

**ASSESSMENT OF THE PATTERN AND SEVERITY GRADING OF
ACUTE POISONING IN CHILDREN ADMITTED TO
ALEXANDRIA POISON CENTER**

BY

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ABSTRACT

The present work aimed to study the pattern and severity grading of acute poisoning among children. The study included all children less than 15 years (n=1072) who were admitted to Alexandria Poison Center (APC) at Alexandria Main University Hospital during six months period (July - December 2000). Children less than 5 years accounted for 62.8% of the total children where toddlers were the most vulnerable. Early adolescents 10 < 15 years constituted 26.1%, where girls significantly exceeded boys. Children with low and moderate socioeconomic levels represented 64.0% and 20.1% respectively. Accidental poisoning accounted for the majority of children (81.5%); all of them were less than 5 years. Attempted suicide represented 17.9%, while overdose by addicting drugs constituted 0.6%, all were boys and 10 < 15 years. Non-drug poisoning represented 74.3%, while poisoning by drugs accounted for 17.5%. Carbon monoxide poisoning, animal poisons (snakes and scorpions) and plant poisoning constituted 6.7%, 1.2% and 0.3% respectively. According to multicenter Study of Poisoning in Children (MSPC) score, the study revealed that children with score 0 (asymptomatic) represented 26.2%, those with scores 1 and 2 (mild and moderate) constituted 37.3% and 32.0% respectively, while scores 3 and 4 i.e. severe and very severe poisoning accounted for 3.9% and 0.7% respectively. It was noticed that the MSPC Severity Score goes hand in hand with Matthew and Lawson scale (M & L scale), where severe grades of coma by M & L scale i.e. grades 3 and 4 have moderate, severe and very severe poisoning by MSPC Score.

INTRODUCTION

Acute poisoning is a real problem in developed as well as developing countries. It

is not restricted to any geographic or social group and should be the concern of every practicing physician. It has to be managed with maximum effort from med-

ical, psychological and social aspects. Children are more frequently exposed to poisons than any other group, and poisoning is a significant cause of pediatric injury morbidity and mortality (Guyer and Ellers, 1990).

Poisoning in children has its basis in several factors: 1-The availability of a poison in the child's environment; 2- the ability of a child to explore the environment; and 3- environmental factors including such things as parental factors, the child's own stage of development, and outside factors modifying the family organization (Fazen et al., 1986).

Circumstances of childhood poisoning:

Several characteristics associated with poisoning in children 1 < 6 years that differentiate them from ingestion in adolescents 13 < 17 years or adults .1-They are without suicidal intent; 2-There is usually only one substance involved; 3-The substances are usually non-toxic; 4-The amount is usually small; 5-Children usually present for evaluation soon after ingestion. The peak age for childhood poisoning is between 1 and 3 years (Brayden et al., 1993).

Unintentional ingestion is unusual after age 5 and may reflect mistaken consumption of a substance from a mislabeled container. Between the ages of 5 and 9, poisoning may be a reflection of interfamilial

stress or suicidal intent. After age 9 and through adolescence, overdose or poisoning exposure frequently results either from a suicidal gesture or attempt, or from an adverse effect while seeking drug-induced euphoria (Litovitz et al., 1993).

The annual reports of the American Association of Poison Control Centers Toxic Exposure Surveillance System during the years 1991-1995 (Litovitz et al., 1994, 1995, 1996) reported that the leading causes of acute poisoning in children less than 6 years in a descending order are: cosmetics, cleaning substances; analgesic agents; plants; cough/cold preparations; topical agents; foreign bodies; antimicrobials; vitamins; and GI preparations

Non-toxic ingestion:

Frequently the emergency department staff is consulted about a childhood ingestion of some common household products, many of which are considered to be relatively non-toxic, unless taken in huge amounts e.g., of common products that are nontoxic when ingested in small amounts (Mofenson and Caraccio, 1998): adhesives; baby-product cosmetics; bath oil; Bleach (household); calamine lotion candies; chalk; cigarettes or cigars; clay; contraceptive pills; corticosteroides; cosmetics; deodorants; fabric softeners; hand lotions; hydrogen peroxide (medicinal 3%) Laxatives; Lipstick; makeup; matches newspaper; pencil (lead-graphite); rouge;

shampoo (liquid); shaving creams and lotions; soaps; thermometers (mercury); toothpaste; vitamins; zinc oxide ...etc.

Severity of childhood poisoning:

Scores for severity grading of childhood poisoning may be useful in comparing different causes of poisoning, in order to identify the main risks and their changes over time (Litovitz and Monoguerra, 1992).

(1) American association of poison control center (AAPCC) severity grading:

This grading system for assessment of poisoning in children was introduced during the 5-year period (1985 through 1989) study by AAPCC. The following eight options are used for medical outcome coding in these database: no effect, minor effect, moderate effect, major effect, unknown nontoxic, unknown potentially toxic, unrelated effect, and death.

(2) Multi-center Study of Poisoning in Children (MSPC) Score:

According to MSPC score, the severity of poisoning is graded on four levels (mild, moderate, severe, very severe) taking into consideration clinical signs, symptoms and / or laboratory data in nine different groups. Seven are related to organ systems (gastrointestinal, nervous, respiratory, circulatory, renal, hepatic, skin), one to metabolic abnormalities and one to inju-

ries from corrosive substances. Each patient is classified according to the single highest severity grade observed in any of the nine groups. Drug adverse reactions, food intoxication, and allergies were excluded (Marchi et al., 1995).

This work aimed to study the pattern and severity grading of acute poisoning among children less than 15 years admitted to Alexandria Poison Center (APC) at Alexandria Main University Hospital (AMUH) using the Multicenter Study of Poisoning in Children (MSPC) score.

Patients

A total of 1072 children less than 15 years were presented with acute poisoning and admitted to the Alexandria Poison Center (APC) at Alexandria Main University Hospital (AMUH) during six months period starting from the first of July 2000 till the end of December 2000.

Methods

All children were clinically examined and family members were interviewed as regards: Children's characteristics, circumstances of poisoning whether accidental, attempted suicide or overdose in addicts, clinical presentation of children on admission (vital signs, level of consciousness using M & L scale (Matthew and Lawson, 1984). Assessment of the severity grading of poisoning in children using the Multi-center Study of Poisoning in Children

(MSPC) score (Marchi et al., 1995), duration of stay, and Outcome. Drug adverse reactions, food poisoning, and allergies were excluded.

Statistical analysis: was done using the SPSS Software Program. Statistical tests used were arithmetic mean, Standard Deviation, t test, ANOVA test, and chi square test where the level of significance was set at 5%.

RESULTS AND DISCUSSION

The present work aimed to study the pattern and severity grading of acute poisoning among children less than 15 years admitted to Alexandria Poison Center as regards characteristics of children, frequency and circumstances of poisoning, type of poison, severity grading and outcome.

The study was carried out on children less than 15 years (n=1072) with diagnosis of acute poisoning. They constituted about one third (30.8%) of the total number of patients admitted to the APC during the same period (n=3475). A nearby figure of 34% was demonstrated in Alexandria by Abd El-Megid and Salem (1995b) during one-year period.

Age and Sex:

The study showed that the highest percentage of children was those <5 years

(62.8%). This high percentage denotes carelessness and less supervision by those caring for them. Moreover their home environment is not safe as they are exposed to different household substances such as kerosene, caustic potash, insecticides and different types of drugs (Dawson et al., 1997).

In children less than 5 years, toddlers 1<3 years (41.2%) were the more susceptible (Table 1). The same finding was demonstrated by Abdel Megid and Salem (1995a) in Egypt and by Petridou et al (1997) in Greece.

The study revealed that early adolescents 10<15 years accounted for 26.1%. This reflects that stresses in this age group increase the risk of acute poisoning among adolescents as an attempt to escape from stresses and or to gain attention by their families.

In this study, the mean age for children was 5.6 ± 4.4 years. A slightly higher mean figure of 6.5 years was given by Kumar, (1991) in India while a much lower mean figure of 2.62 years was given by Abuekteish et al., (1998) in Jordan. This might be attributed to differences in the age range of both samples, where in the present study the age ranged from one month up to 15 years, while in the Jordan study it is ranged from 10 months to 13 years.

The present study revealed that boys significantly exceeded girls in the age group <5 years (69.5% compared to 56.3%). The same finding was reported in Egypt (Abdel Megid and Salem, 1995), Greece (Petridou et al., 1997), and Iran (Abdollahi et al., 1997). This could be attributed to the fact that boys in this young age are more active and curious for exploring the external world than girls. They use their mouths for identification especially among toddlers 1<3 years (Salem et al., 1985).

On other hand, the study showed that girls significantly exceeded boys in the age group 10<15 years (31.8% compared to 20.2%). In this age group, girls are immature and emotionally unstable and may escape emotional problems through attempted suicide. The same finding was reported by Buffoni et al., (1981) and Abd El-Megid and Salem (1995b).

Time at admission:

The study indicated that a good percentage of children were admitted during the nightshift (44.0%) followed by the afternoon shift (36%), then the morning shift (20%). The high percentage of admission in night and the afternoon shifts is explained by that parents in the morning are so busy with lack of supervision to their young children at home while attempted suicide commonly occurred in the afternoon and early night when the older chil-

dren comes back from their schools (Abdel Megid et al., 1986).

Socioeconomic level:

Parameters that determine socioeconomic level were described by Salem et al., (1985) and it is divided into low, moderate & high according to birth order, family size, crowding index, family income and parent's education.

The present study revealed that children with low socioeconomic level represented the highest percentage (64.0%) followed by moderate level (20.1%). High socioeconomic level was the least one (15.9%). This could explain why nearly three quarters of children (74.3%) were poisoned by non-drugs like kerosene, insecticides, Clorox, rodenticides, and caustic potash, which are kept at the floor level in the kitchen or bathrooms.

The predominance of low socioeconomic level in acute poisoning in children is directly related to the triad of ignorance, disease and poverty. Lack of care increases the liability for accidental poisoning among children, ignorance allows for therapeutic mishaps and overdose; also poverty leads to lack of effective medical service.

The predominance of low socioeconomic level in acute poisoning in children is emphasized by Salem et al., (1985) in Alex-

andria, Egypt and by Singh et al., (1995) in India.

Admission to ICU:

The study showed that only 3% of the total children needed ICU interventions. The same percentage of 3.0% was given by Dorado et al., (1996) in Spain, during one-year study period. Kallenbach et al., (1981) in Johannesburg reported a higher figure of admission to ICU, which was 6.1%, but this was during three years period.

Circumstances of poisoning, age and sex (Table 2):

The study revealed that accidental poisoning accounted for the majority of children (81.5%); all were children less than 5 years where boys significantly exceeded girls ($Z= 6.765$). A nearby figure of 77.7% of accidental poisoning was reported by Yang et al., (1997) in Taiwan, while in Bombay Mahta et al., (1996) reported that 96.7% of acute poisoning in children was accidental.

Attempted suicide represented 17.9% of the total children, where girls significantly exceeded boys ($Z=7.334$). The vast majority of them were adolescents 10<15 years (93.7%), their mean age was 11.4 ± 3.2 years. In a previous study by Buffoni et al., (1981), most cases of attempted suicide were older children 9 years and more where girls exceeded boys. The emergence of the problem of attempted suicide in ear-

ly adolescence 10<15 years, necessitates the enforcement of mental health programs to school students (primary, preparatory and secondary).

Overdose in addicts represented 0.6% of the total children, and all were boys. Their age was 10<15 years, with a mean of 12.5 ± 0.9 years.

Causes of attempted suicide (Table 3):

The present study revealed that of the total children, who attempted suicide, family troubles were the most common causes (57.8%), to be followed by emotional troubles (32.8%). A nearby figure of 55% in family troubles and 20% for emotional troubles were reported in previous studies done in Alexandria (Abdel Megid and Salem 2000; Imam et al., 2000).

As regards sex, girls predominated boys as a whole (75% compared to 25%), but, boys exceeded girls in family troubles (79.2% compared to 50.7%) while girls exceeded boys in emotional troubles (41.0% compared to 8.2%). This is expected, as boys usually found outside door, came late at night so making continuous friction with their parents.

Category of poison:

The present study showed that non-drug preparations were responsible for nearly three-quarters (74.3%) of poisoning in children, while drugs accounted for

17.5% of the total poisoning (Table 4). The predominance of non-drugs over drugs was reported in a previous similar study (Salem et al., 1985) done in Alexandria Poison Center, Egypt. The reverse of these findings where drugs predominated non-drugs was reported in United Arab Emirates (Dawson et al., 1997) and in India (Duta et al., 1998). This could be explained by the fact that in Egypt, non-drug preparations and household cleaning products are easily available at home and are within the reach of young children, where all of them are kept in containers without safety caps.

Carbon monoxide (CO) poisoning represented 6.7% of the total children with acute poisoning. A higher figure of 10% was reported in a previous native study (Atroosh, 1996). Adolescents (10-15 years) and children 5<10 years were the most vulnerable groups affected by carbon monoxide poisoning. The same findings were reported by Abdel Megid et al., (1995b).

Animal poisoning (snakes and scorpions) represented 1.2% of total cases of acute poisoning while plant poisoning represented 0.3 %.

The study indicated that kerosene headed the list of non-drug poisoning (28.6%) (Table 4). A higher figure of 30% was reported in a previous study in India (Kumar, 1991). In Northern Jordan, Abue-

keitsh et al., (1998) demonstrated that 34% of the total children were poisoned by kerosene.

Category of poison and age:

Kerosene (28.6%), Choline-esterase inhibitor insecticides (23%) and Chlorox (18.8%) represented the most common non-drug poisoning in this study, while rodenticides and caustic potash were the 4th and 5th in frequency (10.2% & 2.9% respectively) (Table 5). In a previous study done in Alexandria, Abd El-Megid and Salem, (1995a) found that the most common non-drugs were Chlorox (45%), kerosene (27%), and insecticides (16%). On the other hand, caustic potash represented a much higher figure of 13%, if compared with that in the present study (2.9%). Again, caustic potash represented a higher figure of 20% in a study done in northern Jordan (Abuekteish et al., 1998). The regression of the frequency of poisoning by caustic potash could be explained by the increased knowledge and awareness about its danger resulting in decrease of its use at home as a household cleaning agent and its substitution by the less dangerous household cleaning agents, like Chlorox.

The relation between type of non-drug poisoning and age revealed (Table 4) that in children less than five years kerosene and Chlorox were the most common non-

drug poisoning (36.7% and 23.9% respectively), while in adolescents 10<15 years, Ch E.I.I. were the most common one (51.2%) to be followed by rodenticides (23.2%). This could be explained by the fact that young children are more prone to accidental poisoning, by household cleaning agents while adolescents especially girls when seeking attempted suicide they considered Ch E.I.I and rodenticides a more or less lethal agent to end their life. The predominance of kerosene and Chlorox among children less than 5 years was reported by Abd El-Megid et al., (1996).

As regards poisoning by drugs (Table 5), analgesics especially salicylates & paracetamol represented the most common (16.5%), to be followed by psychotropic drugs (14.4%). In a study done by Kotwica and Rogaczewaska (1996) analgesics and psychotropic drugs together represented 25% of the total drug poisoning.

Analgesics and antibiotics were the most common type of drugs among children <5 years and 5<10 years, while psychotropic drugs were the most common type of drug poisoning among adolescents. The predominance of analgesics especially in children <5 years was reported by Dawson et al., (1997) in United Arab Emirates.

Level of consciousness:

It was assessed using Matthew and

Lawson scale (1984), which is graded into the following grades. Grade (0) conscious, grade (1) drowsy but responds to verbal commands, grade (2) unconscious but responds to minimal painful stimuli, grade (3) unconscious but responds to maximal painful stimuli and grade (4) unconscious with no response to stimuli what so ever.

The present study demonstrated that nearly three quarters of children (72.8%) were conscious, grade 1 constituted 23.5% while grade 2 accounted for 2.9%. Severe poisoning (grades 3&4) accounted for 0.8%.

The study revealed that in severe poisoning (n=9) more than three quarters of cases (n=7) were due to non-drug poisoning (77.8%), while the other two children one ingested digoxin and the other was CO poisoning (11.1% each).

Multi-center Study of Poisoning in Children (MSPC) score:

According to the Multi-center Study of poisoning in children (MSPC) score, the severity of poisoning is graded on four levels: mild, moderate, severe, and very severe (Marchi et al., 1995). The present study revealed that more than one quarter of children (26.2%) were asymptomatic (score 0). Scores 1&2 (mild and moderate poisoning) represented 37.3% and 32.0% respectively. Scores 3&4 (severe and very

severe poisoning) represented 3.9% and 0.7% respectively (Table 6).

In a study using MSPC score, Marchi et al., (1995) in Italy reported that score (0) was 56.7%, score (1) was 23.2%, score (2) was 18.6%, and scores 3&4 together were 1.5%. The increasing severity of poisoning percentages in the present study in comparison with Marchi study could be attributed to the fact that in the present study non-drug poisoning accounted for 74.3% of the total poisoning specially by household cleaning products which are without safety caps. Added to this the bad habit of some mothers in keeping dangerous household agents like kerosene, Chlorox, benzene, caustic potash, insecticides.... etc in a previously used non-safety caps containers (Abdel Megid and Salem, 1995a). El Shourbagy (1991) reported asymptomatic cases of 22% among children with accidental poisoning.

The study revealed that a high percentage of non-drug poisoning (69.7%) usually presented as asymptomatic and mild poisoning i.e., scores 0&1. A higher figure of 93.5% was given by the Swiss Toxicological Information Center, Annual Report 2000. On the other hand, mild and moderate poisoning were more likely with drug poisoning (76%). CO and animal poisoning presented mainly by score 2 i.e. moderate poisoning (69.4% and 58.3% respectively).

MSPC score and level of consciousness:

The MSPC severity score goes hand in hand with Matthew & Lawson scale for assessment of severity of poisoning by measuring the level of consciousness, where severe grades of coma by M&L scale i.e. grades 3&4 have scored as moderate, severe and very severe poisoning by MSPC score (Table 7).

MSPC score and different types of poisoning:

As regards different types of non-drug poisoning and MSPC severity score, the study showed that more than half the children poisoned by Chlorox (51.1%) were asymptomatic (score 0), while children with moderate, severe and very severe poisoning were more likely to be poisoned by cholinesterase inhibitor insecticides (46.0%, 56% and 33.3% respectively), followed by kerosene poisoning (Table 8).

As regards drugs, moderate and severe poisonings were more likely to be caused by Digoxin (12.3% and 44.4%) and psychotropic drugs (28.8% and 22.2% respectively), while Antibiotics (31.4%) and miscellaneous drugs (28.6%) were responsible for most of the asymptomatic cases (Table 8). This indicates that the Multi-center study of poisoning in children (MSPC) score confirms the clinical assessment of severity grading of acute poisoning in chil-

dren by different poison categories e.g. asymptomatic cases graded by MSPC severity score, were mainly due to Clorox, antibiotics and others.

It is concluded that the Multi-center Study of Poisoning in Children (MSPC) severity score is a very simple, reliable score for assessment of the severity grading of acute poisoning in children, in conjunction with Matthew and Lawson scale..

Duration of stay:

The present study indicated that the mean duration of stay was 1.05 ± 0.90 days. The majority of children stayed less than one day (81.7%). In United Arab Emirates (Dawson et al., 1997), 75% of children stayed one day or less.

Outcome and MSPC :

The present study showed that 99.5% of the children recovered completely. Those who recovered with complications were 0.3% of the total children. Complications were in the form of esophageal stricture following caustic potash ingestion; they were accidentally poisoned and graded as severe poisoning by MSPC score (scores 3 and 4).

Deaths accounted for two children i.e.0.2% of the total children, one died from Digoxin and one from cholinesterase inhibitor insecticide, both were accidental

and scored as very severe poisoning by MSPC severity score. The same figure of 0.2% was reported by Lambert et al., (1997). A slightly higher figures of deaths (0.5%, 0.64% and 1.4%) were reported by Vanelli et al., (1980),; Duta et al., (1998) and Yang et al., (1997).

RECOMMENDATIONS

During the past years, childhood morbidity and mortality due to acute poisoning have decreased as a result of establishment of poison centers, along with improved triage, diagnosis and management techniques.

According to the results of this study, the following recommendations are suggested:

- 1- Raising awareness of parents to poison proof their homes through TV, Radio, meetings...etc. the following are some common strategies to prevent poisoning in children:
 - * Remove all expired drugs from your home. Discard them according manufacturer's instructions.
 - * Store all medicines and household products in a locked closet or cabinet. Avoid keeping medicines, vitamins, or household products in anything but their original packaging with child-resistant containers.

* Never refer to medicine or vitamins as "candy".

* Make sure when visiting grand parents, family friends, or other caregivers that they keep their medications away from children.

* Keep a bottle of syrup of ipecac in your home; this can be used to induce vomiting. Use it only when the poison center tells you.

* Keep cosmetics and beauty products out of children's reach. Remember that hair permanents and *relaxers* are toxic.

2- Self-poisoning in older children i.e. early adolescents should be put into consideration and receive attention,

as this denotes a cry for help from stress either in family or at school. Thus mental health counseling and problem solving of adolescents with attempted suicide is a must.

3- Encourage different companies to package their drugs and household products especially the dangerous ones in child resistant containers (CRC) to decrease the chance for childhood poisoning.

4- It is concluded that the Multi-center Study of Poisoning in Children (MSPC) severity score is a very simple, reliable score in identifying risks and severity grading of acute poisoning in children, so it better to be generalized over different poison centers.

Table (1) : Distribution of children with acute poisoning (n = 1072) admitted to APC at AMUH** (July – December 2000) by age and sex.

Age in years	Sex				Total		Z-test
	Boys		Girls		No	%	
	No	%	No	%			
< 1	7	1.3	14	2.6	21	2.0	
1-	125	23.8	114	20.9	239	22.3	
2-	110	20.9	93	17.0	203	18.9	
3-	78	14.9	61	11.1	139	12.9	
4- < 5	45	8.6	26	4.7	71	6.7	
-5	365	69.5	308	56.3	673	62.8	4.475*
5-	54	10.3	65	11.9	119	11.1	
10-15	106	20.2	174	31.8	280	26.1	4.329*
Total	525	100.0	547	100.0	1072	100.0	
Mean ± SD	5.0 ± 4.1		6.2 ± 4.6		5.6 ± 4.4		
t-test	t = 3.394 P = 0.001*						

* = significant

• APC = Alexandria Poison Center

** AMUH = Alexandria Main University Hospital

Table (2) : Distribution of children with acute poisoning (n = 1072) admitted to APC at AMUH (July – December 2000) by circumstances of poisoning, sex and age.

Parameter	Circumstances of poisoning						Total	
	Accidental		Attempted Suicide		Overdose in addicts		No	%
	No	%	No	%	No	%		
Sex								
Boys	471	89.7	48	9.2	6	1.1	525	100.0
Girls	403	73.7	144	26.3	0	0.0	547	100.0
Total	874	81.5	192	17.9	6	0.6	1072	100.0
Z-test	Z= 6.765 *		Z= 7.334 *					
Age in years								
-5	673	77.0	0	0.0	0	0.0	673	62.8
5-	107	12.2	12	6.3	0	0.0	119	11.1
10-15	94	10.8	180	93.7	6	100.0	280	26.1
Total	874	100.0	192	100.0	6	100.0	1072	100.0
Mean ± SD	2.5 ± 4.0		11.4 ± 3.2		12.5 ± 0.9		5.6 ± 4.4	
F-test	F = 9.895* P = 0.000							

* = Significant

Table (3): Distribution of children with acute poisoning (n = 192) admitted to APC at AMUH (July – December 2000) by causes of attempted suicide and sex.

Causes of attempt suicide	Sex				Total	
	Boys		Girls			
	No	%	No	%	No	%
Family troubles	38	79.2	73	50.7	111	57.8
Emotional troubles	4	8.2	59	41.0	63	32.8
School troubles	3	6.3	8	5.6	11	5.7
Psychic troubles	3	6.3	4	2.7	7	3.7
Total	48	100.0	144	100.0	192	100.0

Table (4): Distribution of children with acute poisoning (n = 1072) admitted to APC at AMUH (July – December 2000) by category of poison and age.

Category of poison	Age in years						Total	
	-5		5-		10-15			
	No	%	No	%	No	%	No	%
Non-drugs	556	82.6	73	61.3	168	60.0	797	74.3
Drugs	100	14.9	18	15.2	70	25.0	188	17.5
Carbon monoxide	12	1.8	25	21.0	35	12.5	72	6.7
Animal poison	4	0.6	3	2.5	5	1.8	12	1.2
Plant poison	1	0.1	0	0.0	2	0.7	3	0.3
Total	673	100.0	119	100.0	280	100.0	1072	100.0

Table (5) : Distribution of children with acute poisoning (n = 1072) admitted to APC at AMUH (July – December 2000) by category of poison and age.

Category of poison	Age in years						Total	
	-5		5-		10-15			
	No	%	No	%	No	%	No	%
Non-drug poisoning								
Kerosene	204	36.7	12	16.4	12	7.1	228	28.6
Ch EII	77	13.8	20	27.4	86	51.2	183	23.0
Chlorox	133	23.9	12	16.4	5	3.0	150	18.8
Rodenticides	38	6.8	4	5.5	39	23.2	81	10.2
Caustics	17	3.1	2	2.7	4	2.4	23	2.9
Cosmetics and personal products	17	3.1	5	6.8	0	0.0	22	2.8
Phenol	10	1.8	2	2.8	2	1.2	14	1.8
Others*	30	5.4	8	11.0	7	4.2	45	5.6
Unknown	30	5.4	8	11.0	13	7.7	51	6.3
Total	556	100.0	73	100.0	168	100.0	797	100.0
Drug poisoning								
Analgesics	16	16.0	4	22.2	11	15.7	31	16.5
Psychotropics	9	9.0	3	16.7	15	21.4	27	14.4
Antibiotics	15	15.0	4	22.2	3	4.3	22	11.7
Digoxin	14	14.0	2	11.1	5	7.1	21	11.2
Antiepileptics	9	9.0	1	5.6	5	7.1	15	8.0
Hormones	5	5.0	3	16.7	3	4.3	11	5.8
Bronchodilators	5	5.0	0	0.0	2	2.9	7	3.7
Hypoglycemics	4	4.0	0	0.0	3	4.3	7	3.7
Others**	17	17.0	0	0.0	15	21.4	32	17.0
Unknown	6	6.0	1	5.5	8	11.4	15	8.0
Total	100	100.0	18	100.0	70	100.0	188	100.0

* Others: naphthalene, pyrethroids, methyl alcohol, mercury (thermometer), glues, boric acid, varnish, and vinegar.

**Others: antispasmodics, antihistaminics, vitamins, antiemetics, muscle relaxants, and local skin preparations.

Table (6): Distribution of children with acute poisoning (n = 1072) admitted to APC at AMUH (July - December 2000) by MSPC score and category of poison.

MSPC score	Category of poison										Total	
	Non-drugs		Drugs		CO poisoning		Animal poisons		Plant poisons			
	No	%	No	%	No	%	No	%	No	%	No	%
Score 0 (Asymptomatic)	237	29.7	35	18.6	9	12.5	0	0.0	0	0.0	281	26.2
Score 1 (Mild)	319	40.0	70	37.2	9	12.5	2	16.7	0	0.0	400	37.3
Score 2 (Moderate)	210	26.3	73	38.8	50	69.4	7	58.3	3	100.0	343	32.0
Score 3 (Severe)	25	3.2	9	4.8	4	5.6	3	25.0	0	0.0	41	3.8
Score 4 (Very severe)	6	0.8	1	0.6	0	0.0	0	0.0	0	0.0	7	0.7
Total	797	100.0	188	100.0	72	100.0	12	100.0	3	100.0	1072	100.0

Table (7): Distribution of children with acute poisoning (n = 1072) admitted to APC at AMUH (July - December 2000) by MSPC score and M & L scale.

MSPC score	M & L scale										Total	
	Grade 0		Grade 1		Grade 2		Grade 3		Grade 4			
	No	%	No	%	No	%	No	%	No	%	No	%
Score 0	281	27.0	0	0.0	0	0.0	0	0.0	0	0.0	281	26.2
Score 1	384	38.4	15	6.0	1	3.2	0	0.0	0	0.0	400	37.3
Score 2	112	32.4	210	83.3	20	64.5	1	12.5	0	0.0	343	32.0
Score 3	3	2.2	26	10.3	7	22.6	5	62.5	0	0.0	41	3.8
Score 4	0	0.0	1	0.4	3	9.7	2	25.0	1	100.0	7	0.7
Total	780	100.0	252	100.0	31	100.0	8	100.0	1	100.0	1072	100.0

Table (8): Distribution of children with acute poisoning (n =1072) admitted to APC at AMUH (July – December 2000) by category of poison and MSPC score.

category of poison	MSPC score										Total	
	Score 0		Score 1		Score 2		Score 3		Score 4			
	No	%	No	%	No	%	No	%	No	%	No	%
Non-drug poisoning												
Kerosene	33	13.9	148	46.4	38	18.1	7	28.0	2	33.3	228	28.6
Ch Eil	15	6.3	55	17.3	97	46.2	14	56.0	2	33.3	183	23.0
Chlorox	121	51.1	20	6.3	9	4.3	0	0.0	0	0.0	150	18.8
Rodenticides	5	2.1	39	12.2	36	17.1	1	4.0	0	0.0	81	10.2
Caustics	2	0.8	9	2.8	10	4.8	2	8.0	0	0.0	23	2.9
Cosmetics and personal products	15	6.3	7	2.2	0	0.0	0	0.0	0	0.0	22	2.8
Phenol	3	1.3	8	2.5	3	1.4	0	0.0	0	0.0	14	1.8
Others*	34	14.3	8	2.5	3	1.4	0	0.0	0	0.0	45	5.6
Unknown	9	3.9	25	7.8	14	6.7	1	4.0	2	33.4	51	6.3
Total	237	100.0	319	100.0	210	100.0	25	100.0	6	100.0	797	100.0
Drug poisoning												
Analgesics	2	5.7	19	27.1	10	13.7	0	0.0	0	0.0	31	16.5
Psychotropics	1	2.9	3	4.3	21	28.8	2	22.2	0	0.0	27	14.4
Antibiotics	11	31.4	8	11.4	3	4.1	0	0.0	0	0.0	22	11.7
Digoxin	3	8.6	4	5.7	9	12.3	4	44.4	1	100.0	21	11.2
Antiepileptics	2	5.7	6	8.6	7	9.6	0	0.0	0	0.0	15	8.0
Hormones	2	5.7	8	11.4	1	1.4	0	0.0	0	0.0	11	5.8
Bronchodilators	1	2.9	2	2.9	4	5.5	0	0.0	0	0.0	7	3.7
Hypoglycemics	0	0.0	3	4.3	4	5.5	0	0.0	0	0.0	7	3.7
Others**	10	28.6	9	12.9	12	16.4	1	11.2	0	0.0	32	17.0
Unknown	3	8.6	8	11.4	2	2.7	2	22.2	0	0.0	15	8.0
Total	35	100.0	70	100.0	73	100.0	9	100.0	1	100.0	188	100.0

* Others: naphthalene, pyrethroids, methyl alcohol, mercury (thermometer), glues, boric acid, varnish, and vinegar.

** Others: antispasmodics, antihistaminics, vitamins, antiemetics, muscle relaxants, and local skin preparations.

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تقييم أزمات ودرجة شدة التسمم الحاد في الأطفال الذين أدخلوا مركز الإسكندرية للسموم

المشركون في البحث

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يعتبر التسمم الحاد في الأطفال من أحد أنواع حوادث الطوارئ، الطبية إنتشاراً والتي تحتاج إلى رعاية طبية سريعة وعاجلة وتلعب الرقابة دوراً مهماً في منعها أو الحد من إنتشارها.

كان الهدف من البحث هو تقييم أنماط ودرجة الشدة في حالات التسمم الحاد في الأطفال أقل من ١٥ سنة باستخدام مقياس المركز المتعدد لدراسة التسمم في الأطفال (MSPC)، وقد شملت الدراسة ١٠٧٢ طفل أقل من ١٥ سنة يعانون من التسمم الحاد أدخلوا مركز الإسكندرية للسموم بالمستشفى الرئيسى الجامعى خلال ستة أشهر (يوليو - ديسمبر ٢٠٠٠) وقد تم مقابلة جميع الأطفال وأسرههم وفحصهم إكلينيكياً وعمل التحاليل اللازمة لهم وتطبيق مقياس MSPC ومتابعتهم حتى خروجهم من المستشفى وقد أظهر البحث الآتى :

- ١- شكلت هذه الحالات نسبة ٣٠.٨٪ من إجمالى حالات التسمم الواردة إلى مركز الإسكندرية للسموم في نفس الفترة (٣٤٧٥ حالة) إحتاج منهم ٣٪ دخول قسم الطب الحرج (حالات التسمم الغذائى لم تضم وكان عددها ١٥٦٨ فى هذه الفترة).
- ٢- تراوح عمر الأطفال من شهر إلى ١٥ سنة بمتوسط عمر قدره ٥٦ ± ٤٤ سنة. كون الأطفال أقل من ٥ سنوات أعلى نسبة (٦٢.٨٪) حيث كان معظمهم فى المرحلة العمرية من ١-٣ سنة يليها المراهقين ١٠-١٥ سنة (٢٦.١٪) ثم الأطفال من ٥-١٠ سنوات (١١.١٪).
- ٣- كانت نسبة الإناث أعلى من الذكور ١٠.٤ : ١.

٤- شكل التسمم العرضى ٨١.٥٪ من الحالات معظمهم أطفال أقل من ٥ سنوات بينما كانت نسبة محاولة الإنتحار بالتسمم ١٧.٩٪ حيث كانت نسبة الإناث أعلى من نسبة الذكور، أما تناول جرعة زائدة من مواد وأدوية الإدمان فكانت ٠.٦٪ وكانوا جميعهم ذكور وقد وجد أن غالبية حالات محاولات الإنتحار والإدمان من المراهقين ١٠-١٥ سنة.

٥- كانت نسبة التسمم بالمواد الغير دوائية ٧٤.٣٪ من مجموع الحالات (الكبروسين - المبيدات الحشرية - الكلور ثم يليهم التسمم بمبيدات القوارض والبروتاس الكاوية)، أما التسمم بالأدوية فكان ١٧.٥٪ وشملت المسكنات (خصوصاً الإسبرين والباراسيتامول)، أدوية الأمراض النفسية (المهدئات الصغيرة - المنومات - مضادات الإكتئاب)، يليهم المضادات الحيوية والتسمم بعقار الديجوكسين، كون التسمم بغاز أول أكسيد الكربون ٦.٧٪، أما التسمم نتيجة عضه الثعبان والتسمم بالنباتات فكانوا نسب ٠.٣، ٠.١٢٪ على

التوالى.

٦- تم تقييم درجة شدة التسمم باستخدام مقياس المركز المتعدد لدراسة التسمم فى الأطفال حيث كونت الحالات بدون أعراض ٢٦ر٢٪ - الحالات البسيطة ٣٧ر٢٪ - الحالات المتوسطة ٣١ر٢٪ والحالات الشديدة والشديدة جداً (أى الدرجة الرابعة والخامسة) ٤ر٦٪، وطبقاً لهذا المقياس وجد أن ثلثى حالات التسمم العرضى ٧٦ر٧٪ أعتبرت حالات بدون أعراض وحالات بسيطة بينما أكثر من نصف حالات محاولة الإنتحار بالتسمم (٥٣ر٨٪) أعتبرت حالات متوسطة وشديدة وكانت حالات تناول جرعة زائدة من أدوية ومواد الإدمان حالات متوسطة وشديدة.

٧- تماثل ٩٩ر٥٪ للشفاء الكامل بينما توفى طفلين (٠ر٢٪) أحدهما بسبب تناول عقار الديجوكسين وكانت حالته شديدة باستخدام مقياس MSPC والآخر بسبب تناول مبيد حشرى، وحدثت المضاعفات فى ثلاث حالات (٠ر٣٪) ظهرت على هيئة صعوبة فى البلع نتيجة التسمم العرضى بالبوتاسا الكاوية وكانت هذه الحالات شديدة ومتوسطة باستخدام مقياس MSPC .

التوصيات :

- رفع الوعى عند جميع أفراد الأسرة وخصوصاً الآباء والأمهات لكى يجعلوا منازلهم آمنة من السموم وذلك خلال برامج توعية مستمرة فى الإذاعة - التلفزيون - الندوات والمؤتمرات... الخ.
- يجب أن يوضع فى الاعتبار محاولات الإنتحار بالتسمم فى المراهقين حيث يمثل ذلك صرخة إنذار من هؤلاء المراهقين من الضغوط النفسية سواء العائلية أو المدرسية، لذا يجب حل مشاكل هؤلاء عن طريق الاستشارات النفسية لدى الأخصائيين النفسيين.
- تشجيع مختلف الشركات على تعبئة الأدوية والمواد غير الدوائية فى عبوات يصعب على الأطفال فتحها وخصوصاً الخطيرة منها لكى نحد من نسبة التسمم فى الأطفال.
- نستنتج من الدراسة أن مقياس المركز المتعدد لدراسة التسمم فى الأطفال (MSPC) هو مقياس سهل وعملى فى تقييم درجة الشدة فى حالات التسمم الحاد فى الأطفال، لذا يوصى بتعميمه فى مختلف مراكز السموم والمستشفيات التى تستقبل حالات التسمم.

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