Assessment of Addicted Cases Admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University.

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ABSTRACT

Background*:* Substance abuse is a major challenge in Egypt due to changing pattern of abuse and its threating to health, social and economic build of the community. **Aim of the work**: the present work aims to demonstrate the pattern of substance abuse in Assiut governorate. Also to study the liver, kidney functions and electrocardiographic changes among addicted patients admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University. **Patients and methods:** the study was done on 80 male in-patients, who are addicted for at least one year and 41 healthy non-abusers. All Patients fulfilled a questionnaire of drug dependence and were subjected to a thorough clinical examination beside measurement of liver functions, kidney functions, electrocardiogram recordings, and urine toxicological screen. **Results**: Forty-three patients (53.75%) were 25–35 years of age. Their mean of age was 30.47±6.91 years. Multiple substance abuse represented 57.5% (46 cases) and tramadol was the most commonly abused drug. Tramadol was abused alone in 32.5% (26 cases). The technical school (47.5%) was the most common educational level. Family history of abuse was positive in 47.5% of cases. HCV was positive in 15 (18.75%) of cases, 13 of HCV positives cases used injection for substance abuse. There was no significant association between liver and kidney functions changes and addiction duration. However, a correlation was established between liver functions changes and infective hepatitis. There was a high percentage of ECG abnormalities among abusers (53.75%), those abnormalities were in the form of an inverted T wave in 13 patients (30.23%). **Conclusion**: This research shows that ECG abnormalities are frequently encountered in substance abusers. The results also point out the risk of hepatic damage due to infective hepatitis in injection drug users. Measures to control the spread of substance abuse should be implemented.

Keywords: Substance abuse, Socio-demographic characteristics, Liver functions, ECG abnormalities

I. INTRODUCTION

Substance abuse is increasingly becoming a worldwide trend in both rich and poor countries **(Uhl et al., 2008)**. It is an important cause of poor health due to their toxic effects on organs and tissues that lead to the development of diseases, injuries and other health conditions **(Lim et al., 2013).** According to the World Health Organization, there are 185 million drug users and 2 billion alcohol users worldwide **(Degenhardt et al., 2018).**

Substance abuse results in a variety of social problems, such as crime, traffic accidents, suicide, work accidents, poor school performance, job absenteeism, child abuse, depression and anxiety **(Valkov, 2018)**. In Egypt, substance abuse is rapidly growing with changing patterns of substance use. A cross-sectional community-based survey of samples of the population that covered all Egyptian governorates except El-Wadi El-Gedid revealed that the commonest used substance in all regions was cannabis (77% of total use). Opiate (23.4% of total use) was the second common substance in Upper Egypt, while Alcohol (28.6% of total use) was the 2nd common substance in governorates outside upper Egypt where opiate was the 3rd common abused substance **(Hamdi et al., 2016).**

This study aims to demonstrate the pattern of substance abuse in Assiut governorate during the period from 1st of January 2017 to 30th of June 2017 and to study possible toxic effects of addiction on systemic organs that may help in the assessment of the severity of addicted cases.

II. PATIENTS AND METHODS

II.1 Study Design:

The study is a Case-Control study that was conducted on 80 abusers and 41 healthy non-abusers as a control group. The sample size was calculated using EPI info 2000 statistical package.

II.2 Patients:

Patients' inclusion criteria: 80 male in-patients, who are addicted for at least one year, who were seeking therapy at Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University. Female patients were not included in the study due to the absence of females' section in the unit.

Patients' Exclusion criteria:

a) Patients who are addicted for less than one year.
b) Patients with a history of previous renal impairment.
c) Patients with a history of hepatitis B/ C or HIV infection prior to the beginning of drug abuse.
d) Patients with a history of autoimmune disease.
e) Patients with a history of congenital heart disease.

Ethical considerations: An informed written consent was obtained from each patient or from his parents for inclusion in the study. The Confidentiality of all data in this study was protected to the fullest extent possible. All ethical aspects related to research at Assiut University were implicated in this study after the approval of the ethical committee.

II.3 Methods:

II.3.1. Sociodemographic data and history of drug abuse: Patients were subjected to history taking through fulfilling a modified questionnaire of drug dependence (**Hamdi et al. 2013**).

- Sociodemographic data: included age, occupation, residence, educational level, marital status, birth order, number of family members and family history of substance abuse.
- History of the drug abuse:
- Type of abused drug.
- Method of intake.
- History of starting drug and smoking.

II.3. 2. Clinical examination:
Examination of the abusers was carried out at the time of presentation to the hospital including general and systemic examination.

II.3.3 Patients were subjected to the following investigations:

a) Urine Screen: urine samples (minimum 30 ml) were collected and subjected for analysis of abused substances using Enzyme Multiplied Immunoassay Technique (EMIT). (**Visher and McFadden, 1991**).

b) Liver function tests: Total bilirubin, direct bilirubin, albumin, globulin, albumin/globulin ratio, total proteins and levels of serum enzymes aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP).

c) Kidney function tests: serum creatinine and blood urea.
Blood samples (5 ml) were collected and analyzed using Cobas Integra biochemical analyzer and Dimension® RxL Max® integrated chemistry system (**Elmanama et al., 2015**).

d) The electrocardiogram recordings (ECG): Twelve-lead ECG was done with the examination of the ECG strip for the rate, rhythm, PR intervals, cardiac axis, QRS complex, ST segments and T wave (**Miura et al., 2015**).

II.4. Statistical analysis:

Statistical analysis was conducted using the SPSS program version 22. Descriptive statistics were expressed in the form of frequencies, means, and SD. Person Chi-square, independent sample T-test, Mann-Whitney U test, and Kruskal-Wallis H test were used for analytic statistics. A significant p-value was

considered when less than 0.05 and highly significant when less than 0.01.

III. RESULTS

Socio-demographic data:

The mean age for the studied 80 abusers was 30.47±6.91 years. The mean age for starting substance abuse was 21.46±6.13 years. The mean age of starting smoking was 16.5±4.59 years Table 1. According to the distribution of different age groups; 53.75% (43 patients) of the studied sample was of 25 to 35 years age group. Patients aged, 35-45 years represented 23.75% (19 patients) and the age group (15- 25) years represented 18.75% (15 patients). The smallest presentation was of the age group (45-55) with 3 patients only. No subjects were encountered below the age of 15 years or above the age of 55 years. Regarding the occupations of the studied patients, free workers represented 60% of subjects, while government employees, non-working subjects and students represented 17.5%, 13.75%, and 8.75% respectively. In the current study, 65% of the studied subjects were from rural areas in contrast to 35% from urban areas. The educational level of subjects was secondary-technical schools in 47.5% of cases. University, illiteracy, preparatory, secondary general and primary schools represented 30%, 8.75%, 7.5%, 3.75%, and 2.5% respectively. Regarding marital status, married subjects represented 58.75% of the studied sample while singles, divorced and separated subjects represent 35%, 5%, and 1.25% respectively. As regard birth order of subjects within their families, 42.5% of subjects were the youngest siblings while the middle siblings and eldest represented 36.25% and 21.25% respectively. The number of family members was between 5 to 10 in 73.75% of subjects, less than 5 members in 21.25% and more than 10 members in 5% of the studied sample Table 2.

The present study showed that 52.5% of subjects had no family history of substance abuse, while 47.5% of subjects had a positive family history of substance abuse Table 3. The current study shows that single substance abuse

represented 42.5 % and included abuse of tramadol (32.5%), opiate (5%), Cannabis (3.75%) and alcohol (1.25%). Multiple substance abuse represented 57.5 % with tramadol and cannabis being the most common (21.25%) Table 4 and Fig.1. There was a statistically significant difference between age means of starting substance abuse of different substances (P.value 0.002).Table 5. The present results also show that oral administration was the most common method used by subjects (36.25%) while combined oral, injection and sniffing was the least route for substance intake (1.25%) Table 6.

Examination

Vital signs of the 80 studied abusers and 41 non-abusers are shown in Table 7. Abusers showed a significantly higher prevalence of hypertension (P= 0.026) and tachycardia (p= 0.037) than non-abusers. On the other hand, there was no significant difference in both temperature and respiratory rate. On the day of admission; 32 (40%) of abusers had normal blood pressure while 43 (53.75%) were hypertensive and 5 (6.25%) were hypotensive. Regarding the pulse rate of abusers, 70 (87.5%) showed normal pulse rate while 10 (12.5%) showed tachycardia. Regarding body temperature, 76 (95%) of abusers showed normal body temperature while 3 (3.75%) showed increased temperature and only 1 (1.25%) showed decreased temperature. Respiratory rate was decreased in 3 (3.75%) of abusers while the remaining 77 (96.25%) showed normal respiratory rate.

Investigation

Urine screening of abusers detected one substance in 35 (43.75%) of cases (18 tramadol, 9 opiates, 5 cannabinoids, 2 benzodiazpines, and 1 amphetamine), while urine screen was positive for multiple substances in 39 (48.75%) of cases. Lastly, urine screen was negative in six (7.5%) of cases Table 8 & Fig. 2.

Hepatitis C virus (HCV) was positive in 15 (18.75%) of all cases, 13 of them used injection for substance abuse while two of them alleged to not abuse substance via injection.

Out of all subjects and out of the 21 subjects who used injection as a method of abuse, only one case was positive for Hepatitis B virus (HBV) and two cases were positive for HIV. Non-abusers did not show any positive results for HCV, HBC or HIV infections Table 9 & Fig. 3.

Analysis of liver and kidney functions of all subjects in the studied sample revealed significant differences in the means of total and direct bilirubin, albumin/globulin ratio, and AST between abusers and non-abusers Table 10. There were no significant differences in Liver and kidney functions among abusers with different addiction duration Table 11. There were significant differences between means of albumin, globulin, albumin / globulin ratio, total protein, AST and ALT of abusers with positive infective hepatitis and those with negative results while there were no significant

differences between means of total bilirubin, direct Bilirubin, ALP, BUN, and creatinine Table (12)

The present results show that 43 (53.75 %) of the studied drug abusers showed ECG abnormalities. While 19.51% of non-abusers showed ECG abnormalities Table 13 and Fig. 4. In abusers, 13 (30.23%) of abnormalities were in the form of sinus rhythm with inverted T wave and sinus tachycardia was present in 8 (18.6%). Sinus rhythm with flat T wave was present in 8 (18.60%), sinus rhythm with depressed ST was present in 5 (11.63%) of cases, sinus rhythm with both depressed ST and inverted T wave was present in 4 (9.31%) of cases. Sinus rhythm with Tall T wave was present in 3 (6.98%) of cases and lastly, sinus tachycardia with depressed ST was present in 2 (4.65%) of cases Table 14.

Table (1): The mean age of drug abusers and means ages for onset of substance abuse and smoking of the abusers that were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017.

Age	Mean±SD (years)
Age of abusers	30.47±6.91
Age of onset of substance abuse	21.46±6.13
Age of onset of smoking	16.5±4.59

Table (2): Age distribution and socio-demographic characteristics of the studied abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017.

	Number N=80	Percentage (%)
Age categories (years)		
15 – <25	15	18.75%
25 – <35	43	53.75%
35 – <45	19	23.75%
45 – <55	3	3.75%
Occupation		
Free work	48	60%
Government employee	14	17.5%
Do not work	11	13.75%
Student	7	8.75%
Residence		
Urban	28	35%
Rural	52	65%
Educational level		
Secondary-technical	38	47.5%
University	24	30%
Illiterate	7	8.75%
Preparatory	6	7.5%
Secondary-general	3	3.75%
Primary	2	2.5%
Marital status		
Married	47	58.75%
Single	28	35%
Divorced	4	5%
Separated	1	1.25%
Birth order in the family		
The oldest	17	21.25%
In the middle	29	36.25%
The youngest	34	42.5%
Number of family members		
1–<5	17	21.25%
5–<10	59	73.75%
≥10	4	5%

Table (3): Family history of substance abuse among the studied abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017.

Family history of substance use			Number (percentage) N=80
Yes	Cousin	18 (47.37%)	**38 (47.5%)**
	Brother	10 (26.31%)	
	Uncle	6 (15.79%)	
	Cousin father	4 (10.53%)	
No			**42 (52.5%)**

Table (4): Distribution of abused substance/substances among the abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017.

| Abuse Substance	Number N=80	Percent (%)
Single Substance Abuse	**34**	**42.5%**
Tramadol only	26	32.5%
opiate	4	5%
Cannabis	3	3.75%
Alcohol	1	1.25%
Multiple Substance Abuse	**46**	**57.5%**
▪ Tramadol and cannabis	17	21.25%
▪ Tramadol, opiate and cannabis	8	10%
▪ Tramadol and opiate	7	8.75%
▪ Tramadol and Heroin	3	3.75%
▪ Tramadol ,cannabis ,heroin and benzodiazepine	4	5%
▪ Tramadol, opiate, cannabis and heroin	1	1.25%
▪ Tramadol, opiate, cannabis ,benzodiazepine and alcohol	1	1.25%
▪ Tramadol, cannabis, amphetamine and alcohol	1	1.25%
▪Cannabis ,opiate and amphetamine	4	5%
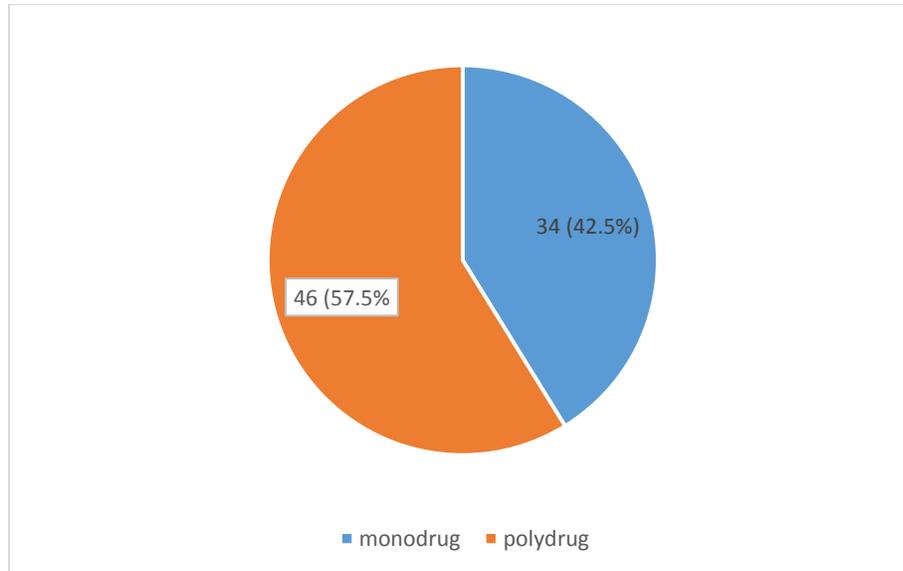
Figure (1): Percentages of single and multiple substance abuse among the studied abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017.

Table (5): Age of substance abuse onset according to the abused substance among the abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017.

Substance use	Age of onset (mean±SD)	P value
Cannabis	16.33 ± 2.89	0.002**
Tramadol, opiate ,and cannabis	18 ± 2.39	
Tramadol and cannabis	18.18 ± 5.60	
Cannabis ,opiate and amphetamine	22.25 ± 9.39	
Tramadol	23.65±5.46	
Tramadol and Heroin	24.67±5.03	
Opiate	25.25±7.09	
Tramadol and opiate	25.71±6.8	
Tramadol, cannabis ,heroin and benzodiazepine	17.75±2.217	
Tramadol,opiate,cannabis and heroin	One patient aged 22 years	
Tramadol,opiate,cannabis ,benzodiazepine and alcohol	One patient aged 15 years	
Tramadol, cannabis ,amphetamine and alcohol	One patient aged 17 years	
Alcohol	One patient aged 31 years	

- *P-value* (0.002) of Kruskal-Wallis H test is highly significant.

Table (6): Prevalence of different methods of substance abuse among the studied abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017.

Method of substance use	Number N=80	Percent (%)
Oral	29	36.25%
Oral and inhalation	22	27.5%
Oral, inhalation and injection	8	10%
Oral and injection	7	8.75%
Oral, inhalation and sniffing	4	5%
Inhalation	3	3.75%
Injection	3	3.75%
Inhalation and injection	2	2.5%
Oral and sniffing and injection	1	1.25%
Oral and sniffing	1	1.25%

Table (7): General examination of the studied abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017.

		Abusers N= 80	Non-abusers N=41	P-value
Blood pressure	Normal	32 (40%)	28 (68.29%)	0.026*
	Hypertension	43 (53.75%)	8 (19.51%)	
	Hypotension	5 (6.25%)	5 (12.2%)	
Pulse	Normal	70 (87.5%)	39 (95.12%)	0.037*
	Tachycardia	10 (12.5%)	0 (0 %)	
	Bradycardia	0 (0%)	2 (4.88%)	
Body temperature	Normal	76 (95%)	39 (95.12%)	0.382
	Increased	3 (3.75%)	0 (0 %)	
	Decreased	1 (1.25%)	2 (4.88%)	
Respiratory rate	Normal	77 (96.25%)	39 (95.12%)	0.093
	Tachypnea	0 (0%)	2 (4.88%)	
	Bradypnea	3 (3.75%)	0 (0%)	

- *P values* of Pearson's chi-squared test (0.026 and 0.037) are statistically significant.
- N= number.

Table (8): Substances detected in the urine drug screen of the abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017.

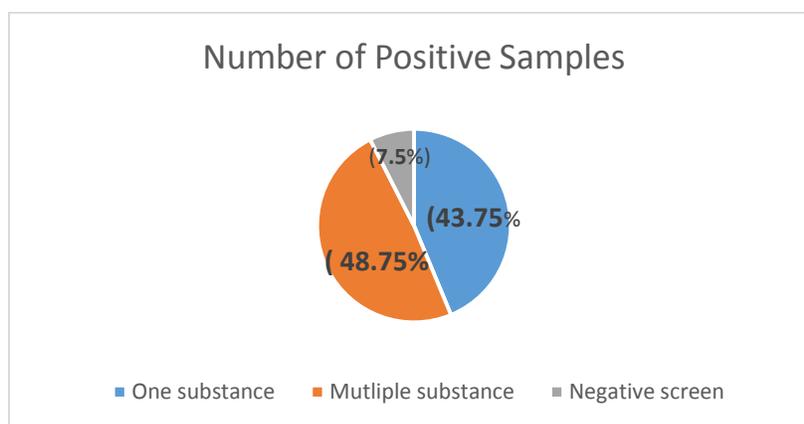| Detected substance/substances	Number	Percent
Single substance	**35**	**43.75%**
Tramadol	18	22.5%
Opiate	9	11.25%
Cannabinoid	5	6.25%
Benzodiazepine	2	2.5%
Amphetamine	1	1.25%
Multiple substances	**39**	**48.75%**
Tramadol, cannabinoid	10	12.5
Tramadol, opiate	8	10
Tramadol, cannabinoid, opiate	5	6.25
Tramadol, benzodiazepine	4	5
Tramadol, amphetamines	2	2.5
Amphetamine, opiate	2	2.5
Amphetamine, opiate, cannabinoid	2	2.5
Tramadol, opiate, benzodiazepine	1	1.25
Tramadol, amphetamines, benzodiazepine,	1	1.25
Tramadol, opiate, benzodiazepine, amphetamine	1	1.25
Tramadol, opiate, cannabinoid, amphetamine	1	1.25
Tramadol, opiate, cannabinoid, benzodiazepine	1	1.25
Tramadol, opiate, cannabinoid, amphetamine, , benzodiazepine	1	1.25
Negative urine screen	**6**	**7.5%**

Figure (2): Percentage of substances detected in urine samples of the abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017.

Table (9): Distribution of HCV, HBV and HIV among the studied abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017 and its and correlation to injection as a method of substance abuse.

Viruses	Abusers (N=80)		Total positive cases	P- value
	Using injection N =21	Not using injection N =59		
HCV	13 (61.9%)	2 (3.38%)	15	P=0.000**
HBV	1 (4.76%)	0 (0%)	1 (1.25%)	
HIV	2 (9.52%)	0 (0%)	2 (2.5%)	

- *P-value* (.000) of Pearson's chi-square test is statistically highly significant.
- HCV: Hepatitis C Virus.
- HBV: Hepatitis B Virus.
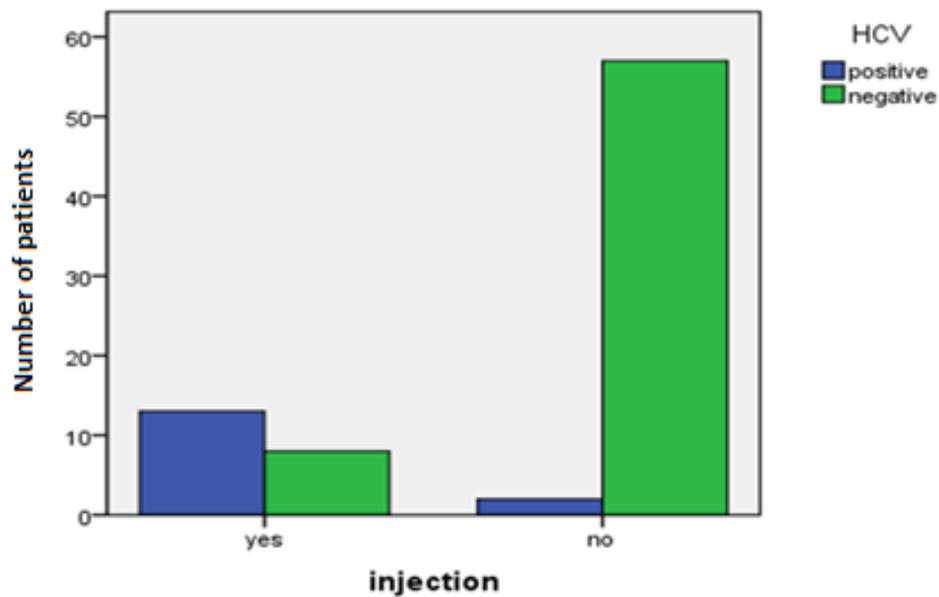- HIV: human Immunodeficiency Virus.

Figure (3): Distribution of HCV infection among subjects who used injection and subjects who did not use injection as a method of substance abuse.

Table (10): Liver and kidney functions in the studied abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017 compared to non abusers.

Liver and kidney function	Abusers	Non-abusers	P value
Total Bilirubin(umol/l)	6.86±2.98	4.66±1.06	0.003**
Direct Bilirubin(umol/l)	2.54±1.00	2.3±0.65	0.043*
Globulin(g/l)	29.27±5.51	27.27±4.08	0.412
Albumin/Globulin Ratio	1.61.±0.43	1.56±0.18	0.005**
Albumin(g/l)	44.17±4.40	42.25±4.73	0.741
Total protein(g/l)	73.03±5.48	69.52±7.28	0.228
AST(u/l)	29.01±24.05	21.95±5.02	0.005**
ALT(u/l)	31.82±33.84	22.20±8.63	0.209
ALP (u/l)	78.87±20.28	87.45±20.45	0.316
Blood Urea Nitrogen(mmol/l)	4.32±1.48	4.9±1.31	0.449
Creatinine(umol/l)	72.15±13.17	72.95±11.04	0.483

- *P- value* (0.043) of independent T test is statistically significant and *P-values* of 0.003 and 0.005 are highly significant.

Table (11): Liver and kidney functions among abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017 with different additcion duration.

Liver, kidney functions	(1-<5 years)	(5-<10)	(10-<15)	(10-20)	P value
Total bilirubin (umol/l)	6.78±2.78	7.57 ±3.46	6.32±2.36	6.63 ±3.41	0.615
Direct bilirubin (umol/l)	2.37±1.02	2.60±0.85	2.64±0.86	2.52 ±1.45	0.759
Globulin (g/l)	29.06±3.75	29.61±6.64	29.41 ±6.44	28.74 ±4.04	0.994
Albumin/ globulin ratio	1.73±0.33	1.64±0.5	1.5 3±0.46	1.47 ±0.32	0.240
Albumin (g/l)	46.08±2.49	43.61±5.61	42.91±4.43	44.48±3.38	0.105
Total protein (g/l)	73.33±4.90	72.62±6.10	73.19 ±6.51	73.04 ±3.31	0.984
AST(u/l)	29.35±29.95	31.62±25.13	22.64±14.93	34.92±25.25	0.252
ALT(u/l)	38.20±60.51	33.41±21.59	24.17±13.51	32.61±18.15	0.292
ALP (u/l)	80.98±22.17	77.08±22.51	76.58±19.31	82.96±15.28	0.590
Blood urea nitrogen (mmol/l)	4.24±1.07	4.21±1.31	4.08 ±1.81	5.02±1.61	0.287
Creatinine (umol/l)	67.9±11.66	72.87±14.47	71.78±11.57	78±14.54	0.283

- *P-value* of Kruskal-Wallis H test < 0.05* is statistically significant.

Table (12): Liver and kidney functions among abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017 with positive and negative infective hepatitis.

Liver and kidney function	Positive hepatitis N= 15	Negative hepatitis N=65	P value
Total Bilirubin(umol/l)	6.19±3.24	6.98±2.94	0.215
Direct Bilirubin(umol/l)	2.79±1.24	2.48±0.94	0.398
Globulin(g/l)	32.57±7.56	28.51±4.67	0.013*
Albumin/Globulin Ratio	1.16±0.41	1.71±0.36	0.000**
Albumin(g/l)	38.76±5.13	45.42±3.12	0.000**
Total protein(g/l)	75.53±5.57	72.45±5.34	0.05*
AST(u/l)	38.73±35.50	26.76±20.27	0.05*
ALT (u/l)	49.06±72.17	27.84±13.74	0.000***
ALP (u/l)	82.63±18.91	78±20.63	0.382
Blood Urea Nitrogen(mmol/l)	4.36±1.66	4.31±1.45	0.868
Creatinine(umol/l)	68.93±17.32	72.89±12.07	0.076

- *P-values* (0.013 and 0.05*)* of Mann Whitney U test are statistically significant and *p-value* of 0.000 is highly significant.

Table (13): The distribution and correlation of normal and abnormal ECG among abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017and non-abusers.

Type of ECG	Abusers N= 80	Non-abusers N=41	P value
Normal	37 (46.25%)	33 (80.49%)	0.007**
Abnormal	43 (53.75%)	8 (19.51%)	

- *P- value* (0.007) of Pearson Chi-Square test is statistically highly significant.
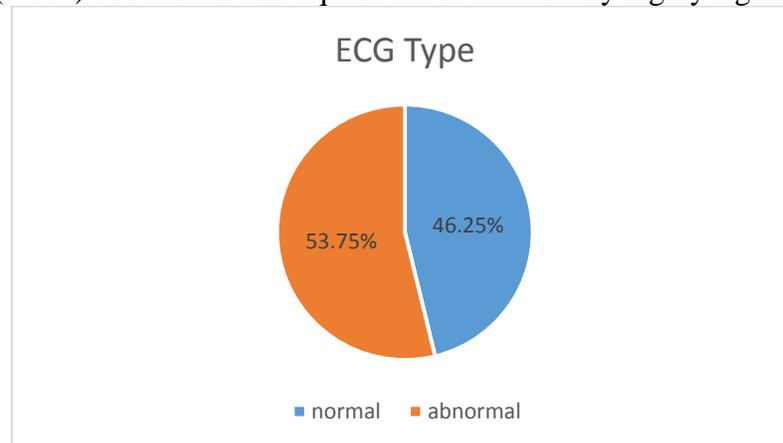

Figure (4): The percentage of normal and abnormal ECG among studied abusers.

Table (14): Electrocardiogram abnormalities detected among substance abusers who were admitted to Addiction Management Unit of Neurology and Psychiatry Hospital at Assiut University during the period from 1st January to 30th June 2017.

ECG abnormalities	Number N=43	Percentage (%)
Sinus rhythm with inverted Twave	13	30.23%
Sinus rhythm with flat Twave	8	18.60%
Sinus tachycardia only	8	18.60%
Sinus rhythm with depressed ST	5	11.63%
Sinus rhythm with depressed ST and inverted T	4	9.31%
Sinus rhythm with tall T wave	3	6.98%
Sinus tachycardia with depressed ST	2	4.65%

IV. DISCUSSION

Substance abuse is an important problem in Egypt that threats both the society and government (**El-Awady et al., 2017**). The present study is a case-control study that included 80 male abusers and 41 healthy non-abusers. The mean age of the abusers was 30.47±6.91 years. More than half (53.75%) of abusers belonged to the age group 25 to 35 years. These percentages were similar to another study conducted by **Maruf et al. (2016)** in Dhaka, Bangladesh which demonstrated that about half (50.5%) of abusers belonged to the 21–30 year age group. Young adults are particularly likely to be active substance abusers and to be affected by substance use problems (**Wu et al., 2007**). Older people are typically not exposed as much as young people to new drugs (**UNODC, 2018**).

The studied sample in the present study showed that free workers represented 60% of abusers while government employees represented 17.5%. It was found that the high prevalence of substance abuse among free workers (e.g. mechanists and technicians) can be probably attributed to their lower education and socioeconomic status, together with the relatively high income which is directed to the use of substance instead of other useful activities (**Colpaert et al., 2008**).

The current study showed that rural residents represented 65% of the studied abusers while 35% were urban residents. This is contrary to the results of **Hamdi et al. (2016)** who showed that people of rural origins are the least at abusing substances in Egypt including Upper Egypt. According to Assiut Governorate's website, rural residents represent 72.8% of Assiut Governorate (**El-Gibaly, et al., 2017**).

Regarding the educational level, near half (47.5%) was secondary-technical schools. University, illiteracy and preparatory school represented 30%, 8.75%, and 7.5% respectively. A study conducted in Zagazig governorate reported that no statistically significant association was found between substance abuse and educational level (**Negm and Fouad, 2014**). Regarding marital status, married subjects represented 58.75% of the studied abusers. This is not greatly different from that detected by **Dawood (2018)** in Baghdad who reported that 49.2% of relapsed drug abusers were married and the author attributed this to inability to face marital problems.

The present results showed that 42.5% of abusers were the youngest siblings while the middle siblings and eldest represented 36.25% and 21.25% respectively. This is supported by many studies, which reported that last-born children have the highest risk to be drug

abusers and are overrepresented among psychiatric populations **(Eckstein and Kaufman, 2012).** This risk can be explained by the fact that youngest siblings are often raised as spoiled children, which deprive the child of independence. Psychological dependence can transform into substance abuse beside that later-born child may be exposed to substance abuse at a younger age through older siblings **(Barclay et. al., 2016).**

The current study demonstrated that the number of family members was between 5 to 10 in 73.75% of cases. The family size plays an important role as a risk factor of substance abuse due to the inability of the parents to control their children (**Essien**, **2010**). Incompetent parenting exposes offspring to different types of danger including substance abuse and other crimes **(Anie, 2015).** The present results demonstrate that 47.5% of abusers had a positive family history of substance abuse. In families with multigenerational patterns of substance abuse, abuse among adolescent members is common just conforming to the family history (**Alexander and Gwyther, 1995**).

Early onset of substance abuse increases the risk for psychosocial problems in many life areas such as behavior pattern, psychiatric disorder, family system and work adjustment (**Poudel and Gautam, 2017).** The mean onset of substance abuse in the present study was 21.46±6.13 years**.** The present study also showed a significant difference between the mean age of starting substance abuse in correlation to the abused substance. For cannabis, the mean age of starting its abuse was 16.33 ± 2.89 years while 23.65± 5.46 and 25.25±7.09 years were the ages of onset of tramadol and opiates abuse respectively. This is consistent with a study conducted in Spain, which reported that the highest prevalence of cannabis abuse was found in the younger age group (**Domingo-Salvany et al, 2017).** Early onset of cannabis abuse was reported to increase the risk for mental health problems including anxiety and depression, poor

education, lower income, unemployment, unsatisfaction of relationship and life (**Fergusson and Boden, 2008).**

In the present study, 34 of abusers (42.5%) abused one substance while 46 (57.5%) abused multiple substances. This is in agreement with an Egyptian study conducted in Tanta, which showed that the majority of abusers (84.6%) were abusing more than one substance (**El-Sawy et al, 2010).** The present study demonstrated that isolated tramadol was the most commonly abused substance in 32.5% of cases followed by tramadol and cannabis representing 21.25% of cases. Urine screening of abusers detected one substance in 35 (43.75%) of cases (18 of them was tramadol). This high prevalence of tramadol abuse is consistent with the study by **Fawzy (2010),** who reported 32.1% prevalence of tramadol use among children and adolescents who presented to the Emergency Unit of the Poison Control Center of Ain Shams University Hospitals. Tramadol abuse is common due to its availability and cheaper prices**.** Perception of tramadol as being a safe drug due to its medical use is also a major factor leading to its abuse (**Lord et al., 2011).**

In the current study, oral administration for substance abuse was the most common (36.25%) method used by abusers. Oral ingestion of abuse substances can result in oral health complications from direct exposure of oral tissues to drugs (**Shekarchizadeh et al., 2013).** However, HIV and infective hepatitis are more prevalent among injecting drug users **(Arasteh et al., 2008).** Our results revealed that (HCV) was positive in 15 (18.75%) cases, 13 of them used injection for substance abuse.

Analysis of liver and kidney functions of abusers in the present study revealed significant differences in means of total bilirubin, direct bilirubin, albumin/globulin ratio, and AST compared to values of non-abusers subjects. A study conducted in Gaza to assess the tramadol addiction effects on both liver and kidney functions among tramadol abusers showed that serum ALT and AST

levels were significantly higher in tramadol abusers compared to the control group (**Elmanama et al., 2015**). An experimental study on rats reported that tramadol increased serum ALT, AST, total bilirubin, urea, and creatinine (**Elkhateeb et al., 2015**). Indian case-control study reported that cannabis abusers showed higher levels of total bilirubin, direct bilirubin, indirect bilirubin, AST, ALT, and ALP and showed lower levels of the total protein, albumin, globulin, and albumin/globulin ratio in comparison with the control group (**Wani et al., 2017**).

The current results showed no significant differences in liver and kidney functions among abusers according to addiction duration. But established significant differences between means of albumin, globulin, albumin / globulin ratio, total protein, AST and ALT of abusers with positive infective hepatitis and those with negative results. This is not consistent with the work of **Farooqi et al. (2016)** who reported that the elevation of liver enzymes is correlated to the duration of addiction.

The prevalence of electrocardiographic (ECG) abnormalities in drug abusers is relatively unknown**.** In the present research, it was shown that 43 (53.75%) of the studied drug abusers had ECG abnormalities which are significantly higher than the prevalence of ECG abnormalities among non-abusers. 13 (30.23%) of abnormalities were in the form of an inverted T wave. It was reported that the inverted T wave is associated with an increased risk of cardiac and arrhythmic death (**Aro et al., 2012**).

Occasionally a young adult with a positive history of drug abuse dies suddenly and postmortem investigation reveals negative autopsy and negative toxicological screen. In a retrospective case-control study, subjects with an undetermined cause of death were 5.3 times more likely to have a history of drug abuse. It was hypothesized that drug abuse induces cardiac changes that persist after the drug is no longer detectable in the body (**Gruszecki et al., 2008**).

V. CONCLUSION AND RECOMMENDATION

This research shows that ECG abnormalities are frequently encountered in substance abusers. The results also point out the risk of hepatic damage due to infective hepatitis in injection drug users. Measures to control the spread of substance abuse should be implemented.

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تقييم حالات الإدمان المحتجزة بوحدة علاج الإدمان بمستشفى الأمراض العصبية والنفسية في جامعة أسيوط

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الملخص العربي:

أصبح تعاطي المخدرات من المشكلات المقلقة في مصر بسبب تغير النمط وتهديده للصحة والاستقرار الاجتماعي والاقتصادي للمجتمع. **الهدف من الدراسة:** أجريت هذه الدراسة لتقييم نمط تعاطي المخدرات في أسيوط. كما تهدف لتقييم وظائف الكبد والكلى وتخطيط القلب بين المرضى المدمنين الذين تم قبولهم في وحدة علاج الإدمان بمستشفى الأمراض العصبية والنفسية في جامعة أسيوط. **طرق البحث:** أجريت الدراسة على ٨٠ من الذكور المتعاطين للمواد المخدرة لا تقل فترة تعاطيهم عن مدة سنة، و ٤١ من الأصحاء. استوفى جميع المرضى استبيانا ً وخضعوا لفحص سريري شامل بجانب قياس وظائف الكبد، وظائف الكلى، تسجيلات تخطيط القلب والكشف عن المخدرات في عينات البول. **النتائج:** أوضحت الدراسة أن متوسط أعمار المتعاطين كان ٣٠.٤٧±٦.٩١ سنة وأن ٤٣ منهم (٥٣.٧٥%) كانت أعمارهم بين ٢٥ و٣٥ عام. مثّل تعاطي عدة أنواع من المخدرات ٥٧.٥ % (٤٦ حالة) وكان الترامادول أكثر المخدرات تعاطياً حيث تم تعاطيه منفردا في ٣٢.٥ % (٢٦ حالة). شكلت المدراس الثانوية الفنية (٤٧.٥%) من المستوى التعليمي للمتعاطين. وكان تاريخ الأسرة من تعاطي المخدرات إيجابيا في ٤٧.٥ %. وكان فيروس التهاب الكبد C إيجابياً في ١٥ (١٨.٧٥%) من الحالات، ١٣ من حالات فيروس C الإيجابية كانوا يتعاطون المخدرات عن طريق الحقن. لم تظهر الدراسة اختلاف ذو دلالة إحصائية في وظائف الكبد والكلى بين المتعاطين بفترات إدمان مختلفة. ولكن وظائف الكبد أظهرت اختلافا ذو دلالة إحصائية بين حالات فيروس C الإيجابية والسلبية. كما أظهرت نتائج تخطيط القلب لثلاثة وأربعين من المتعاطين (٥٣.٧٥ %) تغيرات بتخطيط القلب. **الخلاصة:** تخلص الدراسة إلى أن تغيرات تخطيط القلب تكثر في متعاطي المخدرات. وتشير النتائج أيضا إلى خطر تلف الكبد بسبب التهاب الكبد المعدي في متعاطي المخدرات عن طريق الحقن. وينبغي تنفيذ تدابير لمكافحة تفشي تعاطي المواد المخدرة.