Original Article

Frequency of Accidental Poisoning in Children at CMC Children Hospital / SMBBMU Larkana

Accidental Poisoning in Children

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ABSTRACT

Objective: To assess the frequency of accidental poisoning in children presenting with history of suspected poisoning at CMC Children Hospital / Casualty Department, Larkana.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Pediatrics Department and Casualty Department, CMC, Larkana from January, 2019 to July, 2019.

Materials and Methods: There were 152 children with suspected poisoning were included in the analysis. Demographic and clinical and general physical examination was conducted. Poisoning was evaluated on the basis of history given by patient/guardian and then examination. Data was entered into study specific proforma.

Results: The mean age of the children was 6.14±3.45 years with 93(61.18%) male and 59(38.82%) female. Frequency of accidental poisoning in children presenting with history of suspected poisoning was observed in 48.68% (74/152) children.

Conclusion: This study demonstrates how parental ignorance, negligence, and carelessness result in cases of accidenta lpoisoning. Pharmacists play an important role in educating the public regarding poison management, counseling patients and offering instructions to their careers, and in providing information to doctors regarding antidotes for specific poisons.

Key Words: Poisoning, Accidental poisoning, poison management

Citation of article: Bhutto SA, Faraz N, Gemnani VK, Nazimuddin, Shaikh MA, Larik S. Frequency of Accidental Poisoning in Children at CMC Children Hospital/ Smbbmu Larkana. Med Forum 2022;33(6):33-37.

INTRODUCTION

Poisoning occurs when a person is exposed to a substance that causes organ failure, which can result in harm or death.[1] Children under the age of five are particularly affected due to their natural curiosity and impulsiveness. Also, are there people in this age bracket that are going through the phase of their development? As a result, the majority of paediatric poisonings are caused through ingestion. Because they lack the gross motor skills to put objects to their mouth, young newborns (0- 2 months) are seldom harmed. Ingestion of substances can also be caused by variables like as parental negligence and copying of parental behaviour. Poisoning in children is caused by a complicated interplay between the child, the agent, and environment of home.[2] The frequency and kind of substances consumed varies by location and throughout time.[3,4,10] Paediatric poisoning has a wide range of causes, ranging from a lack of mother awareness, incorrect substance storage, and insufficient monitoring to the child's curious impulsive behavior.[5] Ingestion is the most common method of poisoning regarding to the American Poison Control Centre [6] Kerosene oil, which is widely used in underdeveloped nations in South Asia and portions of Africa,[7,8] is followed by organophosphorous substances such as insecticides, which are particularly dangerous in Pakistan due to a lack of safety precautions from producers to caretakers. Pharmaceuticals, like as cough/flu medicines as well as sedatives/hypnotics, are other dangerous chemicals that young toddlers use out of curiosity. [9]

Accidental childhood poisoning was a serious contributor to Emergency Department presentations and hospital admissions in developed countries like the UK before stringent regulatory policies.[11] A five years study with a fifteen-year analysis of accidental poisoning fatalities in the urban population.[12] The research included a total of 2098 children. Poisoning occurs at a rate of 293 per 100,000 children (0-5 years) and has been declining over the past three decades. Toxic exposure continues to be a regular occurrence in the pediatric population, despite successful treatments and

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Received: January, 2022
Accepted: February, 2022
Printed: June, 2022

safety measures to avoid accidental poisoning.[13-14] Accidental poisoning in children follows a regular trend in terms of age and gender, with males and age < 6 years predominating because they are more active and have a desire to explore the environment, according to epidemiological research. [15]

Accidental poisoning was the 15th leading cause of mortality in Australia between 2010 and 2012.[16] Out of 300 children aged 0 to 19 who reported to an emergency in the United States, among them 02 children die due to poisoning.[17,18] Ahmed et al (2010)[19] studied accidental poisoning in children at their Military Hospital. They discovered that kerosene oil (51 percent) and pesticides were the most often swallowed toxins (17.5 percent). A total of 6% were observed complications and 4% of them were of pneumonia. Seizures occurred in 1% cases. Mortality was not reported. The authors concluded that poisoning in children is a major public health problem in children. Main substances were kerosene oil, insecticide, bleach and medicines. The authors concluded that ignorance, negligence and carelessness were the factors responsible for accidental poisoning. Unintentional childhood poison in is preventable with the utilization of healthcare resources. Advances are being made for its prevention worldwide.[20]

MATERIALS AND METHODS

Study setting: The study was carried out at Pediatrics Department, Casualty Department, CMC Larkana

Duration of Study: 22-01-2019 to 21-07-2019

Study Design: Descriptive cross sectional study

Sample Size: Population: 250

Confidence Level: 95% Confidence Interval: 5 Sample size: 152

Source: [21]. Creative Research System. https://www.surveysystem.com/sscalc.htm

Sampling method: Consecutive sampling (Non probability)

Inclusion Criteria:

1. Age 6 months to 14 years
2. Both genders
3. All cases of suspected poisoning

Exclusion Criteria: Cases of snake or dog bite, insect sting

Data Collection Procedure: After approval of synopsis and permission from Ethical Review Committee of training institute and CPSP, study was conducted at CMC Children Hospital & Casualty department Larkana. After receiving written consent from parents or guardians, all children who met the inclusion criteria were included in the research, and data was input into a study proforma. A complete history of the patient's age, gender, domicile, and clinical history was collected, as well as a comprehensive physical examination. Poisoning was evaluated on the basis of history given by patient/guardian and examination and the frequency of accidental poisoning determined on the basis of history.

Data analysis procedure: SPSS version 20 software was applied to compute the data. Such as age and length of sickness (Continuous data) were collected and evaluated using the mean and standard deviation. The frequency of accidental poisoning was investigated. Age, gender, and residence status were stratified based on recommendations in order to investigate the impact of these characteristics. The Chi square test was used to see if there was any difference between the categories. Significant was applied as a P value below than 0.05.

RESULTS

In study, total 152 children with suspected poisoning were included in the analysis. The average age of the children was 6.14±3.45 years [range: 1-14] as shown in table 1. Age distribution is also presented in figure 1. There were 93(61.18%) male and 59(38.82%) female as shown in figure 2. Residential status of the family is also reported in figure 3. Frequency of accidental poisoning in children presenting with history of suspected poisoning was observed in 48.68% (74/152) children as presented in figure 4. Rate of accidental poisoning in children was significantly high in below 5 years of age children as compare to above 5 years of age children (68.6% vs. 22.7%; p=0.0005) as seemed in table 2. Rate of accidental poisoning in children was not statistically significant between male and female and rural and urban table 2.

Table No.1: Descriptive Statistics of Children

Variables		Age (Years)	Duration of illness
Mean		6.14	3.27
Std. Deviation		3.45	1.27
95% Confidence Interval for Mean	Lower Bound	5.59	3.07
	Upper Bound	6.7	3.47
Median		5	3
Range Interquartile		5	2
Minimum		1	1
Maximum		14	6

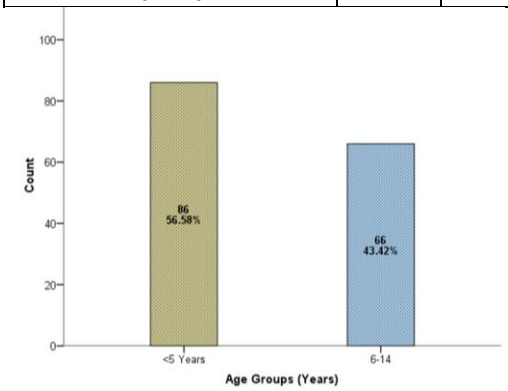

Figure No.1 Age Distribution of the ChildrenN=152

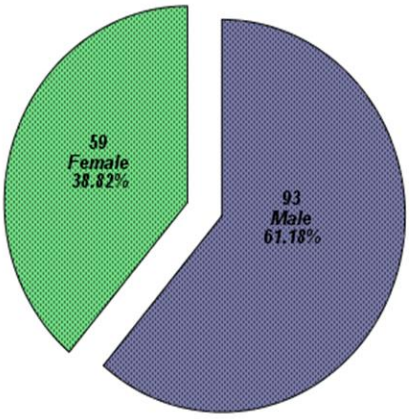

Figure No.2: Gender Distribution of the Children N=152

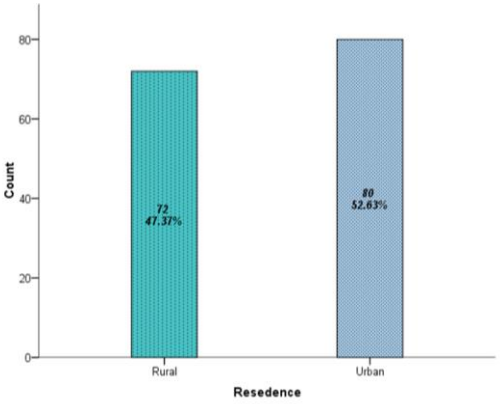

Figure No.3: Residential Status of the Children N=152

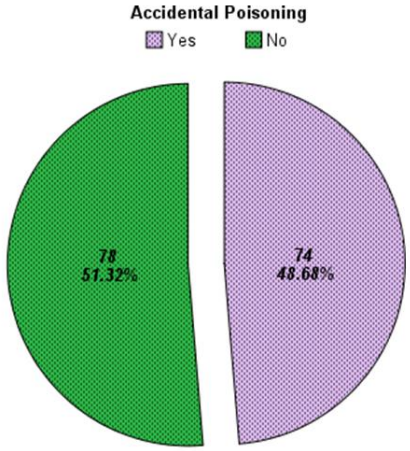

Figure No.4: Frequency of accidental poisoning in children present with poisoning history n=152

Table No.2: Frequency of Accidental Poisoning in Children Presenting with History of Suspected Poisoning By Children Age n=152

Age Groups (Years)	Accidental Poisoning		Total	P-Value
	Yes	No		
≤ 5	59(68.6%)	27(31.4%)	86	0.0005
6-14	15(22.7%)	51(77.3%)	66	

Chi-Square=31.46

Table No.3: Frequency of Accidental Poisoning in Children Presenting with History of Suspected Poisoning by Gender n=152

Gender	Accidental Poisoning		Total	P-Value
	Yes	No		
Male	45(48.4%)	48(51.6%)	93	0.927
Female	29(49.2%)	30(50.8%)	59	

Chi-Square=0.008

Table No.4: Frequency of Accidental Poisoning in Children Presenting with History of Suspected Poisoning by Resident Status n=152

Resident	Accidental Poisoning		Total	P-Value
	Yes	No		
Rural	36(50%)	36(50%)	72	0.758
Urban	38(47.5%)	42(52.5%)	80	

DISCUSSION

Accidental poisoning is a major concern[22] and a leading cause of injury-related morbidity and mortality across the world. Childhood poisoning was believed to be responsible for 500 fatalities per year, largely owing to household items in 1940[23]. According to new study, several social and demographic characteristics such as family size, socioeconomic status, kid attention, and poison storage location are critical risk factors that have a considerable impact on acute home poisoning incidents in children [24,25]. Among developed countries, a lot of data present regarding accidental childhood household poisoning from developed countries, [26,27] but there is a scarcity of data from Pakistan due to the lack of a national database and relevant authority, though individual studies have been conducted in local cities in the past. [28,29] Research in India revealed death rates ranging from zero to 11.6 percent, whereas studies in Pakistan found rates ranging from 2.5 percent to 13.6 percent. [28,30] Karachi had the highest death rate of 13.6 percent in 1982. Aside from these characteristics, the mother's education, awareness of poison, and poison storage location, as well as the number of siblings and family members, all contribute to accidental poisoning incidents. Children of young moms with just a high school education were shown to be more likely to be engaged in home poisoning in a multivariate research. [31,32] The mean age of the children in this research was 6.14.35 years. Previous researches from Pakistan have also found a high occurrence in this age group, owing to children's natural curiosity, which leads to damage. In our survey, there were 61.18 percent males and 38.82 percent females, which was similar to what we saw in the previous study.[26] The ratio was 1.2:1 owing to biological poisoning and 1.5:1 due to chemical poisoning in an Indian research. [33] Accidental poisoning is most common in children aged 0 to 5 years,[33,34] with a peak age of 2-3 years.[35] Accidental poisoning is still a major health concern among children throughout the world,[22] particularly in developing nations like

Pakistan. Accidental poisoning was seen in 48.68 percent of children who presented with a history of suspected poisoning in the current research. Military Hospital study discovered that kerosene oil (51 percent) and pesticides were the most often swallowed toxins (17.5 percent). Complications were seen in 6% of the cases, with pneumonia accounting for 4%. Seizures were reported in 1% of the patients. There was no mention of fatality. Poisoning in children is a huge public health concern, according to the authors. Kerosene oil, pesticide, bleach, and medications were the main ingredients. Kerosene oil intoxication was the most prevalent cause, affecting children aged 2-3 years.[37] Because medication prescription patterns have altered and risky drug packaging has been made safer, accidental poisoning of children resulting in mortality has decreased.[27]

Accidental poisoning prevention is a critical stage in the treatment of important health issues. Poison control centres provide up-to-date information on treatment and toxicity, as well as the opportunity to support education and research as part of their mission.[28] Household goods, cosmetics, cleaning agents, analgesics, plants, pesticides, vitamins, arts and craft materials, and hydrocarbons or other medications are all common causes of accidental poisoning in children. To offer fundamental emergency medical expertise, early assessment and care of poisoning should be done. For individuals with unstable vital signs as a result of a poisoning exposure, emergency medical services should be notified right once to offer advanced life support. The state of awareness of a patient with suspected poisoning must be checked in an emergency, as well as the airway, breathing, and circulation. Heart rate, pulse rate, respiration rate, blood pressure, and glucose level are all vital indicators.

CONCLUSION

Frequency of accidental poisoning in children presenting with history of suspected poisoning was observed in 48.68%. This study demonstrates how parental ignorance, negligence, and carelessness result in cases of accidental poisoning. A pharmacist's involvement is critical in raising public knowledge of immediate poison management, counselling patients and providing recommendations to their caretakers, and providing information to doctors regarding antidotes to specific poisons.

Author's Contribution:

Concept & Design of Study:	Siraj Ahmed Bhutto
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Final Approval of version:	Siraj Ahmed Bhutto

Conflict of Interest: The study has no conflict of interest to declare by any author.

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