for the treatment of ectoparasites in animals. [21] Child-proof containers for these chemicals are widely available in the West. [22] In our setup, we do not use child-resistant packaging for these substances. Because of the poor educational level of the parents, these substances are rarely locked up where children can't get to them. Consequently, in our system, OP chemicals have been the leading cause of paediatric poisoning. Poisoning from ingesting kerosene is widespread here as it is elsewhere in India since it is still used as an indoor cooking fuel. [23]

In our study, most common container of substance was bottle pack found in 22 (33.8%) cases, followed by spray bottle in 16 (24.6%) cases, glass in 11 (16.9%) cases and 21 (32.3%) were others.[24] The incidence, morbidity, and mortality associated with childhood poisoning in India,[25] and some potential solutions. It is imperative that agricultural chemicals be stored securely. Minimal-income families should be given recommendations on how to utilize cupboard and cabinet locks, as well as access to these locks at no or low cost. Containers of kerosene oil should always be kept securely closed and out of the reach of youngsters. Avoid keeping kerosene oil in plastic containers that could also be used to hold water or soft drinks, and spread awareness about the risk of emesis after ingesting kerosene oil. The public has to be taught how to safely discard expired or unused medication. They are wonderful imitators, thus parents should not take medicine in front of their kids. Warning labels should be included on all bottles of topical remedies. Instruct students on how to avoid poisoning themselves as children. Manufacturers of addictive substances should be warned against marketing their products to young people. The majority of cases of unintentional poisoning in children occur in those between the ages of one and three. Put medications like anticonvulsants and psychotropics that need to be taken every two weeks or once a month away from children.

CONCLUSION

In this study, we found that young male children are more susceptible to poisoning. The most frequent symptoms of poisoning from organophosphorus chemicals are diarrhea.

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