

Acute Poisoning in Children in Aden-Yemen

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ABSTRACT

Background: Acute poisoning is one of the main childhood accidents. It is the third most common emergencies of pediatrics leading to increased childhood morbidity and mortality.

Methods: Retrospective study for medical records of patients admitted to the Pediatric Emergency Department in public and private hospital during January 2013 to January 2017 in Aden city. The study population consisted of children up to 15 years of age who were referred to the Pediatric Emergency Department with acute poisoning. Data were extracted from medical charts, including demographic data (age, sex, and residency), route of poisoning, causative agent for acute poisoning, and outcome of acute poisoning.

Result: The total number of poisoned children that could be enrolled during this period was 146; 58 (39.8%) were males less than 5 years old. According to residency 58.9% living in Urban areas, while 41.1% in rural areas. Most of cases poisoning was through the oral route 110 (75.3). Petroleum products in the form of kerosene were implicated 51(34.9%) cases.

Conclusion: Acute poisonings are still a significant cause of morbidity among children in Aden- Yemen. Male child less than 5 years old particularly those from urban area continue as the highest risk group for acute poisoning attempt from ingestions. Kerosene agents are the most frequent agents causing poisoning.

Key words: Acute poisoning, childhood poisoning, Kerosene, Aden, Yemen.

INTRODUCTION

Acute poisoning is one of the main childhood accidents and is as an important public health problem. ^[1] It is the third most common emergencies of pediatrics leading

to increased childhood morbidity and mortality. ^[2]

Over the past few years, due to rapid industrialization, the diversity of pharmacological and cleaning products with high toxic power has grown; these products are sold without adequate control, exposing children to greater risk of contact with these agents. ^[3]

Acute poisoning caused 45000 deaths annually among children and youth under the age 20 years, according to the World Health Organization (WHO) report. ^[4] The exact number of incidences can be higher, because most cases of poisoning actually go unreported. Poisoning in children comprises a significant component of injury-related morbidity and mortality. ^[5]

There are many differences with respect to the pattern and cause of acute poisoning between geographical regions, even within the same country. The knowledge of the general pattern of poisoning in a particular region would help to identify the risk factors and allow early diagnosis and management of such cases, which in turn should result in reduction of morbidity and mortality. ^[6]

In Yemen; lack of the epidemiological data on acute poisoning which is extremely few and it is very difficult to find primary data due to absence of well-organized centers.

Objective: To study the pattern and outcomes of childhood poisoning under the age of 15 years in Aden during the period of 2013-2017.

PATIENTS AND METHODS

We performed retrospective study for medical records of patients admitted to the Pediatric Emergency Department in public and private hospital during January 2013 to January 2017 in Aden city. The study population consisted of children up to 15 years of age who were referred to the Pediatric Emergency Department with acute poisoning and those admitted to the general pediatric ward. Data were extracted from medical charts, including demographic data (age, sex, and residency), route of poisoning, causative agent for acute poisoning, and outcomes of acute poisoning.

RESULTS

The total number of poisoned children that could be enrolled during this period was 146; the patients were divided into 3 groups according to their ages: younger than 5 year, those between 5 and 10 and those between 11 and 15 years.

High numbers of cases were in less than 5 years group, 58 (39.8%) were males and 20 (13.7%) females. Children between 5 and 10 years composed 16(10.9%), 14 (9.6%) male and female respectively and those between 11-15 years group,8 (5.5%) and 30 (20%) male and female respectively (table1).

According to residency 58.9% living in Urban areas, while 41.1% in rural areas (table2).

Most of cases poisoning was through the oral route, which forms 110(75.3%), while other routes 36(24.7%)(table3).

Petroleum products in the form of kerosene, were implicated 51(34.9%) cases, followed by cleaning and disinfectant agents 38(26%), pesticides (organophosphates and rodenticides, 22(15.1%) medications (OTC) 19 (13.1%) and others16 (10.9%) like animal poisoning foreign bodies and carbon monoxide (table4).

Most of cases admitted to the wards (82%), while emergency room received (11%), cases in ICU (7%) out of them, death occur in (3%).

Table (1):Demographic data:Association between age and sex

Age Group (Years)	Number	Male	Female
Less than 5	78(53.4%)	58 (3 9.7%)	20 (13.7%)
5 – 10	30(20.6%)	16 (11.0%)	14 (9.6%)
11 – 15	38(26.0%)	8 (5.5%)	30 (20.5%)
Total	146(100%)	82 (56.2%)	64 (43.8%)

Table (2): Distribution of sex by area of living:

Area of Living	Male	Female	Total
Rural	36(24.7%)	24(16.4%)	60 (41.1%)
Urban	46(31.5%)	40 (27.4%)	86(58.9%)

Table (3): Distribution of route of poisoning:

Route of poisoning	Oral	Other route	Total
	110 (75.3%)	36(24.7%)	146(100.0%)

Table (4): Distribution of the causative agents of acute poisoning:

The causative agents	Number of children	(%)
Kerosene	51	34.9
Cleaning and disinfectant agents	38	26.0
Pesticides	22	15.1
Medications	19	13.1
others	16	10.9
Total	146	100

DISCUSSION

Acute poisoning represents one of the most common medical emergencies in childhood. ^[1]

The most affected age group showed in our study was less than 5 years which represent 53.5% this agreed with Mendonça et al. 2016. ^[1] Azab et al.2016. ^[4] and other. ^[2] Children in this age group are naturally curious, exploring in and around the home.

Male showed high percent than female in two age groups only in this study which parallel with Hassan et al. 2014., ^[2] Even et al. 2014. ^[7] and Azab et al. 2016. ^[4] Those found female more common in the adolescent group may be due to tendency to intentional poisoning (mainly self-harm). There are cultural aspects that may be involved in these findings such as less family vigilance of boys, resulting in greater freedom to perform activities with less adult supervision. Mendonça et al. 2016. ^[1]

Poisoned children were higher in urban area 86 (58.9%) than rural which in contrast with Hassan et al. 2014. ^[2] who showed that the poisoned children more in rural, this may due to difficulty to transport to the cities and lack of records and reliable data makes difficult to estimate the real number of cases.

Our study showed the oral route is the most common route 110(75.3%), which was similar to the results of Hyder et al. 2009. [8] Hassan and Siam. 2014. [2] Oral ingestion is identified as the primary route of poisoning. [9-10] This might be due the ease of administering poisoning agents orally as compared to other routes. [11]

According to the distribution of the causative agents of acute poisoning, Kerosene the major agent caused poisoning (34.9%), this finding agreed with Abhulimhen-Iyoha and Israel-Aina, [12] we suggest that because it still use kerosene in developing countries. While other studies in different countries reported that the pesticides is the most cause of children poisoning [2,4] also medications in other studies. [12]

Cleaning and disinfectant agents is the second cause of poisoning (26.0%), similar to Mendonça et al. 2016. [1] who stated that household cleaning products were also prevalent agents in poisonings, with predominance of bleaching/whitening products (55%), also reported by other studies Hassan and Siam. 2014. [2]

Pesticides the third causative agent in our study which agreed with Abhulimhen-Iyoha and Israel-Aina. 2014., [12] although its widely used in developing countries this is disagreed with other studies [2,4,12] which reported pesticides the leader cause of children poisoning, we suggest the percent reported in our study was from the rural areas, where it is available for agriculture.

Medications consider the fourth one, in contrast to Abhulimhen-Iyoha and Israel-Aina. 2014. [12] who found that the most frequently group of toxic agents in all the periods of ages was medications. Also, Hassan and Siam. 2014. [2] stated that a medication was the second most prevalent agent.

Discrete cases of animal poisoning, foreign bodies and carbon monoxide reported in our study. Regarding small number carbon monoxide poisoning in our

finding agreed with Mutlu et al. 2010. [13] and Hassan and Siam. 2014. [2]

Regarding outcomes, about (82%) admitted to the wards and remained in hospital for over 24 hours,, managed and discharged, while emergency room received (11%) remained under observation for a period lasting from 6 to 24 hours, and discharged. cases in ICU (7%) out of them, death occur in (3%), When discussing the outcome, we take into consideration the different capabilities and facilities of health institutions in each country.

Limitation:

One of the limitations of this study results from the fact that it was retrospective and depended on the quality of the records. And it was conducted in a public hospital and reference center, and this may not be representative of other health units, wherein patients may be attended to and not be duly notified.

CONCLUSION

The results of the present study suggest that accidental poisonings are still a significant cause of morbidity among children in Aden-Yemen. Male child less than 5 years old particularly those from urban area continue as the highest risk group for acute poisoning attempt from ingestions. Kerosene agents are the most frequent agents causing poisoning.

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