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Morbidity and Mortality Predictors in Patients with Acute Tricyclic Antidepressant Toxicity

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Abstract Tricyclic antidepressant (TCA) drugs are well known medications for depression, nocturnal enuresis and chronic pain. The severe morbidity and mortality associated with these drugs is well documented due to their cardiovascular and neurological toxicity.

The aim of this study is to predict the morbidity and mortality factors in patients with acute TCA toxicity in relation to outcome toxicity measures (coma grade, ECG findings and duration of hospitalization) and to detect early evidence of cardiotoxicity using quantitative analysis of Troponin I.

The present study was conducted on 100 patients presented to the *PCC* of Ain Shams University hospitals during the period from October 2009 to March 2011 with acute TCA toxicity of both sex and different ages. Patients were divided into 3 groups according to poisoning severity score (PSS) into group I (mild toxicity), group II (moderate toxicity) and group III (severe toxicity). All subjects were examined for: I) sociodemographic data; II) medical evaluation; III) investigations including arterial blood gases, serum electrolytes (Na and K), random blood sugar, serum troponin I level and electrocardiography (ECG) monitoring; IV) outcome including coma grade, ECG findings and duration of hospitalization.

Risk factors (sex, coingestion, time delay and previous attempts) had no effect on difference between groups, while age and mode of toxicity were significantly different (p-value <0.05) between groups. Type of TCA ingested had significant effect (p-value <0.05) on both coma grade and endotracheal intubation. The dose of TCA had a highly significant effect (p-value <0.0001) on severity of toxicity, coma grade and ECG findings. ADORA criteria (QRS interval >100 msec, cardiac dysrhythmias, altered mental status, seizures, respiratory depression and hypotension) had a high significant effect (p-value <0.0001) on ECG findings, coma grade and type of TCA ingested. The risk factors for intubation in the present study were evident in patients with dothiepin or amitriptyline ingestion, old age, abnormal ECG, deep coma, seizure and two or more ADORA criteria. ECG changes had no relation (P- value >0.05) with all risk factors except for the age and the mode of poisoning. Duration of hospitalization (DOH) had a highly significant (p-value < 0.001) relation with the severity of toxicity in the studied groups, ECG findings and coma grade. Grade of coma had no relation (P-value >0.05) with all risk factors except for the dose of TCA. Level of troponin I was non evident in predicting cardiotoxicity.

Conclusion: Reed's coma scale is an indicator either for evaluation of poisoning severity in individual TCAs or for assessment of relative toxicity between different types of TCAs. ECG findings especially QRS duration is an easy, cheap and available diagnostic tool in Emergency Room (ER) to help not only in diagnosing TCA poisoning but also in predicting its severity and occurrence of other complications.

Keywords TCA; Cardiotoxicity; Electrocardiogram; Reed's coma scale; Duration of hospitalization

Introduction

Tricyclic antidepressants (TCAs) are a class of psychoactive drugs used primarily as antidepressants. They are named after their chemical structure, which contains three rings of atoms (Glauser, 2000).

TCAs were one of the most important causes of mortality resulting from poisoning until 1993 and continue to be responsible for more deaths per prescription than all other antidepressants put together. In 2006, about 6000 cyclic antidepressant overdoses were reported with 4% resulting in serious adverse outcomes including death (Bronstein et al., 2007).

TCA overdoses had higher rates of hospitalization (78.7% vs. 64.7%) and much higher fatality rates (0.73% vs. 0.14%) than did selective serotonin reuptake inhibitors (SSRI) overdose reports (Busch et al., 2010).

Subjects and methods

This study was carried out in the Poison Control Center (PCC), Ain Shams University Hospitals during the period from October 2009 to March 2011. The cases were diagnosed as TCA poisoning through accurate history taking.

Subjects

The selected patients were of both sexes in different ages with acute TCA poisoning. The diagnosis was based mainly on accurate history taking about accidental, suicidal or homicidal exposure to TCA, in addition to clinical manifestation of TCA poisoning. Patients with TCA and polymedication poisoning were included. The study was conducted on one hundred patients who were classified according to Persson et al., (1998) into:

- **Group I:** 40 patients with mild TCA poisoning, presented with nausea, vomiting, vertigo, normal ECG, normal laboratory finding and discharged 6 hours after observation .
- **Group II:** 30 patients with moderate acute TCA poisoning, presented with palpitation, coma grade I and sinus tachycardia in ECG.
- **Group III:** 30 patients with sever acute TCA poisoning, presented with coma grade II or more, unstable vital signs and cardiac arrhythmias or respiratory depression.
- **Group IV:** No fatal cases recorded in the study.

Exclusion criteria

Patients with history of other medical disorder as cardiac, pulmonary disease or renal impairment were excluded.

In each patient, the following were studied:

A-Sociodemographic data: It included data regarding age, sex, occupation and residence.

B-Poisoning data: It included:

- Type of ingested TCA drug
- Mode of poisoning
- Amount of ingested dose
- Number of previous attempts
- Coingestion of other drugs
- Time passed since poisoning

C- Clinical evaluation

- **Medical history**
- **Physical examination**
- **Antidepressant Overdose Risk Assessment criteria (ADORA criteria):** dysrhythmias, altered mental status, conduction block, respiratory depression, hypotension, seizures (Foulke, 1995).

D-Investigation parameters

I-Laboratory investigations

The laboratory work of the study was conducted at the laboratory of Ain-Shams university hospitals.

- One milliliter of arterial blood is freshly drawn from femoral or radial artery for immediate blood gas analysis using Rapid lab 855 of Bayer Company.
- Five milliliters of venous blood were collected for estimation of the following parameters:
- **Random blood sugar** was determined by colorimetric method using glucose oxidase.
- **Serum electrolytes** (Na and K) were determined by ion selective electrode technique using easylyte analyzer Chairon model.
- Third sample: was collected from Group III patients 6 hours after admission and kept for quantitative analysis of troponin I. cTnI was studied with immunoassay method using Tosoh AIA600 II cTnI second generation-2005 (AIA-PACK cTnI 2^{nd}-Gen). Levels >0.1 ng/ml were accepted as indicating myocardial damage.

II. Electrocardiogram (ECG)

Electrocardiographic recording was done for every patient on admission and repeated for those admitted to ICU using FuKuda denshi Cardimex (model Fx-2111, Japan). ECG recordings aimed to check rate, conduction blocks or ST – T wave changes.

E- Patient's outcome

A. Duration of hospitalization in the PCC.
B. Grade of coma (Reed coma scale).
C. ECG findings.

Analysis of the data included studying the relation between risk factors in patients with TCA overdose (age, sex, type of TCA ingested, dose, mode of poisoning, coingestion of other drugs and delay time of poisoning either within or more than 6hours) in relation to outcome toxicity measures.

Statistical analyses

Data were checked, coded, and analyzed by using SPSS (version 11.0 software package.

Results

I- Sociodemographic criteria

The majority of patients (49%) lied in age group of 20-40 years, followed by patients under the age of twenty years (32%), while patients in the age group of 41-60 years age were represented as13%. Females (73%) predominated in this study with male to female ratio 1:2.7. Residence distribution patterns showed that 92% were from urban areas. Acute tricyclic antidepressant poisoning was commonly found in unemployed (40%), followed by housewives (30%).

There was significant difference in age distribution between groups and non significant difference in sex distribution, where the mean age of the studied patients in group I (mild poisoning), group II (moderate poisoning) and group III (severe poisoning) was 23.78±13.789 years, 25.57±10.919 years and 34.03±15.016 years respectively, with male/female distribution was 9/31, 9/21 and 9/21 respectively.

II- Poisoning data

In 89% of patients, suicide attempt history was traced while 11% resulted from accidental exposure. No significant difference between groups was shown as regard coingestion of other drugs or history of psychiatric disease. There was a high significant difference as regard the dose of ingested TCA as in group I, group II and group III the mean dose was 66.61 ± 51.517 mg, 435.71 ± 90.784 mg and 592.39 ± 199.635 mg respectively. The mean duration of hospitalization was significantly different among different groups. In group I, group II and group III the mean duration of hospitalization was 6.89 ± 1.956 hours, 27.60 ± 11.813 hours and 47.20±25 hours respectively. Time delay was non-significant in different severity groups.

III- Clinical manifestations

Normal clinical examination was evident in 19%. Dyspnea was noticed in 10%, tachycardia in 49% and hypotension in 15% of patients. The neurological manifestation included agitation in 34% and hallucination in 29%. Majority of patients were conscious (grade 0) (40%), followed by coma grade I and coma grade II in 31% and 22% of patients respectively, while 5% were in coma grade III and (2%) were in coma grade IV. The commonest ADORA criterion was altered mental status in 71%, followed by dysrhythmia in 50% of patients, while conduction block and hypotension were observed in 13% and 15% respectively. Seizures and respiratory depression were the least observed ADORA criterion and occurred in 8% of patients. The most common indication for endotracheal intubation was deep coma grade III and IV (Reed's classification) in 4 patients (50%), followed by respiratory center depression in 3 patients (37.5%), while aspiration of gastric contents was the indication in only 1 patient (12.5%). There was highly significant difference between intubated and non intubated group of patients as regard ECG findings and coma grade. A significant difference between both groups was evident regarding type of TCA, occurrence of seizures and number of ADORA criteria, there was non significant difference between both groups in sex distribution and number of suicidal attempts (table 1).

IV- Electrocardiographic changes (ECGs) (table 2)

Interpretation of ECGs showed that: sinus tachycardia was the most common ECG abnormality found in 44% of patients, followed by prolonged QTc interval found in 6%, while wide QRS complex (>0.12sec), prolonged PR interval, sinus bradycardia, Right bundle branch block (RBBB) and premature ventricular contractions (PVCs) were found in 5%, 3%, 2%, 2% and 1% of patients respectively. In addition ST-T changes were observed in the form of depressed ST segment in 2% of patients, while normal ECG findings were found in 49% of patients.

There was a significant difference between patients with normal and abnormal ECG as regard their group, occurrence of seizures and mode of poisoning, but there was non significant difference regarding sex and coingestion of other drugs (table 3). There was a highly significant difference between patients with normal and abnormal ECG finding as regard both the dose of TCA ingested and duration of hospitalization. There was a significant difference regarding their age, as patients with abnormal ECG were older (30.55±14.082 years) than patients with normal ECG finding (24.10±13.232 years) (table 4).

V- Duration of hospitalization in PCC as outcome toxicity measure

There was a highly significant difference in duration as regard grade of coma. The mean duration of hospitalization in patients with coma grade 0 or I (n=71) was 15.75 ± 12.249 hours while it was 48.93 ± 24.675 hours in patients with coma grade II, III, IV (n=29) (table 5).

VI- Grade of coma as outcome toxicity measure

There was a significant difference between patients as regard the type of TCA ingested, while there was non significant difference in patients regarding mode of poisoning, delay time, coingestion of other drugs and number of suicidal attempts (table 6). There was a highly significant difference in patients as regard dose of TCA ingested. It was found that patients presenting in coma grade II, III, IV ingested significantly larger dose of TCA (609.78 ± 177.856 mg) than patients presenting with coma grade 0, I (172.56 ± 174.661mg).

Biochemical changes

There was significant difference in the level of troponin I between patients complicated by ST-T wave changes and those not complicated by ST-T wave changes (table 7).

Table (1): Endotracheal intubation rates in relation to the presentation characteristics of acute tricyclic antidepressant toxicity ingestion.

Presentation Characteristics	Intubated (N=8)		Not intubated (N=92)		X^2	P- value
	N	%	N	%		
Sex*						> 0.05
Male	2	25%	25	27.1%		**NS**
Female	6	75%	67	72.9%		
No. of suicidal attempts *						> 0.05
0, 1	4	50%	75	81.5%		**NS**
≥ 2	4	50%	17	18.5%		
Type of TCA						
Amitriptyline	3	37.5%	53	57.6%	6.088	< 0.05
Clomipramine/Nortriptyline	1	12.5%	25	27.2%		**S**
Dothiepin	4	50%	14	15.2%		
Coma grade*						
0, I	0	0%	71	77.2%		< 0.0001
II, III, IV	8	100%	21	22.8%		**HS**
ECG changes*						
Normal	0	0%	49	53.3%		< 0.0001
Abnormal	8	100%	43	46.7%		**HS**
Seizures *						
Yes	3	37.5%	5	5.4%		< 0.05
No	5	62.5%	87	94.6%		**S**
No. of ADORA criteria*						
0, 1	0	0%	48	52.2%		< 0.05
≥ 2	8	100%	44	47.8%		**S**

** Fisher exact test was done. N= number of cases; X^2: Chi square statistical analysis. P > 0.05 insignificant difference (NS), P < 0.05 significant difference (S), P < 0.0001 highly significant (HS).*

Table (2): ECG changes of the studied patients.

ECG findings	Number	Percent (%)
Normal finding	49	49%
Sinus tachycardia	44	44%
Sinus bradycardia	2	2%
Premature ventricular contractions (PVCs)	1	1%
Right bundle branch block (RBBB)	2	2%
Wide QRS complex	5	5%
Prolonged QTc interval	6	6%
Prolonged PR interval	3	3%
Depressed ST segment	2	2%

Table (3): Relation between ECG findings and some qualitative parameters.

Parameters	Normal ECG findings (N=49)		Abnormal ECG findings (N=51)		X^2	P- value
	N	%	N	%		
Sex						
Male	9	18.4%	18	35.3%	3.633	> 0.05
Female	40	81.6%	33	64.7%		**NS**
Seizures *						
Yes	0	0%	8	15.7%		<0.05
No	49	100%	43	84.3%		**S**
Group						
I	40	81.6%	0	0%	74.790	<0.0001
II	9	18.4%	21	41.2%		**HS**
III	0	0%	30	58.8%		
Mode of poisoning						
Accidental	9	18.4%	2	3.9%	5.327	<0.05
Suicide	40	81.6%	49	96.1%		**S**
Coingestion of other drugs						
Negative	43	87.8%	41	80.4%	2.121	> 0.05
Positive	6	12.2%	10	19.6%		**NS**

** Fisher exact test was done. N= number of cases; X2: Chi square statistical analysis. P > 0.05 insignificant difference (NS), P < 0.05 significant difference (S).*

Table (4): Relation between ECG findings and some quantitative parameters.

Parameter	Normal ECG findings (N=49)	Abnormal ECG findings (N=51)	t*	P- value
Age (years) Mean± SD	24.10 ±13.232	30.55 ±14.082	2.357	< 0.05 **(S)**
Dose (mg) Mean± SD	101.91 ±126.017	538.97±188.815	8.407	< 0.0001 **(HS)**
Duration of hospitalization (hours) Mean± SD	10.55 ± 9.160	39.41±22.582	11.226	< 0.0001 **(HS)**

** = student's t-test. P < 0.05 significant difference (S), P: < 0.0001 highly significant (HS).*

Table (5): Relation of duration of hospitalization (hours) of acute tricyclic antidepressant intoxicated patients with different ages and different groups.

Parameters	Duration of hospitalization (hours) Mean ± SD	F *	P- value
Age			
<20 years (n=32)	20.52 ± 18.495	1.76	>0.05
20-40 years (n=49)	25.33 ± 21.138		**NS**
41-60 years (n=17)	35.65 ± 31.561		
>60 years (n=2)	24 ± 000		
Group			
I (n=40)	6.89 ± 1.956	58.354	<0.0001
II (n=30)	27.60 ± 11.813		**HS**
III (n=30)	47.20 ± 25		

*N=number of patient, *ANOVA test was done. P>0.05 insignificant difference (NS), P<0.0001 highly significant (HS).*

Table (6): Relation between grades of coma of acute tricyclic antidepressant intoxicated patients and some poisoning data.

	Grade of coma 0, I (n=71)		Grade of coma II, III, IV (n=29)		X^2	P-value
	N	%	N	%		
Type of TCA						
Amitriptyline	45	63.4 %	11	38 %	14.783	<0.05 **S**
Clomipramine/Nortriptyline	21	29.5 %	5	17.2 %		
Dothiepin	5	7.1%	13	44.8%		
Mode*						
Accidental	10	14.1 %	1	3.6 %		> 0.05 **NS**
Suicidal	61	85.9 %	28	96.4 %		
Coingestion*						
Negative	61	85.9 %	23	82.1 %		> 0.05 **NS**
Positive	10	14.1%	6	17.9%		
Delay						
< 6 hours	59	83.1 %	21	72.4 %	0.849	> 0.05 **NS**
> 6 hours	12	16.9 %	8	27.6 %		
Number of suicidal attempts*						
0, 1	59	83%	20	69%		> 0.05 **NS**
≥ 2	12	17%	9	31%		

**Fisher exact test was done, N= number of cases, X2: Chi square statistical analysis. P>0.05 insignificant difference (NS), P < 0.05 significant difference (S).*

Table (7): Comparison of level of troponin I in group III of acute tricyclic antidepressant intoxicated patients as regard presence of ischemic heart disease or not.

	Troponin I (ng/ml) Median (IQR)	P
ST-T wave changes	0.046 (0.036- 0.076)	< 0.05 **S**
No ST-T wave changes	0.099 (0.083- 1.3)	

IQR = Inter Quartile Range. P<0.05 significant difference (S).

Discussion

The present study revealed that the studied patients were males (27%) and females (73%) with male: female ratio was 1: 2.7; most of patients were unemployed (40%) and housewives (30%). The study also showed non significant difference between groups as regard sex distribution (p-value >0.05). The preponderance of females in this study was in agreement with Unverir et al., (2006) who found that female constituted 77.8% of patients. Soghoian et al., 92009) stated that the incidence of cyclic antidepressants poisoning is higher in women than in men. This most likely reflects a higher rate of depression and suicide attempts among women.

In the present study, the age ranged between 2-73 years with the mean age was 27.39 ± 13.983 years, with relatively high frequency of poisoning cases between 20 and 40 years (49%). These findings were in agreement with Unverir et al., (20060 and also with Aslan et al., (2011). The study also showed significant difference between groups as regard their age (P-value < 0.05) as the advance in the age directly related to the severity of the toxicity.

The current study showed that 27% of patients were suffering from previous psychiatric diseases. Aslan et al., (2011) recorded 22.5% of patients had history of psychiatric diseases, where Unverir et al., (2006) found such patients constituted 40% in his study.

Coingestion of other drugs was non-significant between groups. These findings were in disagreement with Caravati and Bossart (1991) and Unverir et al., (2006) who recorded 61% and 70.9% of patients with coingestion of other drugs were presenting with severe toxicity respectively. This difference between the current study and other studies may be related to the type and dose of coingested drugs and their effects on different systems of the body.

The correlation of type of TCA overdose and coma grade was evident and showed that dothiepin and amitriptyline were more toxic than clomipramine or nortriptyline. Consistent with the present study were the results of Buckley et al., (1994) and Gillman, (2007), while Crome and Newman (1979) found no significant differences in clinical course between individual antidepressants.

The current study showed that the time of presentation after intoxication didn't play any role in

the severity of symptoms. This was consistent with the study by Callaham and Kassel (1985).

The higher the dose, the more severe was the presenting picture, which was in agreement with a study performed by Bramble et al., (1985).

The most common clinical finding was sinus tachycardia (49%), followed by drowsiness (41%) and agitation (34%). This was in agreement with Unverir et al., (2006). On the other hand Hazim et al., (2009), reported that the most common finding is lethargy followed by sinus tachycardia.

The present study revealed similarly a highly significant difference between number of ADORA criteria and both ECG findings and grade of coma, Consistent with Unverir et al., (2006) the number of ADORA criteria, coma grade and ECG findings showed high significant differences between studied groups

The risk factors for intubation in the present study were present in patients who ingested dothiepin or amitriptyline, old age, abnormal ECG findings, deep coma, seizures and two or more ADORA criteria. These findings were in agreement with Unverir et al., (2006) who determined that 9.6% required endotracheal intubation. He also reported that abnormal ECG findings, general tonic clonic seizures, a GCS score of 8 and < 8 and poisoning cases with two or more ADORA criteria had a reasonably higher frequency of intubation when compared to the cases that didn't require endotracheal intubation. Consistent with this study, Bateman, (2005) stated that Clinical progress, hemodynamic instability, and coma scale are important parameters in decision-making of endotracheal intubation.

The indications for intubation in the current study were mostly deep coma in 50% of patients, followed by respiratory depression and aspiration of gastric contents in 37.5% and 12.5% of patients respectively. These findings were in accordance with Unverir et al., (2006). On the contrary, Hazim et al., (2009) reported 48% of the patients were in deep coma and only 1 patient (1.92%) required mechanical ventilation because of respiratory depression.

It was found that risk factors; sex and coingestion of other drugs had no effect on ECG findings, while age and mode of poisoning had significant effect on ECG findings, abnormal ECG findings were more frequent in suicidal ingestion (96.1%) and in old age.

This study revealed as well a highly significant relation between ECG findings and severity of toxicity in studied groups, where all patients in group III (severe toxicity group) had abnormal ECG findings. In agreement with this study, Boehnert and Lovejoy (1985) reported that QRS complex duration was useful as a predictor of TCA cardiac and neurological toxicity. Contrary to the present study, Foulke and Albertson (1987) found the QRS duration to be an unreliable indicator of seizures and ventricular dysrhythmias, concluding that a QRS complex interval less than 0.10 seconds does not exclude serious toxicity.

This study showed highly significant difference between studied groups regarding duration of hospitalization, severity of toxicity, ECG findings and coma grade, this finding is highly logic and acceptable as The mean DOH for group III (severe toxicity, abnormal ECG finding and deep coma) was higher than the other 2 groups. This was in agreement with a study by Unverir et al., (2006) and Karcioglu et al., (2000). Contrary to the present study, Aslan et al., (2011) and Hazim et al., (2009), reported that the mean length of hospitalization for intoxication was 1.8 ± 1.7 days (range: 1-10 days) and 2.3 ± 2.3 days (range: 1-7 days) respectively.

The present study revealed that majority of patients (71%) were conscious or coma grade I, while 29% of patients were in deeper coma which was in agreement with Unverir et al., (2006). On the other hand Hazim et al., (2009), reported 48% of patients presented by deep coma in his study.

It was found that risk factors; age, sex, coingestion of other drugs, delay time and mode of poisoning had no effect on grade of coma. On the other hand both the type of TCA and the dose of TCA had significant relation with grade of coma.

Level of troponin I in group III, showed significant difference between patients who had ST-T wave changes and those did not have these changes. On the other hand there was insignificant difference in the level of troponin I between patients presenting with different types of conduction block. This study concludes that troponin I had no role in predicting different types of cardiotoxicity caused by TCA overdose.

Conclusion

- Type and dose of tricyclic antidepressants are important risk factors in predicting severity of TCA toxicity, where amitriptyline and dothiepin proved to be the most toxic members.

- The most common finding in clinical examination was sinus tachycardia followed by drowsiness and agitation.
- The risk factors for respiratory assistance and intubation were dothiepin or amitriptyline, old age, abnormal ECG changes, deep coma, seizures and two or more ADORA criteria.
- The indications for respiratory assistance were mostly deep coma followed by respiratory depression and aspiration of gastric contents.
- The studied risk factors (age, sex, ingested dose, mode of poisoning, delay time, coingestion of other drugs and type of TCA ingested) had variable effects according to the measured outcome toxicity parameters.
- Level of troponin did not predict cardiotoxicity.

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الملخص العربي

المؤشرات الدالة على المرض والوفاة في مرضى التسمم الحاد بمضادات الاكتئاب ثلاثية الحلقات

عمرو عبد الغني عبد الجيد صالح[1] وغادة مصطفى عبد العظيم الجلاد[1] ومحي قدري المصري[2] وعبلة عبد الرحمن[3] ومرفت حمدي عبد السلام[3]

مضادات الاكتئاب ثلاثية الحلقات هي أدوية معروفة لسلس البول الليلي، والاكتئاب والألم المزمن ويرجع التأثير المرضى الشديد وحالات الوفيات المرتبطة بهذه الأدوية إلى سميتها للقلب والأوعية الدموية والجهاز العصبي.

يهدف البحث إلى تقييم حالات التسمم الحاد بمضادات الاكتئاب ثلاثية الحلقات واستخراج عوامل التنبؤ بشدة المرض والوفاة وذلك من خلال الدراسة الإكلينيكية والمعملية للمرضى مع عمل تحليل لنسبة التروبونين I في الدم وبيان ما إذا كان يمكن استخدامه مبكرا للتنبؤ بالإصابة السمية لعضلة القلب.

قد أجريت هذه الدراسة على 100 مريضا في مركز علاج السموم (PCC)، مستشفيات جامعة عين شمس خلال الفترة من أكتوبر 2009 إلى مارس 2011 ويعانون من التسمم الحاد بمضادات الاكتئاب ثلاثية الحلقات. وتم اختيار المرضى من كلا الجنسين في مختلف الأعمار.

و تم تقسيم المرضى إلى ثلاثة مجموعات وفقا لنقاط شدة التسمم(PSS) :

في المجموعة الأولى (سمية خفيفة)، المجموعة الثانية (سمية معتدلة) والمجموعة الثالثة (سمية شديدة)

و قد شملت هذه الدراسة:

1. البيانات الديموغرافية الاجتماعية
2. البيانات الطبية
3. الفحوص المعملية: قياس غازات الدم الشرياني ونسبة السكر العشوائي في الدم وقياس الصوديوم و البوتاسيوم في المصل وكذلك عمل تحليل لمستوى التروبونين I في المصل (في المجموعة الثالثة فقط) بالإضافة إلى عمل رسم قلب كهربائي.
4. مخرجات المرضى وشملت درجة الغيبوبة ونتائج رسم القلب ومدة العلاج في المستشفى

[illegible]

للمعطيات

أظهرت النتائج أن عوامل الخطر (الجنس، تناول أدوية مصاحبة، الوقت والمحاولات السابقة) ليس لها أي تأثير على الفرق بين المجموعات، في حين أن العمر وطريقة التسمم كانت مختلفة بشكل ملحوظ بين المجموعات. كان نوع مضاد الاكتئاب ثلاثي الحلقات له اثر كبير على كل من درجة الغيبوبة والحاجة لتركيب أنبوبة حنجرية. كان لجرعة مضاد الاكتئاب ثلاثي الحلقات تأثير عالي على شدة السمية، ودرجة الغيبوبة ونتائج رسم القلب. وكانت عوامل الخطر لتركيب أنبوبة حنجرية في هذه الدراسة واضحة في المرضى الذين يتناولون دوثيبين أو أميتريبتيلين، كبر السن، النتائج غير الطبيعية برسام القلب الكهربائي، غيبوبة عميقة ووجود اثنين أو أكثر من معايير أدورا (ADORA). أظهرت نتائج رسم القلب الكهربائي عدم وجود علاقة مع جميع عوامل الخطر باستثناء العمر وطريقة التسمم. مدة العلاج في المستشفي (DOH) كان له تأثير عالي على شدة السمية في المجموعات، ودرجة الغيبوبة ونتائج رسم القلب. لم تكن هناك علاقة بين درجة الغيبوبة و جميع عوامل الخطر باستثناء الجرعة المستخدمة من مضاد الاكتئاب ثلاثي الحلقات. أظهرت النتائج أن مستوى التروبونين I في المصل غير واضح في التنبؤ بالإصابة السمية لعضلة القلب.

1 قسم الطب الشرعي والسموم كلية الطب جامعة الفيوم
2 قسم الطب الشرعي والسموم كلية الطب جامعة عين شمس
3 قسم الطب الشرعي والسموم كلية الطب جامعة القاهرة