Prospective Evaluation of Suicide Cases Presented to National Environmental and Clinical Toxicology Center - Egypt

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Abstract

Suicide is a tragic and potentially preventable public health problem. It is the 3rd leading cause of death among young adults worldwide. It was reported that drug overdose was the most common means of suicide in Egypt. Pesticides are a common suicidal agent. Aim of this study is to assess the prevalence of suicidal cases admitted to National Environmental and Clinical Toxicology Research Centre (NECTR) during six months period from (April to September 2017) regarding the most common poison used and different socio-demographic factors in attempt to identify high risk individuals in our community. This prospective study included 162 suicidal cases who were admitted to the National Environmental and Clinical Toxicological Research Center. The results of this study showed that the most frequent age group was those between 18-40 years (60.5%) followed by those below 18 years (33.3%) with female dominance (79%). The most frequently ingested agents were pesticides (34%) followed by miscellaneous agents (30.9%) then psychoactive agents (11.1%). The most common cause of attempting suicide was social problems (69.1%) followed by psychological causes (11.7%). The mortality rate was (4.3%).

Introduction

Suicide is a tragic and potentially preventable public health problem. It is defined by the forensic community as "death with the intent of taking one's own life". It is the 3rd leading cause of death among young adults worldwide. Attempted suicide is a common clinical problem seen in general hospital settings and the most commonly preferred mode is oral ingestion of poisons. Recently, a significant increase in hospital admissions due to drug overdose has been reported [1]. International studies indicate that suicidal behavior and in particular, the preferred method varies between countries where poisoning is the 2nd preferred suicide method in most countries. Preferred poisons were drugs in the form of tablets then rodenticides, pesticides and corrosives [2].

For young people, non-fatal suicidal behavior is more prevalent than completed suicides. However, those who survive suicidal attempts often harm themselves seriously and suffer from health consequences requiring long-term medical assistance. Efforts have been made to describe risk factors associated with repeated suicidal attempts [3].

Most information about suicides is reported from western countries. It is a global public health concern, claiming >1,000,000 lives/year; it accounts for >38000 deaths. In the United States, rates have increased by >16% during the past decade, suggesting that current prevention strategies are of limited effect [4].

Deliberate self-poisoning is the most common method of attempted suicide, accounting for 85-95% of suicide-related hospital admissions. Drug overdose or intoxication (intentional or accidental), is one of the frequent causes of hospitalization. However, rates of overdose in different countries are greatly different and a significant increase in hospital admissions due to drug overdose has been recently reported a major proportion of these poisoned patients are following completed suicides and parasuicides [4].

Aim of Work

To assess the prevalence of suicidal cases admitted to National Environmental and Clinical Toxicology Research Centre (NECTR) during six months period from (April to September 2017) regarding the most common poison used and different socio-demographic factors in attempt to identify high risk individuals in our community.

Subjects and Methods
Subjects
This is a prospective statistical study conducted on all suicidal cases presented to NECTR (National Environmental and Clinical

Toxicological Research Center) during six months period from the beginning of April to the end of September 2017. All subjects had a history of suicide with drugs and/or other toxins.

Inclusion Criteria
-Those with alleged history of oral poison consumption for attempted suicide with an intention of self-harm
- Both sexes
- All ages

Patients' Exclusion Criteria
-Accidental ingestion
-Suspected or proven homicide cases
-Parental poison consumption

Methods
Cases were analyzed with respect to:
1. Demographic data → age, sex, residence, educational level, marital status, occupation and admission season
2. Primary data for patient's assessment include:
   • Period of delay between occurrence of toxicity and arrival to NECTR
   • Cause of attempting suicide
   • Previous suicidal attempts
   • Methods of previous attempts
   • Types of administrated poison
   • Dose of administrated poison
3. Data concerning physical examination on admission:
   • Symptoms → GIT, respiratory, cardiovascular and CNS symptoms
   • Signs → pulse, temperature, blood pressure, conscious level and pupil size
4. Data concerning laboratory investigations:
   • Routine investigations
   • Specific according to each poison
5. Data regarding lines of treatment:
   • GIT decontamination
   • Antidote administration
   • Supportive management
   • Symptomatic treatment
6. Whether the patient was admitted or not
7. Period of admission
8. Outcome of the case (cured, complicated, death)

Results
During the six-month duration (from the beginning of April to the end of September 2017) of the present study, 162 suicide cases presented at National Environmental and Clinical Toxicological Research Center (NECTR) with the following results:

A. Socio-Demographic Data

Table 1: Percentage of socio-demographic data among suicide studied cases

B.			Count	%
age		>18	54	33.3%
		18-40	98	60.5%
		40-60	10	6.2%
sex		male	34	21.0%
		female	128	128 79.0%
residency		urban	128	79.0%
		rural	34	21.0%
education		illiterate	34	21.0%
		educated	128	79.0%
occupation		student	61	37.7%
		work	40	24.7%
		no	61	37.7%
marital state		single	101	62.3%
		married	44	27.2%
		engaged	17	10.5%
season		summer	106	65.4%
		spring	56	56 34.6%

Table 1 showed that 54(33.3%) were below 18, 98(60.5%) were from 18-40 and 10(6.2%) were from 41-60yrs. 128(79%) were females and 34(21%) were males. 128(79%) living in urban areas and 34(21%) from rural areas. 128(97%) were educated and 34(21%) were illiterate. 61(37.7%) were students, 40(24.7%) were working and 61(37.7%) having no work. 101(62.3%) were single, 44(27.2%) were married and 17(10.5%) were engaged. 106(65.4%) were presented in summer and 56(34.6%) were presented in spring.

B. Historical Data of Studied Cases

Table 2: Percentage of historical data of studied cases

		Count	%
poison type	CNS stimulant	14	8.6%
	Pesticide	55	34.0%
	CNS depressant	14	8.6%
	Psychoactive	18	11.1%
	analgesic antipyretic	11	6.8%
	others	50	30.9%
poison dose	toxic	114	70.4%
	not toxic	36	22.2%
	lethal	12	7.4%
hours between exposure and presentation	less than 6 h	129	79.6%
	from 6 to 12h	16	9.9%
	from 12to 24h	11	6.8%
	more than 24h	6	3.7%
previous treatment	yes	30	18.5%
	no	132	81.5%
previous attempts	yes	30	18.5%
	no	132	81.5%
method of previous attempts	same method	18	60.0%
	other method	12	40.0%
cause of attempting suicide	social	112	69.1%
	psychological	19	11.7%
	love troubles	13	8.0%
	Educational	18	11.1%

Table 2 showed that, 55(34%) of cases used pesticides, followed by others (antihypertensive, oral hypoglycemic, antibiotic and vitamins) 50(30.9%), while by psychoactive drugs 18(11.1%), then CNS (stimulant & depressant) with the number of cases 14(8.6%), and the least cases were analgesic antipyretics 11(6.8%). 114(70.4%) of cases administrated toxic dose, 36(22.2%) of cases presented with nontoxic dose and 12(7.4%) of cases presented with lethal dose. Cases presented within the first 6hs were (79.6%), those with a period of 6-12hrs delay were (9.9%), those of 12-24hrs were (6.8%) and those with > 24hrs delay were (3.7%). 132(81.5%) had no previous suicide attempts and 30(18.5%) had previous attempts. 18(60%) attempted suicide by the same method and 12(40%) attempted suicide by the other. 112(69.1%) of cases their causes of suicide were social, Followed by psychological causes 19(11.7%), then educational causes 18(11.1%) and the least due to love troubles were 13(8%).

C. Clinical Picture of the Studied Cases

Table 3: Percentage of clinical picture distribution among the studied cases

		Number	%
Pulse	Normal	115	71%
	Tachycardia	36	22.2%
	Bradycardia	11	6.8%
Blood Pressure	Normal	135	83.3%
	Hypotensive	27	16.7%
	Hypertensive	0	0%
Temperature	Normal	158	97.5%
	Feverish	4	2.5%
Conscious Level	Drowsy	33	20.4%
	Conscious	119	73.5%
	Comatose	10	6.2%
Pupil Size	Pin pupil size	31	19.1%
	Normal	125	77.2%
	Dilated	1	0.6%
	Constricted	5	3.1%
GIT manifestation	Present	88	54.3%
	No	74	45.7%
CNS manifestation	Present	68	42%
	No	94	58%
CVS manifestation	Present	34	21%
	No	128	79%
Respiratory Manifestation	Present	10	6.2%
	No	152	93.8%

Table 3 Showed the Following
Pulse
(71%) of cases presented with normal pulse, (22.2%) of cases presented with tachycardia while (6.8%) of cases presented with bradycardia.
Blood Pressure
(83.3%) of cases were normal, (16.7%) of cases were hypotensive while no hypertensive cases were detected.
Temperature
(97.5%) of cases were normal, (2.5%) of cases were feverish and no cases presented with hypothermia.
Conscious Level
(73.5%) of cases were conscious, (20.4%) of cases were drowsy and comatose cases were (6.2%).
Pupil Size
(77.2%) of cases were with normal pupil size, (19.1%) of cases were with pin point pupil represented, (3.1%) of cases were with constricted pupil only one case with dilated pupil represented (0.6%).
GIT Manifestations
(54.3%) of cases presented with GIT manifestations, while (45.7%) of cases were without GIT manifestations.
CNS Manifestations
(42%) of cases presented with CNS manifestations, while (58%) of cases were without CNS manifestations.

CVS Manifestations
(21%) of cases presented with CVS manifestations, while (79%) of cases were without CNS manifestations.
Respiratory Manifestations
(6.2%) of cases presented with respiratory manifestations, while (93.8%) of cases were without respiratory manifestations.

D. Investigations and Treatment Done For Studied Cases

Table 4: Percentage of investigations and treatment done for suicide studied cases

Investigations and treatment done for studied cases		Count	%
Routine	Normal	96	59.3%
	Abnormal	41	25.3%
	No	25	15.4%
Specific	Normal	37	22.8%
	Abnormal	68	42%
	No	57	35.2%
GIT decontamination	Yes	136	84%
	No	26	16%
Supportive measures	Yes	131	80.9%
	No	31	19.1%
Antidote	Yes	52	32.1%
	No	110	67.9%
Symptomatic treatment	Yes	128	79%
	No	34	21%
Enhanced elimination	Yes	1	0.6%
	No	161	99.4%

Table 4 Shows Investigations and Treatment Done For Studied Cases
Routine Investigations
(59.3%) of cases routine investigations were done and the results were normal, while (25.3%) were abnormal and in (15.4%). investigations were not done.
Specific Investigations
(22.8%) of cases specific investigations were done and the results were normal, while (42%) were abnormal and in (35.2%) investigations were not done.
GIT Decontamination
It was done in (84%) of cases and not done in (16%).
Supportive Treatment
It was done in (80.9%) of cases and not done in (19.1%).
Antidote Treatment
It was done in (32.1%) of cases and not done in (67.9%).
Symptomatic Treatment
It was done in (79%) of cases and not done in (21%).
Enhanced Elimination
It was done in only one case (0.6%) and not done in (99.4%).

E. Admission and Outcome Data of Studied Cases

Table 5: Percentage of admission of suicide studied cases

Admission		Count	%
Admission	Yes	124	76.5%
	No	38	23.5%
Period of admission	Less than one day	10	6.2%
	Less than one week	107	66%
	More than one week	7	4.3%
	No admission	38	23.5%

Table 5 Shows Percentage of Admission of Studied Cases
Admission
(76.5%) of cases were admitted and (23.5%) were not admitted.
Period of Admission
(66%) of cases were admitted for the period less than one week (66%), followed by (6.2%) whom admitted for less than one day, while (4.3%) admitted for more than one week were and (23.5%) were not admitted.

F. Outcome Data of Studied Cases

Table 6: Relation between age and poison type among studied cases Pearson chi-square test

			Age			Total	P Value
			<18	18 - 14	41 - 60		
Poison type	Pesticide	Count	26	28	1	55	0.001*
		% within poison type	47.3%	50.9%	1.8%	100%	
		% within age	48.1%	28.6%	10%	34%	
	CNS stimulant	Count	9	5	0	14	
		% within poison type	64.3%	35.7%	0%	100%	
		% within age	16.7%	5.1%	0%	8.6%	
	CNS depressant	Count	2	12	0	14	
		% within poison type	14.3%	85.7%	0%	100%	
		% within age	3.7%	12.2%	0%	8.6%	
	Psychoactive	Count	4	10	4	18	
		% within poison type	22.2%	55.6%	22.2%	100%	
		% within age	7.4%	10.2%	40%	11.1%	
	Analgesic antipyretic	Count	4	7	0	11	
		% within poison type	36.4%	63.6%	0%	100%	
		% within age	7.4%	7.1%	0%	6.8%	
	Others	Count	9	36	5	50	
		% within poison type	18%	72%	10%	100%	
		% within age	16.7%	36.7%	50%	30.9%	
Total		Count	54	98	10	162	
		% within poison type	33.3%	60.5%	6.2%	100%	
		% within age	100%	100%	100%	100%	

(*) P < 0.05 is statistically significant. P value >0.05 is statistically insignificant.

As observed from Table 6 there was statistical significant relation between age and poison type (p value=0.001). As regard the relation between poison type and different studied age groups, It was found that, in the group (<18 years) pesticides were the most common toxic agent (48.1%), while CNS stimulants and other drugs (antihypertensive, oral hypoglycemic, antibiotic and vitamins) had equal shares (16.7%). In the age group (18-40years) other drugs were the most common toxic agent (36.7%), while pesticides (28.6%) were the second common among this age group. In the group (41-60years) other drugs were the most common toxic agent (50%), while psychoactive drugs were second common among this age group.

Table 7: Relation between sex and poison type among studied cases using Pearson chi-square test

			Sex		Total	P Value
			male	Female		
Poison type	Pesticide	Count	16	39	55	0.005*
		% within poison type	29.1%	70.9%	100%	
		% within age	47.1%	30.5%	34%	
	CNS stimulant	Count	1	13	14	
		% within poison type	7.1%	92.9%	100%	
		% within sex	2.9%	10.2%	8.6%	
	CNS depressant	Count	5	9	14	
		% within poison type	35.7%	64.3%	100%	
		% within sex	14.7%	7%	8.6%	
	Psychoactive	Count	6	12	18	
		% within poison type	33.3%	66.7%	100%	
		% within sex	17.6%	9.4%	11.1%	
	Analgesic antipyretic	Count	3	8	11	
		% within poison type	27.3%	72.7%	100%	
		% within sex	8.8%	6.2%	6.8%	
	Others	Count	3	47	50	
		% within poison type	6%	94%	100%	
		% within sex	8.8%	36.7%	30.9%	
Total		Count	34	128	162	
		% within poison type	21%	79%	100%	
		% within sex	100%	100%	100%	

(*) P < 0.05 is statistically significant. P value >0.05 is statistically insignificant.

As observed from Table 7 there was statistical significant relation between sex and poison type (p value=0.005). It was found that, pesticides were the most common toxic agent (47.1%) in males, followed by psychoactive drugs as the second common toxic agent (17.6%). While in females, other drugs (antihypertensive, oral hypoglycemic, antibiotic and vitamins) (36.7%) were the most common toxic agent followed by pesticides (30.5%).

Table 8: Relation between educational level and poison type among studied cases using Pearson chi-square test

			Sex		Total	P Value
			male	Female		
Poison type	Pesticide	Count	16	39	55	0.005*
		% within poison type	29.1%	70.9%	100%	
		% within age	47.1%	30.5%	34%	
	CNS stimulant	Count	1	13	14	
		% within poison type	7.1%	92.9%	100%	
		% within sex	2.9%	10.2%	8.6%	
	CNS depressant	Count	5	9	14	
		% within poison type	35.7%	64.3%	100%	
		% within sex	14.7%	7%	8.6%	
	Psychoactive	Count	6	12	18	
		% within poison type	33.3%	66.7%	100%	
		% within sex	17.6%	9.4%	11.1%	
	Analgesic antipyretic	Count	3	8	11	
		% within poison type	27.3%	72.7%	100%	
		% within sex	8.8%	6.2%	6.8%	
	Others	Count	3	47	50	
		% within poison type	6%	94%	100%	
		% within sex	8.8%	36.7%	30.9%	
Total		Count	34	128	162	
		% within poison type	21%	79%	100%	
		% within sex	100%	100%	100%	

(*) P < 0.05 is statistically significant. P value >0.05 is statistically insignificant.

As observed from Table 8, there was a statistically significant relation between poison type and educational level (p value=0.002).

Regarding relation between poison type and educational level of studied cases, it was found that the most common poison in educated cases was other drugs (antihypertensive, oral hypoglycemic, antibiotic and vitamins) (35.2%) followed by pesticides (25.8%). On the other hand, the most common poison in illiterate cases was pesticides (64.7%) followed by other drugs (14.7%).

Table 9: Relation between conscious level and poison type among studied cases using Pearson chi-square test

Poison type			Drowsy	Conscious	Comatose	Total	P value
			Conscious level			**Total**	**P value**
			Drowsy	**Conscious**	**Comatose**		
Poison type	Pesticide	Count	2	48	5	55	
		% within poison type	3.6%	87.3%	9.1%	100%	
		% within conscious level	6.1%	40.3%	50.0%	34%	
	CNS stimulant	Count	0	14	0	14	
		% within poison type	0%	100%	0%	100%	
		% within conscious level	.0%	11.8%	.0%	8.6%	
	CNS depressant	Count	11	2	1	14	
		% within poison type	78.6%	14.3%	7.1%	100%	
		% within conscious level	33.3%	1.7%	10%	8.6%	
	Psychoactive	Count	13	3	2	18	<0.001*
		% within poison type	72.2%	16.7%	11.1%	100%	
		% within conscious level	39.4%	2.5%	20%	11.1%	
	Analgesic antipyretic	Count	1	10	0	11	
		% within poison type	9.1%	90.9%	0%	100%	
		% within conscious level	3.0%	8.4%	0%	6.8%	
	Others	Count	6	42	2	50	
		% within poison type	12%	84%	4%	100%	
		% within conscious level	18.2%	35.3%	20%	30.9%	
Total		Count	33	119	10	162	
		% within poison type	20.4%	73.5%	6.2%	100%	
		% within conscious level	100%	100%	100%	100%	

(*) P < 0.05 is statistically significant. P value >0.05 is statistically insignificant.

As observed from Table 9 there was a statistically significant relation between the conscious level and poison type (p value <0.001). As regard the relation between the conscious level and poison type, it was found that that the highest percentage of comatose cases was due to pesticides poisoning (50%), while drowsy cases were due to psychoactive drugs followed by CNS depressant as follows (39.4%), (33.3%) respectively. On the other hand (40.3%) of the conscious cases presented with pesticide poisoning followed by other drugs (types (antihypertensive, oral hypoglycemic, antibiotic and vitamins) (35.3%).

Table 10: Relation between conscious level and poison dose among studied cases using Pearson chi-square test

Poison dose			Drowsy	Conscious	Comatose	Total	P value
			Conscious level			**Total**	**P value**
			Drowsy	**Conscious**	**Comatose**		
Poison dose	Not toxic	Count	4	31	1	36	
		% within poison dose	11.1%	86.1%	2.8%	100%	
		% within conscious level	12.1%	26.1%	10%	22.2%	
	Toxic	Count	27	82	5	114	
		% within poison dose	23.7%	71.9%	4.4%	100%	
		% within conscious level	81.8%	68.9%	50%	70.4%	0.007*
	Lethal	Count	2	6	4	12	
		% within poison dose	16.7%	50%	33.3%	100%	
		% within conscious level	6.1%	5%	40%	7.4%	
Total		Count	33	119	10	162	
		% within poison dose	20.4%	73.5%	6.2%	100%	
		% within conscious level	100%	100%	100%	100%	

(*) P < 0.05 is statistically significant. P value >0.05 is statistically insignificant.

As observed from Table 10, there was a statistically significant relation between the conscious level and poison dose (p value = 0.007).

Regarding the relation between conscious level and the poison dose, it was found that comatose cases presented with toxic dose (50%) followed by lethal dose (40%), also the highest percentage of drowsy cases was due to toxic dose (81.8%) followed by nontoxic (12.1%). On the other hand conscious cases presented with toxic dose (68.9%) followed by nontoxic dose (26.1%).

Table 11: Relation between outcome and poison type among studied cases using Pearson chi-square test

				Sex		Total	P Value
			Complicated	Cured	Died		
Poison type	Pesticide	Count	7	42	6	55	
		% within poison type	12.7%	76.4%	10.9%	100%	
		% within age	38.9%	30.7%	85.7%	34%	
	CNS stimulant	Count	1	13	0	14	
		% within poison type	7.1%	92.9%	0%	100%	
		% within sex	5.6%	9.5%	0%	8.6%	
	CNS depressant	Count	2	12	0	14	
		% within poison type	14.3%	85.7%	0%	100%	
		% within sex	11.1%	8.8%	0%	8.6%	
	Psychoactive	Count	1	17	0	18	0.005*
		% within poison type	5.6%	94.4%	0%	100%	
		% within sex	5.6%	12.4%	0%	11.1%	
	Analgesic antipyretic	Count	2	9	0	11	
		% within poison type	18.2%	81.8%	0%	100%	
		% within sex	11.1%	6.6%	.0%	6.8%	
	Others	Count	5	44	1	50	
		% within poison type	10%	88.0%	2.0%	100%	
		% within sex	27.8%	32.1%	14.3%	30.9%	
Total		Count	18	137	7	162	
		% within poison type	11.1%	84.6%	4.3%	100%	
		% within sex	100%	100%	100%	100%	

(*) P < 0.05 is statistically significant. P value >0.05 is statistically insignificant.

As observed from Table 11, there was no statistically significant relation between the outcome and poison type. Regarding the relation between the outcome and the poison type, it was found that the highest mortality rate and complicated cases was seen in pesticides poisoning (85.7%), (38.9%) respectively. On the other hand, highest percentage of cured cases was seen in other drugs types (antihypertensive, oral hypoglycemic, antibiotic and vitamins) (32.1%).

Discussion
Suicide is an important, worldwide problem; rate increased by 60% approximately. Suicide trends in studied countries are stable or decreasing for females and increasing for males especially younger age groups, but it increases with age. Methods used for suicide changed over time in different countries, partly due to differential availability and socio-cultural acceptability of such methods [5].

In the present study, the most affected age group was those between 18-40 yrs (60.5%). Possible reasons include family problem, education difficulties, marriage issues and employment leading to a stressed life style with more suicidal attempts, followed by those below 18(33.3%). The least affected group was that between 41-60 yrs (6.2%).

In our work, female cases (79%) overcome male cases (21%), the female predominance appears to be due to more exposure to violence and stress or strain as compared with males in this part of the world. It might be related to the lower level status of women in both family and society. In countryside, women have low level of education and participation in social life, therefore, they have difficulty in reducing their stress [6]. Regarding residency, cases from urban areas (79%) overcome those from rural areas (21%). This is explained by the presence of (NECTR) at great Cairo, as it lies closer to most of urban areas. These data were consistent with those reported by a study done in Ontario, Canada, from April 2002 to December 2011, where cases from urban areas (86.4%) overcome those from rural areas (13.6%) [4].

As regard the education, the educated cases (79%) overcome illiterate cases (21%) This was in accordance with the study done in the Poison Control Center of Ain Shams University Hospitals (PCCA), during the period from June 2007 until the end of July 2008, where most of cases were educated [7].

The present study demonstrated that most of the cases were students and jobless people with the same number represented (37.7%) then employed were (24.7%). In the same context the study of Ain Shams University Hospitals (PCCA), during the period from June 2007 until the end of July 2008, had made a study that showed that suicide cases were more common among non-employed (56.8%) [7].

The marital status of our cases was as following single (62.3%), married (27.2%) and engaged (10.2%). Also our data are similar to those obtained from the study of Kermanshah Imam Khomeini Hospital, Iran from June to September 2008 where percentage of single cases was (59.9%) [8].

Our study was performed in only 2 seasons (spring and summer), the suicide rate was higher in summer (65.4%) than spring (34.6%). Similar results were obtained from the study done in china. During the period of 2000 to 2006, where the majority of cases presented in summer [6].

The current data showed that pesticides were the most common toxic agents (34%) followed by the following agents in descending order of frequency; other drugs (30.9%), psychoactive drugs (11.1%), CNS depressants and stimulants had the same percentage (8.6%) and analgesic antipyretics (6.8%). This is explained by the accessibility and availability of pesticides. In the same context the study of Southern India, from January 2000 to December 2004. Where organophosphates were the exclusive choice in most of the males (82.2%) and females (58.3) [9].

The present study demonstrated that the dose was evaluated as toxic in (70.4%), nontoxic dose (22.2%) and lethal (7.4%). This was in accordance with the study done in The Czech Toxicological Information Centre (TIC) in Prague over the period of 2007-2011, The dose was evaluated as toxic in (73.4%), this explained by cases are often less certain of the potential hazards and possible fatal outcome of their attempt, and their actions in taking a toxic agent are impulsive [3].

The present study demonstrated that the majority of cases had no previous suicide attempts (81.5%). The current data were similar to those obtained from study done in Tehran, Iran, from January to December 2003, among the suicidal cases only (7%) had a history of previous suicidal attempt [10]. Regarding the causes of attempting suicide, the present study showed that the social causes were the commonest (69.1%), followed by psychological causes (11.7%), then educational troubles (11.1%) and the least were love troubles (8%). This was in accordance with the study done in Government Stanley Hospital, at toxicology unit of IMCU from February 2015-August 2015, where the most common cause among cases was family problems (51%) [11].

In the current study (76.5%) of cases were admitted and (23.5%) of cases didn't required admission. Because majority of cases had symptoms and their dose was evaluated as toxic, so they were admitted. This was in accordance with the study done in Adana,

Turkey from January to December 2004 where (88%) of cases were admitted [12].

In the present study, the majority of cases recovered (84.6%), complicated cases (11.1%) and the mortality rate was (4.3%). This explained by early presentation to (NECTR) and so treatment was started early. These data were similar those reported by a study done in Adana, Turkey from January to December 2004 where the majority of cases recovered (99.1%) [12].

There was significant difference in relation between toxin type and age in our study regarding pesticides among the three studied age groups, the age group (18-40) had the highest percentage of toxin intake (60.5%), also there was significant difference in relation between toxin type and sex where other drugs preferred (36.7%) by females followed by pesticides were (30.5%). The explanation of other drugs (antihypertensive, oral hypoglycemic, antibiotic and vitamins) is availability in all homes and the use of pesticide in eradication of insects at home. Which was similar to results obtained in the study done Southern India, from January 2000 to December 2004. Where organophosphates were preferred by middle age group especially females [9]. There was significant relation between toxin type and educational level; in our study all toxins used by victims were higher among educated group because educated group represented the majority of our study.

Conclusion
The current piece of work suggests that most of the poisoning cases involved age group 18 to 40 years. Females were more commonly affected than males. Social problems were the most common causes of attempting suicide. Pesticides followed by miscellaneous drugs contributed most of the suicide cases and the mortality rate was (4.3%).

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