Study of Poisoning Cases Presenting in Emergency Department of Medical Teaching Hospital in Libya

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Abstract

Poisoning is the emergence of unfavourable signs and symptoms in the body after exposure to harmful chemical, physical or drugs substances, the current study, we evaluated risk factors and treatments that help to decrease the incidence in adult patients admitted to the emergency department in Al Gmail government public hospital in Libya. In this retrospective revaluation study, a total of 101 cases attended to the emergency department during the study period from January 2010 to January 2015. Data were collected by studying records from the hospital emergency Center, were studied for gender, age, types of poisons, poisoning route, patient status (conscious, unconscious and semiconscious), treatment and antidote of poisoning, duration of hospital stay. There was significantly more common in females than males (M/F) ratio was (0.4/0.61), Amongst the type of poison, bleach (sodium hypochlorite) poisoning founds the commonest cause (20.7%) and Alcohol accounted for (17.8%) and Food poisoning (14.8%) and benzene (13.9%) were significantly more common than any other types of poisoning in this study. In our study, not all cases of intoxication were intended for self-harm, but the poisoning was accidental.

1 Introduction

The Poison may be defined as an agent is a matter able of producing damage or dysfunction in the body by its chemical activity. It can enter the body in different ways to produce broad or local effects. Since the source of the mankind in this world, poisoning always stay associated with it, though it was largely accidental in nature in the earlier times¹. Poisons are perceptive and silent weapons, which can be easily used without force and often without elicit suspicion². Poisoning is a medical crisis and a patient is always regularly hurried to the hospital at the earliest possible moment, regardless of the amount and nature of poison ingested.

All the cases of poisoning are admitted through emergency services where the safety of life of the patient is the main issue for the doctor ³.

Poisons are classification into⁴⁻⁵

1.1 Corrosive Poisons

1.2 Irritant poisons

A. Inorganic poisons

Phosphorus, chlorine.

B. Organic Poisons

Vegetable – Castor oil Animal – Snakes, scorpions, spiders.

C. Mechanical Poisons

Powder glass, diamond dust.

1.3 Neurotic Poisons

These chiefly act on the central nervous system. Symptoms usually consist of headache, drowsiness, giddiness, delirium, stupor, coma, and convulsion.

A. Cerebral Poisons – Opium, alcohol, sedatives, hypnotics, Anesthetic.

B. Spinal Poison – Strychnine. C.

Peripheral – Curare.

1.4 Cardiac Poisons – Digitalis, tobacco.

1.5 Asphyxia – Coal gas, CO, CO₂ and war gases.

1.6 Miscellaneous – Analgesics, antipyretic.

Poisons including medicines, may be divided into two broad categories⁶:

Poisons (metabolites) which straight causes slowly change structural or functional damage to one or more organ systems. These are also measured to be compounds with high essential toxicity. Included in this category, are materials causing late significant symptoms and signs (e.g. Paracetamol).

Poisons which do not cause tissue impairment directly or those which cause toxic effects that are rapidly and completely reversible.

Most poisons reduction in this category and proper symptomatic and caring during the acute phase will usually assure complete recovery⁷. When dealing with a suspected toxic exposure or poisoning, one of the major priorities should therefore be to effort to identify agents with a high inherent toxicity.

Early identification will allow for time special decontamination and curative procedures in order to avoid severe or permanent tissue damage. It should be noted that patients who have consume poisons with a high inherent tissue-damaging potential often present with severe and persistent gastrointestinal symptoms and signs. A history obtained from a poisoned patient is often unreliable. If possible, relatives and friends should also be questioned as they may have useful information. A special effort should be made to receive a sample of the poisonous substance and its related container.

We aim to study poisoning cases admitted in a hospital and suggest preventive measures to bring down occurrence in Libya. Hence this prospective observational the study was conducted, identify factors related to outcomes in such cases and to suggest strategies for reducing associated morbidity and mortality. It also assists in introducing the new plan and updating frequent treatment protocols, counseling and sensitizing the society on the danger of poisoning and proper usage and storage of chemicals.

2 Materials and methods

This was a retrospective revaluation to describe the epidemiology of poisoning cases in Al Gmail government public hospital in Libya. During the period from January 2010 to January 2015 were studied.

A total of 101 cases attended to the emergency department during the study period and all cases were received in the poisoning and later admitted in the wards.

Data were collected by studying records from the hospital emergency Center patient recording logs over the four-year study period.

Using a pre-structured plan, treatment records for patients identified with poisoning related diagnoses in the emergency center lists were retrieved and were studied for gender, age, types of poisons, poisoning route, patient status (conscious, unconscious and semiconscious), treatment, duration of hospital stay and outcome of the treatment.

All patients' applied standard invasive monitors and oxygen was administered via a face mask or ventilation machine according to the severity of poisoning and the patients were given I.V fluids according to the requirement.

Routine evaluation of each case was done after the recording of medical history. A thorough systemic examination was carried out to detect the presence of any systemic disorder.

2.1 Statistical analysis

All of the data in the study such as age, gender, number of days stayed in the hospital etc., have been summarized in terms of mean, standard deviation, median and was analyzed by using the Statistical Package for Social Science (SPSS) for Windows software 20.0.

3 Results

3.1 Distribution according to gender and age

The total number of patients were 40(39.6) male and female 61(60.4). The male/female (M/F) ratio was (0.4/0.61) conferring to this ratio, the poisoning was significantly more common in females than males in this study. The mean age of poisoned patients was 36.2±19.1 years (minimum 4, maximum 81). The age and gender distribution of poisoned patients is given in Table 1.

Table 1: Distribution according to gender and age (n = 101)

Categories		
Variable	n%	
Gender		
Male	40(39.6)	
Female	61(60.4)	
Age(Mean±SD)	(36.2±19.1)	Min./Max.:4/81
n %: Numbers and percentages		

3.2 Distribution of various types of Poison

Amongst the type of poison, bleach (sodium hypochlorite) poisoning founds the commonest cause (20.7%) and Alcohol accounted for (17.8%) and Food poisoning (14.8%) and benzene (13.9%) were significantly more common than any other types of poisoning (Table 2).

Table 2: Distribution of various types of poison

Type of poison	(n)	Percentage (%)
Bleach (sodium hypochlorite)	21	20.7
Insecticide	7	6.6
Benzene	14	13.9
Drugs	9	8.8
Alcohol	18	17.8
Food poisoning	15	14.8
Carbon monoxide	3	2.9
Benzodiazepam	9	8.8
Unknown chemicals	5	4.9

n: Number of patients

3.3 Route of administration

Figure1, show inhalation route 47% constitutes a major route of intake of poison and 41% of poisoning was due to oral and only 12% of poisoning absorbed via the skin.

Figure 1: 47% inhalation, 41% oral, 12% skin

3.4 The Patient Status

70.3% of the cases were significantly classified as Conscious, 21% were classified as Semiconscious and 17% were classified as Unconscious (no symptoms) (Table 3).

Table 3: Analysis by using Patient Status

Status	Percentage (%)
Conscious	70.3
Semiconscious	21.0
Unconscious	17.0

3.5 Treatment and antidote of poisoning

Gastric decontamination by lavage are known to limit the absorption of some ingested poisons provided they are doing within few-hour post ingestion and only if the airway is protected. 84.1% of the patients had undergone gastric lavage,

89.5% Antiemetic's, 65.7% Normal saline, 43.9%Dextrose normal saline, 14.8%H2-Receptor blocker and 8.9% Flumazenil (Table 4).

Table 4: Treatment and antidote of poisoning

Antidote	n	Percentage (%)
Gastric lavage	85	84.0
Flumazenil	9	8.9
Antiemetic's	90	89.5
Normal saline	66	65.7
Dextrose normal saline	44	43.9
H2-Receptor blocker	15	14.8

n: Number of patients

3.6 The duration of hospital stay

A total of 101 cases as 95.0% of patients stayed in the hospital for 1-3 days, 3.9% for 3-5 days and 1% for 4-6 days.

4 Discussions

The current study revealed that the poisoning was more common in female compared to male (0.4/0.61). Female majority in this study could be accounted to the fact that females are often exposed to the stress and strain of day to day life in our culture. Although poisoning cases found only 1-3% of all emergency cases, such cases are significant because they require early interference and respond well to treatment. According to data from poison control centers 2.3 million cases of poisoning were detailed in the United States in 2011. Among those cases 26.5% had to be treated in a health care institution, while 7.2% required hospitalization. The mortality rate among all cases was 4%⁸. In our study, the most common cause of poisoning was bleach (sodium hypochlorite) and therefore likely to have adverse effects on the female who are accidentally overexposed whereas handling these bleach (sodiumhypochlorite). Because of low cost and easy availability, it has also become an agent of choice for self-poisoning, Followed by intoxication due to alcohol, and food poisoning, respectively. Zeren et al. also found similar results and described that medication related poisoning and multiple medication consumption were the most common causes of poisoning⁹. Inhalation route 47% constitutes a major route of intake of poison and 41% of poisoning was due to oral and only 12% of poisoning absorbed via the skin. None of the patient has been found to use I/V or I/M. The similar finding was reported on the study done in KMC where 86.5% constitute oral intake followed by 13.5% poisoning due to inhalation⁸. The analysis using patient status yielded 70.3% of cases classified as Conscious 21.0% cases as Semiconscious and 17.0% cases as Unconscious without any symptoms. In this study, used gastric lavage irrespective of time of ingestion, with 84.1% documented as receiving gastric lavage within the recommended one hour

from exposure, and in one case up to 24 hours after. This might be due to lack of training and information, lack of other treatment options, or lack of available specific antidotes at the time of management. In the case of dextrose normal saline exposures, atropine was regularly managed¹⁰.

5 Conclusion

In our study, not all cases of intoxication were intended for self-harm. But in our country, Accidental poisoning by bleaching (sodium hypochlorite), benzene and Alcohol are a common public health problem.

However, awareness, guidance and appropriate accessory care can reduction the occurrence of intoxication in accidental cases and also showing educational programs for the population to prevent farther attempts in future.

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7 Conflict of Interest

There are no conflicts of interest.

8 Author's contributions

ZMMA and AAB conducting study, interpreted data and draft the manuscript. Both authors approved the paper for publication.

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