Descriptive Study of Intoxicated Cases Received at Emergency Department at Suez Canal University Hospital in Ismailia City

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Abstract

Objectives: The study aimed at investigating the epidemiology, clinical course, diagnosis, management and outcome of acute poisoning cases received to Emergency Department at Suez Canal University hospitals in Ismailia city.

Subject and Methods: This is descriptive study conducted at the Emergency Department at Suez Canal University Hospital in Ismailia city, Egypt in the period between July and December, 2007.

Results: The total number of cases was 70 in 6 months. The large number of cases was in age between 21-35 years. The mean age of the patients was 26.3 years. Accidental poisoning was the commonest mode of intoxication (accidental 81.4% intentional 17.6%). Ingestion was the most common route of exposure. Males were more common than females (62.9% males and females 37.1%).

Conclusion: Intoxication is a health problem in Ismailia governorate. There is a defect in registration of poisoning cases. Intoxication was common in adults. Food poisoning affected a large number of cases followed by medical poisoning.

Key Words: Intoxication – Emergency – Ismailia.

Introduction

ACUTE poisoning is a common cause of emergency admissions, and a leading cause of injury mortality [1].

It is remarkably difficult to obtain reliable statistics on the morbidity or mortality it causes, even in countries with comparatively advanced systems for collection of population health data. In the developing world, about 600 000 deaths/year are attributed to deliberate self-harm, the majority from poisoning with pesticides [2].

In Egypt the total number of cases with insecticides poisoning was 3652 and cases with chemicals poisoning was 4947. In Ismailia governorate it was 22 cases of insecticides poisoning and 479 cases of chemicals poisoning in 2006. All this statistics at the hospitals belonging to the Ministry of Health and Population, while the poison control center at Ain Shams University recorded 21805 cases alone in 2005 [3].

Insecticides intoxication represents 49% of chemical poisoning cases admitted to poison control centre (PCC), Ain Shams University in Egypt during 2005. Organophosphorous insecticides accounted for 55% of insecticide-poisoned patients. Total number of cases was 2201 and out of them 144 cases required intensive care unit (ICU) admission and death was in 28 cases [4].

Although poisoning can mimic other illnesses, the correct diagnosis can usually be established by the history, physical examination, routine and toxicologic laboratory evaluations, and characteristic clinical course. History should include time, route, duration, and circumstances (location, surrounding events, and intent) of exposure, name and amount of each drug, chemical, or ingredient involved, time of onset, nature, and severity of symptoms, time and type of first aid measures provided, and medical and psychiatric history [5].

Emergency management of poisoning starts from the scene of the event, if poisons are ingested, the poisons information centre can be called for advice. General principles treatment goals include support of vital signs, prevention of further poisons absorption, enhancement of poison elimination, administration of specific antidotes, and prevention of re exposure. Specific treatment depends on the identity of the poison, route and amount of expo-
sure, time of presentation relative to the time of exposure, and severity of poisoning [6].

Prognosis and clinical course of recovery of a patient poisoned by a specific agent depends largely on the quality of care delivered within the first few hours in the emergency setting [7].

Patients and Methods

This is a descriptive study aimed to describe the intoxicated cases presented to Emergency Department at Suez Canal University Hospitals in Ismailia city in the period between July and December, 2007.

Inclusion criteria: All intoxicated cases presented to Emergency Departments at Suez Canal University Hospital.

The study carried out by means of data collection and analysis. The source of data was the toxicology sheet (appendix 1) of the PPC of Ain Shams University which includes the following:

Personal data:
- Past history.
- History of present illness:

Presenting symptoms:
- General examination.
- Local examination.
- Investigations.

Emergency measures:
- Decontamination:
- Antidotal administration:
- Symptomatic treatment:
- Evaluation.

Data management:
- Data collected reviewed, coded and entered to computer. Qualitative Data was analyzed and presented as frequencies, and percentages, also bar charts were used for graphical presentation. Quantitative data were analyzed through Mean and Standard Deviation. All statistical analysis was done through SPSS program version 15.0.

Results

Total number of cases:

The total number of patients received at Emergency Department at Suez Canal University Hospital was 70 patients during the period from 1/7/2007 to 31/12/2007.

Intoxicated cases and age:

28.6% (20 patients) were less than 18 years, 70% (49 patients) were adults (between 18-50 years), 1.4% (1 patient) were more than 50 years, (13 patients) 18.5% were in the first decade and 26 37.3% patients were in the third decade as in Table (1) and Fig. (1).

<table>
<thead>
<tr>
<th>Age categories (in years)</th>
<th>Number of intoxicated cases</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children (&lt;18)</td>
<td>20</td>
<td>28.6</td>
</tr>
<tr>
<td>Adult (18-50)</td>
<td>49</td>
<td>70</td>
</tr>
<tr>
<td>Geriatrics (&gt;50)</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Fig. (1): Number of intoxicated cases according to age categories.

Intoxicated cases and sex:

62.9% (44 patients) were males and 37.1% (26 patients) were females. As in Table (2) and Fig. (2).

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number of intoxicated cases</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>44</td>
<td>62.9</td>
</tr>
<tr>
<td>Female</td>
<td>26</td>
<td>37.1</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Fig. (2): Distribution of intoxicated cases according to Sex.
Intoxicated cases and place of intoxication:

48.6% (34 patients) were at home and 51.4% (26 patients) were at work.

Mode of intoxication:

81.4% (57 patients) were accidental and 18.6% (13 patients) were suicidal (Table 3 and Fig. 3).

Table (3): Intoxicated cases according to sex.

<table>
<thead>
<tr>
<th>Mode of intoxication</th>
<th>Number of intoxicated cases</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accidental</td>
<td>57</td>
<td>81.4</td>
</tr>
<tr>
<td>Suicidal</td>
<td>13</td>
<td>18.6</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Intoxicated cases and toxic agents (diagnosed poisons):

Food poisoning was 64.3% (45 patients), drug poisoning was 18.6% (13 patients), organophosphate poisoning were 11.4% (8 patients), scorpion sting was 1.4% (1 patient), snake bite was 1.4%, potash 1.4% (1 patient), kerosene 1.4% (1 patient) (Table 4 and Fig. 4).

Table (4): Distribution of intoxicated cases according to toxic agents.

<table>
<thead>
<tr>
<th>Diagnosed Poisons</th>
<th>Number of intoxicated cases</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food poisoning</td>
<td>45</td>
<td>63</td>
</tr>
<tr>
<td>Drug (overdose medication)</td>
<td>13</td>
<td>18.2</td>
</tr>
<tr>
<td>Organophosphate poisoning</td>
<td>8</td>
<td>11.4</td>
</tr>
<tr>
<td>Scorpion sting</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Snake bite</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Potash</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Kerosene</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Intoxicated cases and investigations:

Serum glucose level, sodium, potassium, arterial blood gases, renal function tests and liver functions were done to all cases of organophosphate poisoning (8 patients) 11.4%. There was marked elevation in liver enzymes levels among six cases of organophosphate poisoning.

There were oliguria in three cases and marked elevation in creatinine levels among four cases of organophosphate poisoning.

Serum sodium is very important due to the use of concentrated salt solution as an emetic before reaching hospital. Serum glucose should be done to any case with disturbed conscious level. Organophosphate poisoning can cause respiratory acidosis so ABG is a must.

Toxicology screen were not present.

Intoxicated cases and medical decision:

28 patients (40%) were discharged, 36 patients (51.4%) were under observation, 3 patients (4.3%) were admitted to pediatric inpatient, one patient (1.4%) admitted to the internal medicine inpatient and 2 patients (2.8%) to the ICU (Table 5).

Table (5): Relationship between frequency of intoxicated cases received at ED at Suez Canal University and medical decision.

<table>
<thead>
<tr>
<th>Medical decision</th>
<th>Frequency of intoxicated cases</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge</td>
<td>28</td>
<td>40.0</td>
</tr>
<tr>
<td>Observation</td>
<td>36</td>
<td>51.4</td>
</tr>
<tr>
<td>Admission at pediatric inpatient</td>
<td>3</td>
<td>4.3</td>
</tr>
<tr>
<td>Admission at internal medicine inpatient</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Admission at ICU</td>
<td>2</td>
<td>2.9</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Intoxicated cases and outcome:

One patient died (1.4%). The patient was OP poisoning. The cause of death was respiratory failure. 44 patients (62.9%) recovered and there was difficulty to follow up 25 patients (35.7%) (Tables 6).

Table (6): Relationship between intoxicated cases received at ED at Suez Canal University and their outcome.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Frequency intoxicated cases</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Recovered</td>
<td>44</td>
<td>62.9</td>
</tr>
<tr>
<td>Unknown outcome</td>
<td>25</td>
<td>35.7</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Discussion

Morbidity and mortality due to acute poisoning is a worldwide phenomenon and has enormous medical, legal and social significance. The last quarter of the 20th century saw advances in the fields of agriculture, industrial technology and medical pharmacy. These advances have paralleled changes in the trends of acute poisoning in developing and developed countries [8].

The study was carried out at the ER at Suez Canal University Hospital in the period between July and December 2007. This study will help in creating a database that will provide a full description of intoxicated patients regarding their number, diagnoses and management at the Emergency Department in Suez Canal University Hospital in Ismailia city during the period of the study.

The study revealed that the total number of cases was 70 patients and the mean age of patients was 26.3 years.

The actual number of poisoning patients in Ismailia is more than that of our study because in our hospital, the ED only receives the emergency cases three days only in the week and the other days the General Hospital receives the emergency cases and there are occasions that are usually associated with increase of poisoning cases such as weekends, the spring day and other occasions like the day of the results of the exams in the final year of the secondary schools.

Majority of victims in our study were between 18-50 years (adults) 70% followed by the age group between 1-18 years (children) 28.6%. While poisoning was rare in geriatrics 1.4%. Accidental poisoning was common in children while suicidal poisoning was common in adults. This agrees with a study done at Oman in which adults were (62.9%) followed by children (37.2%) [9]. This disagreed with a study done in USA in which 66% of cases were children [8].

Our study revealed that males were more than females (males 62.9%, females 37.1). The high incidence may be because males are more exposed to strain and occupational exposure compared to females. This agrees with a study done at Oman, males were 54.1% and females 45.9% [9]. And disagree with the study done at Iran in which female predominance was found (53.4%) [10].

In our study females were more than males in committing suicide by self poisoning (females 42.3%, males 4.5%). The highest prevalence of suicide in females is because they are more subjected to social pressure and these pressures may differ than males. On the other hand males tend to use more injurious methods of self-killing than self poisoning. This agrees with results of a study made in PCC in Ain Shams University (females 29.37%, males 15.74%) [11]. The preponderance of females in the present sample is consistent with a typical world-wide pattern [12].

In our study there was a large number of cases of food poisoning (63%) followed by pharmaceutical (18.2%) and insecticides (OP) (11.4%). While in Oman the scorpion sting was the most common type of intoxication [9].

In Iran, the most important agents of acute poisoning were drugs (69.13%) especially sedative-hypnotics followed by opioids (12.34%) and pesticides especially (OP) (6.21%) [10].

In our study, the most common agents used for suicide was pharmaceutics. Antibiotics and analgesics were the common medication used for intentional poisoning followed by OP. In western countries drugs (sedatives and analgesics) have been reported as the common substances abused with mortality rates varying between 0.4%-2% [8].

The overall number of poisoned patients was higher in July, August and September 85% (summer) than winter. In Iran, the large number of poisoned patients was higher in spring and summer (62.8%).

In the present study, history taking was not reliable in all cases. As in developing countries
people denying the presence of diseases or contact with psychiatrist.

This study showed that most of patients suffered gastrointestinal tract symptoms 81.3%. The large number of GIT symptoms in our study was due to food poisoning and organophosphate poisoning.

Routine investigation was the only available investigation. Liver functions, kidney functions, electrolytes, CBC and random blood sugar.

The current study showed that 28 patients (40%) were treated at the Emergency Department and discharged, 36 patients were under observation (51.4%), and 4 cases (5.7%) were hospitalized. The study done by PPC at Ain Shams University reported that 76% were observed in the ER and 22% were admitted to the inpatient.

This study showed that 2 patients (2.8%) were admitted to the (ICU). One of them was organophosphate and the other case was drug overdose. The main cause of admission was coma and respiratory failure. While the study done by PPC at Ain Shams University reported that 2% of cases were in need for ICU [11].

The morbidity, mortality in any case of acute poisoning depends upon number of factors such as nature of poison dose consumed, level of available medical facilities and time interval between intake of poison and provision of medical help.

The study showed that one case died of organophosphate poisoning (1.4%). It was suicidal and the cause of death was respiratory failure. This agrees with study done by PPC at Ain Shams University [11].

There are several limitations to our study. First, it was done at only one hospital in one city, Ismailia, which limits its results. The diagnosis of poisoning cases was depending only on history and physical examination in most cases and there was no confirmation by laboratory. We also registered cases that came to the emergency department, but missing patients who attempted suicide and never presented to the ER or died before reaching the hospital.

References
3- Egyptian ministries of health and population information unit: Total number of poisoning cases in Egypt, 2006: ministry of health and population. Cairo, Egypt, 2007.