

# Poisoning Admission in Children Hospital in Benghazi-Libya, Three Years Review of Medical Record

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**Abstract**—Estimation of the magnitude and causes of poisoning was the objective of the current study. A retrospective study of medical records of all poisoning children admitted to Benghazi Children Hospital in Libya from January 2008 up to December 2010. Number of children admitted was 244; the age ranged from less than one to 13 years old. Most of cases were admitted with mild symptom and the majority of them were boys. Only few cases admitted to intensive care unit and there was no mortality recorded through the period of study. Age group 1 to 3 years (50.8%) had the highest frequency of admission and the peak of admission was during summer. The most common cause of admission was due to ingestion of medication (53.69%), House hold product exposure (26.64%) was the second causes of admission while, 19.67% of admissions were due to Food poisoning. Almost all admitted cases were accidental and medicines were the most consumed substances in addition, improper storage of toxic agents were the first risk factor of poisoning. Present results indicated that, children poisoning seems to be a common pediatric care problem which need to control and prevent.

**Keywords**— Children, hospital, poisoning.

## I. INTRODUCTION

POISONING is a term characterize the potential of a substance which cause damage or dysfunction in the body as a result of it is chemical activity. Young children are usually involved in accidental poisoning without intention to cause harm to their body. Although there is some success in methods of prevention of poisoning in the pediatric population, the ingestion of toxic substances continues to be a common occurrence as pediatric emergency.

Unintentional poisoning can be considered as one of the most important reasons of death in children over the world and can result in lifelong disability and is responsible for about 7% of all mortalities.

Toxicant ingestion ranged from 500,000 to 2,000,000 per year in children under 5 years of age in the world. The occurrence of poisoning, the type and the agent vary in different parts of the world depending on the education status, local beliefs, customs, current availability of the medicine and chemical. The home or the adjacent ground was found the most common place for poisoning in children [1]-[3].

Poisoning of children considered one of the major causes of morbidity in both the developing and the developed world. "It is of false belief that accidents and poisoning are specific

problems of developed countries. Investigations show that they are just as common in different countries and lack of effective strategies for their prevention and management makes it a serious problem" [4].

There were about 1.5 million potentially poisoning exposures in children under 19 years of age reported in the united states in 1999, the majority of children being under age of six [5].

Although death due to accidental poisoning in children is rare it is still major cause of ill health in young children [6]. The aim of this study is to estimate the magnitude of poisoning cases admitted to Benghazi Children Hospital in Libya and to define the causes of acute poisoning over a period of three years.

## II. METHODS

### A. Procedure

A retrospective study of medical record of poisoning admission during three years period from January 2008 up to December 2010 was conducted at Benghazi Children Hospital in Libya. Variables such as age, gender, cause of toxicity, season of admission and severity of cases were studied.

### B. Statistical Analysis

Statistical data program of Microsoft Excel was used.

## III. RESULT AND DISCUSSION

During the period from January 2008 to December 2010 there were 244 admissions accounted as accidental poisoning admission in children aged less than one year to 13 year old. The data collected were divided according to the clinical status into three groups as shown in Table I.

Out of 244 patients 20.90% of admission has been admitted with no signs or symptoms, meanwhile 60.65% had mild symptoms, which include fever, vomiting, diarrhea, abdominal pain and lethargy, these cases were linked to the food poisoning.

Furthermore, admission with severe symptoms (18.44%) were either due to house hold products exposure with convulsion, hallucination, dyspnea, cyanoses, rolling of the eyes or because of medicine ingestion with ataxia, drowsness, trauma, and loss of consciousness.

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TABLE I  
THE CLINICAL STATUS AND THE PERCENTAGE

Clinical state	No. of admission (%)
Without symptom	51 (20,90%)
Mild symptom	148(60.65%)
Sever symptom	45(18,44%)
Total	244

Only few cases were admitted to intensive care unit and there was no mortality recorded through the period of study. Most of cases were discharged within two days.

As illustrated in Fig. 1 the 55.74% of cases were boys, male to female ratio was 1.27:1. This result was almost similar to that obtained from a study conducted in the same hospital under same condition in 2006 in which the ratio between male to female was 1.3:1[6].

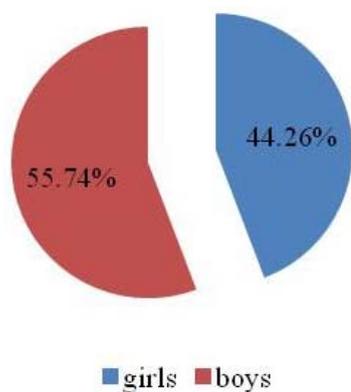


Fig. 1 The relative percentage of male to female

In another study carried out in Australia (2006), the percentage of male to female was equal [7].

The total number of admitted children was divided according to age groups into four subgroups. The ratio of male and female admitted in each subgroup was demonstrated in Table II.

As shown in Fig. 2 the highest frequency of admission was in age group 1-3 years and the present finding is similar to that observed in Kuwait on 2006 (2) and to that mentioned on the report of New York City [8].

As represented in Fig. 2 the number of children admitted decreased as their age increased which probably indicated that as children grown up their awareness get better. It is reported that hospitalization due to poisoning was declined in children after the age of three years and remained low after age of 6 years until it began to rise at the age of 12 year [2].

TABLE II  
GENDER RATIO OF HOSPITALIZED CHILDREN IN DIFFERENT SUBGROUPS

Age groups	Male: Female
Less than one year	5:3
1-3 years	60:64
3-6 years	41:29
6-13 years	30:12

In 1995; Japan poison Information Center received 31.510 inquiries about poisoning in children less than 6 years old [9].

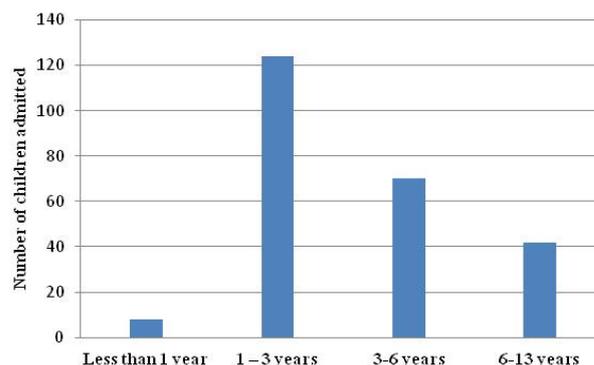


Fig. 2 The distribution of children according to the age group

As illustrated in Fig. 3; the highest percent of poisoning admission found to be during the summer (34.02%) then spring (30.77%). Whereas, winter admissions constituted 23.36% of the total admission case and the lowest percent was throughout autumn (11.88%).

Disruption in the daily routine in spring and summer time in which there is school holiday and children enjoy freedom, in addition to lack of strict supervision by family and easy accessibility to eating out may contribute to the poisoning occurred in children. In contrast, the time spending at school and at home under observation of family during winter and autumn reduce the number of children hospitalized.

Most admitted cases were discharged home after 24 hour. Only 9% of admission was hospitalized for 2 days (Table III), and the maximum duration of stay was less than ten days.

In term of severity of poisoning, the vast majority of admitted children 222, (90.98 %) were hospitalized in common ward whereas only 9.02 % of total were admitted to intensive care unit (ICU) as seen in Fig. 4.

The number of hospitalized patient in the ICU was rather low which might be due to good awareness, early detection, and first aid management by family before a child arrived to the hospital.

TABLE III  
DURATION OF HOSPITALIZATION

Duration of hospitalization	Number. of cases (%)
24 hours	182 (74.60 %)
48 hours	22 (9.01 %)
3-10 days	40 (16.39 %)

No mortality among all groups was recorded throughout the study period.

Although acute exposure to medicine, household products, and food in children are common clinical problems of important concern to general pediatrician, medicine is a leading causative agent for acute poisoning in children similar to the report of NYC department on 2009 [8].

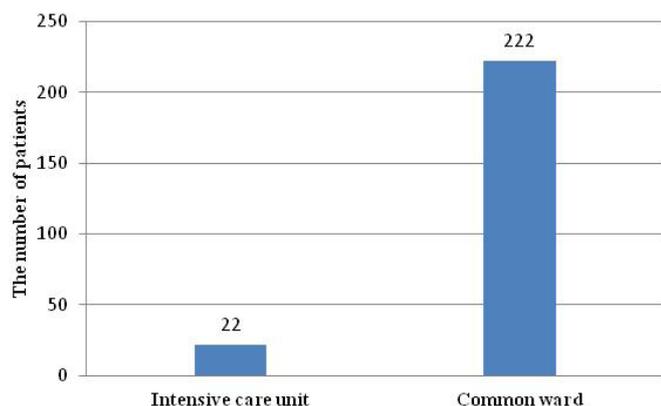


Fig. 4 The severity of poisoning

The data obtained was categorized, according to the cause of poisoning, as three main reasons: poisoning due to medicine ingestion, exposure to household product or food poisoning is presented in Table IV.

It is clear that the most common cause of hospitalization (53.69%) was due to ingestion of medicine, this result was similar to the study performed in Australia on 2006 [7] and to that carried out in Victoria which concluded that the most poisoning admitted cases were due to pharmaceutical ingestion[10]. It is reported that, unintentional ingestion of medicines by children has significant impact on the utilization of health system resources. In addition there are several studies have indicated poisoning with medicine is a very important cause of childhood poisoning in Iran [11].

House hold product exposure (26.64%) was the second common cause of admission while, 19.67 % of admissions were due to food poisoning.

Medications taken by children were oral contraceptive pill, antihypertensive, and tricyclic antidepressant drug.

Although it is reported that vaginal bleeding could occur in girls of all ages during the first few days following accidental ingestion of oral contraceptive pills [12], this effect did not occur in our study. Tricyclic compounds are prescribed as antidepressants for adult patients, while in Children it may be prescribed for nocturnal enuresis, chronic pain disorders, or attention deficit disorder. Patients received tricyclic drug in the current study did not show serious overdose symptoms.

TABLE IV  
THE REASONS IMPLICATED IN POISONING

Causative agents	Number of patients (%)
Medication	131 (53.69%)
House hold	65 (26.64%)
Food poisoning cause	48 (19.67%)

Children are more frequently exposed to household products rather than adults as a result of exploratory behavior, such as bleaches are often brightly packaged and readily attract attention [13].

In the present study detergent was the leading cause of poisoning, in the group received household product. In terms of food poisoning, fast food was responsible for most cases which were among age group 6-13years.

Out of total hospitalized patient, 82.79% of admissions were from the main city of Benghazi whereas; only 17.21% of patients were from the rural area in the environment of the city (Table V). This finding, low percentage of patients admitted, can be explained by decreased awareness of family, low level of education, poor socioeconomic status and their adoption to use their specific traditional way to treat emergency without transfer patient to hospital.

TABLE V  
LOCATION OF PATIENTS

Address	Number. of cases (%)
Benghazi	202 (82.79 %)
Rural area	42 (17.21 %)

#### IV. CONCLUSION

Almost all admitted cases were accidental, and medicines were the most consumed substances also, improper storage of toxic agents were the first risk factor of poisoning. Present results indicate that, children poisoning seems to be a common paediatric care problem which need to be controlled and prevented. In addition health education of parent for adoption of simple home safely measures should be promoted.

#### REFERENCES

- [1] Churchill living stone, Toxic emergencies ,edited by William Hanson, TR 2002, published in New York-Edinburgh-London , First edition in 1984, p 14-16 ,22-27.
- [2] Sayeda A, Gulati R.R , Anezi F. Risk factors in Acute poisoning in children –A Retrospective study *KW Med J* 2006 ;38(1);p33-36.
- [3] Gulati Raj Rani . Burden of A cute poisoning Among children in Kuwait, *Medical Journal of family medicine* 2006; 6(2),p12-14.
- [4] Malek-Afzali H, Mahmoudi M. A review on vital statistics in Iran. *Daru Va Darman* 1993;5-12.
- [5] Laebelt E. Paediatric poisonings in the new millennium: new poisons, new insights, new evidence. *Current Opinion Paediatric* . 2001; 13,155-156.
- [6] Median T. M. Accidental Paediatric Poisoning in Benghazi city in 2006, Libya , faculty of pharmacy , Garyounis University (*graduation project*).
- [7] Steel R. C. Chilhood Poisoning in Australia: AIHW National injury Surveillance Unit at Flinder University ,South Australia. 2006.
- [8] Anonymous. Unintentional poisoning in New York City Children. A special report from the New York city Department of Health and Hygiene 2009 ; 8(2),12-14.
- [9] Goto K, Endoh Y, Kuroki Y, Yoshioka T. Poisoning in children in Japan. *Ind. J. Paediatric*. 1997;64(4),461-468.
- [10] Chien C. Marriott J.L, Ashby K. Ozanne-Smith J.Unintentional ingestion of over the counter medications in children less than 5 years old. *Paediatric Child Health J*. 2003; 39(4),264-269.
- [11] Koushanfar A, Mohammadi M. Poisoning in children in Loghman Hospital in 1999, MD thesis, Saheed- Beheshti University of Medical Science, 1999.
- [12] Borgelt –Hansen L. Oral Contraceptives .*Am. Pharm. Asso.J*. 2001;41(6),165-167.
- [13] Weigert A, Black A. Caustic ingestion in children. *Contin Educ. Anaesth. Crit. Care pain* 2005;5:1-8.