



HEMATOLOGICAL CHANGES IN DRUGS ABUSERS ATTENDING TO ABDELAAL ELIDRESI PSYCHIATRIC HOSPITAL

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ABSTRACT

Background: Complete blood count (CBC) is a blood test used to evaluate your overall health and detect a wide range of disorder including anemia, infection and leukemia, Drugs are chemicals structures it is different types, can affect the body depending on the drug enter the body including: injection, inhalation, and ingestion, The common drugs: Heroin, Cocaine, Crack, Hallucinogens, Amphetamine, Marijuana, Inhalants, Prescription drugs, Discovering the impact of drugs on hematological parameters and peripheral blood picture. **Method:** In this study method was applied, the abuser of: Tramadol (TML), Marijuana (THC), Banzodiazbine (BZO), Tricyclazole (TCA), Methylopropanzamine (MDMA), Morphine (MOP), abusers of this drugs form 7 months ____ 8 years , In this study hematological parameters and peripheral blood picture. **Result:** In drugs abusers individual RBCs, Hb% and WBCs were elevated. Plt decrease. MCV increase. MCH and MCHC decrease. Lymphocyte, monocyte and esinophil were decrease. neutrophil increase. Reactive lymphocyte was founded in 8.3% in peripheral blood picture. **Conclusion:** The using drugs can change hematological parameters and peripheral blood picture.

KEYWORDS: CBC, drugs abusers.

INTRODUCTION

Addiction is an increasing issue in all over the world, according World Health Organization (WHO) there is a one between four person using drugs. most of countries researches are focused on the tow drugs (heroin and cocaine), However many studies have done on effect of drugs on weakness the Immune system, cardiovascular conditions, significant damage or liver failure ,seizures and widespread brain damage. Most common drugs in Sudan is Tramadol (TML), Marijuana(THC), Banzodiazbine (BZO), Tricyclazole (TCA), Methylopropanzamine(MDMA). Morphine (MOP). This study was done on hematological parameters and peripheral blood picture attending to Abdelaal Elidresi psychiatric hospital in Khartoum state. It is very important to discover RBCs, Hb% and TWBCs elevated and plt, lymphocyte decrease.

METHODS

This study method was applied. the subject included 60 males between (18__48 years) drugs abusers addiction: Tramadol (TML), Marijuana(THC), Benzodiazbine (BZO), Tricyclazole (TCA), Methylopropanzamine (MDMA), Morphine (MOP). Attending to Abdelaal Elidresi in Khartoum state from September 2016 to February 2017. some of the non addiction in terms of age and sex (male) were selected as the control group. only the drugs abusers were allowed to enter study. and drugs

abuser associated with any disease change blood parameters and morphology excluded. In order to ensure about detect abuser. This drugs urine sample for diagnostic specimens was obtained from individual. At the beginning one screening test (Rapid Multi Drugs Immuno chromatographic Test) thin layer chromatography was conducted on negative case and disappear in positive case to ensure that the control thin layer chromatography it is appear. the aim of this study was explained to the test subject and regarding to anonymity, consent from was obtained before blood and urine sample. this research was approved by ethics committee of Abdelaal Elidresi psychiatric hospital. data about the age, type of drug ,and duration of addiction were collected give a special code to each individual hematological parameters. then 2 ml fresh venous blood was collected in test tubes containing specific EDTA anticoagulant and automated method hematology analyzer (RC 3000 mindary _ chine). in laboratory of Ribat Hospital University. complete blood count (CBC) include red blood cell count (RBCs), white blood cell count (WBCs), hemoglobin level (Hb%), hematocrit percentage (HCT), and calculating cell indices including mean cell corpuscular (MCV), mean cell hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC). Differential count, leukocyte count (lymphocyte, monocyte, basophile and eosinophil) and blood platelets.

RESULTS

Total of 120 samples collected in this study all of them are male(60 drugs abusers and 60 control), the mean

age of abusers was 28.5 ± 6.9 years, complete blood count was estimated for all samples using mindary BC-3000 hematological analyzer.

Table 1: comparison of hematological parameters between patients and control group.

p. value	Std deviation	Mean	N	GROUP
0.218	1.34782	14.2000	60	Case
	1.72543	13.8500	60	Control
0.096	2.82395	6.3700	60	Case
	1.68032	5.6583	60	Control
0.144	9.19281	6.6633	60	Case
	.48567	4.9150	60	Control
0.158	3.96167	43.8200	60	Case
	4.84453	42.6733	60	Control
0.63	5.35830	87.7983	60	Case
	5.47655	85.9417	60	Control
0.479	1.78419	27.6150	60	Case
	2.01318	27.8617	60	Control
0.093	1.63753	31.6867	60	Case
	1.43503	32.1633	60	Control
0.120	10.85314	57.1500	60	Case
	9.93056	54.1767	60	Control
0.000	8.52174	29.0833	60	Case
	8.65581	35.0167	60	Control
0.397	.58222	9.0000	60	Case
	1.06511	8.8667	60	Control
0.444	2.98679	2.8333	60	Case
	2.45703	3.2167	60	Control
1.000	.49717	.4167	60	Case
	.53016	.4167	60	Control
0.02	63.05480	242.9167	60	Case
	87.06881	275.7333	60	Control

Table 2: correlation of hematological parameters in different drugs.

Parameters	Drug	N	MEAN	Std deviation
HB	TML	6	14.5333	.59554
	THC	10	15.1800	1.40063
WBCS	TML	6	5.8000	1.16276
	THC	10	5.4600	1.03623
RBCS	TML	6	5.2000	.26833
	THC	10	5.0800	.49171
PCV	TML	6	43.6667	1.03280
	THC	10	46.8000	3.96653
MCV	TML	6	84.6667	5.95539
	THC	10	92.0000	4.85341
MCH	TML	6	27.3333	1.03280
	THC	10	28.6000	1.71270
MCHC	TML	6	32.3333	1.86190
	THC	10	31.8000	1.22927
Neutro	TML	6	47.3333	13.03329
	THC	10	55.8000	5.94045
Lympho	TML	6	37.0000	7.15542
	THC	10	29.0000	6.73300
Mono	TML	6	9.0000	.00000 ^a
	THC	10	9.0000	.00000 ^a
Esino	TML	6	3.3333	2.58199
	THC	10	3.8000	2.85968
Baso	TML	6	.3333	.51640

	THC	10	.4000	.51640
Plts	TML	6	293.3333	54.89141
	THC	10	284.8000	46.50161

Parameters	Drug	N	MEAN	Std deviation
HB	BZO	16	14.1250	1.36991
	THC/BZO	6	13.5667	.22509
WBCS	BZO	16	7.5500	4.11566
	THC/BZO	6	6.9667	4.45541
RBCS	BZO	16	5.1125	.37036
	THC/BZO	6	4.6667	.18619
PCV	BZO	16	43.8750	3.48090
	THC/BZO	6	40.3333	2.06559
MCV	BZO	16	86.7500	3.85573
	THC/BZO	6	87.6667	4.13118
MCH	BZO	16	26.8750	1.58640
	THC/BZO	6	28.0000	.89443
MCHC	BZO	16	31.0000	1.86190
	THC/BZO	6	32.6667	1.36626
Neutro	BZO	16	59.1250	11.83709
	THC/BZO	6	59.6667	17.44324
Lympho	BZO	16	27.0000	8.94427
	THC/BZO	6	34.0000	7.09930
Mono	BZO	16	8.8750	.80623
	THC/BZO	6	9.0000	.00000
Esino	BZO	16	2.2500	3.13050
	THC/BZO	6	2.0000	1.54919
Baso	BZO	16	.2500	.44721
	THC/BZO	6	.6667	.51640
Plts	BZO	16	208.6250	68.46301
	THC/BZO	6	254.6667	35.17196

Parameters	Drug	N	MEAN	Std deviation
HB	TCA	5	13.6000	1.19583
	BZO/TCA	4	14.1750	2.13912
WBCS	TCA	5	6.2000	.80000
	BZO/TCA	4	5.2750	1.32004
RBCS	TCA	5	4.5000	.29155
	BZO/TCA	4	30.3000	29.33223
PCV	TCA	5	42.0200	1.84986
	BZO/TCA	4	46.1000	6.81322
MCV	TCA	5	87.2000	4.25382
	BZO/TCA	4	85.7500	10.50000
MCH	TCA	5	27.9000	1.72627
	BZO/TCA	4	26.1500	3.70000
MCHC	TCA	5	31.5600	.61074
	BZO/TCA	4	30.8500	.99499
Neutro	TCA	5	64.6000	5.50454
	BZO/TCA	4	57.7500	5.50000
Lympho	TCA	5	19.8000	7.42967
	BZO/TCA	4	26.2500	3.50000
Mono	TCA	5	9.6000	.54772
	BZO/TCA	4	9.0000	.00000
Esino	TCA	5	5.2000	3.03315
	BZO/TCA	4	5.7500	3.86221
Baso	TCA	5	.8000	.44721
	BZO/TCA	4	.7500	.50000
Plts	TCA	5	232.8000	60.01000

	BZO/TCA	4	288.5000	34.53018
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Parameters	Drug	N	MEAN	Std deviation
HB	MDMA	5	12.8800	1.04738
	BZO /TML	4	15.0000	.69282
WBCS	MDMA	5	7.7800	1.95115
	BZO /TML	4	3.9500	.05774
RBCS	MDMA	5	4.7200	.68702
	BZO /TML	4	5.1000	.11547
PCV	MDMA	5	40.1600	3.65144
	BZO /TML	4	44.5000	1.73205
MCV	MDMA	5	89.0600	4.98177
	BZO /TML	4	86.0000	5.77350
MCH	MDMA	5	28.1400	2.09476
	BZO /TML	4	28.5000	.57735
MCHC	MDMA	5	31.7000	.61644
	BZO /TML	4	33.5000	2.88675
Neutro	MDMA	5	56.4000	9.91464
	BZO /TML	4	49.5000	2.88675
Lympho	MDMA	5	30.8000	8.75785
	BZO /TML	4	33.5000	9.81495
Mono	MDMA	5	8.4000	.54772
	BZO /TML	4	9.5000	.57735
Esino	MDMA	5	2.8000	3.03315
	BZO /TML	4	.0000	.00000
Baso	MDMA	5	.4000	.54772
	BZO /TML	4	.0000	.00000
Plts	MDMA	5	212.4000	75.89993
	BZO /TML	4	243.5000	.57735

Parameters	Drug	N	MEAN	Std deviation
HB	MOP	4	14.1250	1.65404
WBCS	MOP	4	5.8500	1.10905
RBCS	MOP	4	5.0750	.42720
PCV	MOP	4	45.4750	5.22773
MCV	MOP	4	89.4000	5.51060
MCH	MOP	4	27.5250	1.77271
MCHC	MOP	4	30.8750	.34034
Neutro	MOP	4	62.2500	8.42120
Lympho	MOP	4	26.2500	6.75154
Mono	MOP	4	9.0000	.81650
Esino	MOP	4	.2500	.50000
Baso	MOP	4	.5000	.57735
Plts	MOP	4	186.7500	36.50000

Table 3: Correlation between hematological parameters and age of abusers.

Age		HB	WBCS	RBCS	PCV	MCV	MCH	MCHC
18-28 y	Mean	14.3800	6.6914	5.0714	44.8829	88.6457	27.7114	31.5257
	N	35	35	35	35	35	35	35
	Std. Deviation	1.32105	3.42468	.39000	3.95277	4.70090	1.60381	1.81130
29-38y	Mean	14.3368	5.5737	4.9947	43.4421	86.1579	27.2684	31.8579
	N	19	19	19	19	19	19	19
	Std. Deviation	1.33092	1.16038	.48129	3.24950	6.42956	2.08914	1.49678
39-48 y	Mean	12.7167	7.0167	4.5000	38.8167	88.0500	28.1500	32.0833
	N	6	6	6	6	6	6	6
	Std. Deviation	.50365	2.42191	.30332	1.56514	4.93710	1.86949	.88638

Age		Neutro	Lympho	Mono	Esino	Baso	Plts
18-28 y	Mean	60.9143	28.7143	8.8857	1.8286	.2571	237.8000
	N	35	35	35	35	35	35
	Std. Deviation	9.02080	8.34749	.52979	2.46726	.44344	59.68782
29-38y	Mean	52.1579	28.1053	9.3684	4.9474	.6842	257.0526
	N	19	19	19	19	19	19
	Std. Deviation	11.13185	8.60810	.49559	3.23992	.47757	65.47050
39-48 y	Mean	51.0000	34.3333	8.5000	2.0000	.5000	228.0000
	N	6	6	6	6	6	6
	Std. Deviation	12.29634	8.86942	.54772	1.09545	.54772	77.77660

DISCUSSION

The results showed that drugs abusers when comprise with normal control (non abuse). Red blood cell count, white blood count, and hemoglobin level elevated. Platelet decrease. Neutrophil increase. Lymphocyte, monocyte and esinophil decrease. Basophil unchanged in all groups. unchanged in RBCs and plt morphology. 8.3% reactive lymphocyte in drugs abusers, when comprise drugs all separator with normal control showed Taramdol (TML) abuse red blood count (RBCs), white blood cell count (WBCs) and hemoglobin level (Hb%) elevated, hematocrit (HCT) increase. MCV and MCH decrease. MCHC increase. differential count lymphocyte, monocyte and esinophil increase. neutrophil and basophil decrease. platelet increase. Marijuana (THC) abuse RBCs and WBCs elevated. Hb% increase. HCT increase. MCV and MCH increase. MCHC decrease. differential count neutrophil, monocyte and esinophil increase. lymphocyte and basophil decrease, platelet increase. Banzodianbine (BZO) abuse RBCs, WBCs and Hb% elevated. HCT increase. MCV increase. MCH and MCHC decrease. differential count neutrophil and monocyte increase. lymphocyte, basophil and esinophil decrease. platelet decrease. Tricyclazole antidepressants (TCA) abuse RBCs decrease. WBCs increase. HCT decrease. MCV and MCH increase. MCHC decrease. differential count neutrophil, monocyte, basophil and esinophil increase. platelet decrease. MDMA abuse RBCs decrease. WBCs increase. Hb% decrease. HCT decrease. MCV and MCH increase. MCHC decrease. differential count neutrophil increase. lymphocyte, monocyte, basophil, esinophil decrease. platelet decrease. Morphine (MPO) abuse RBCs, WBCs, HCT and Hb% elevated. MCV, MCH and MCHC increase. differential count neutrophil, monocyte and basophil increase. lymphocyte and esinophil decrease. platelet decrease.

The result showed unchanged in RBCs and platelet morphology in all drugs abusers. and showed reactive lymphocyte in 8.3% all sample study. all this presenting assisted to BZO drugs abusers. Another study was done on morphine dependent dogs showed that blood hemoglobin content did not change but in with drawl period it decrease in parallel with RBCs. sapira also showed that hemoglobin concentration decreased in morphine dependent. also in similar observation reported by pantone et al, it was indicated that hemoglobin and hematocrit level decreased in heroin injection abusers.

CONCLUSION

In drugs abusers individual RBCs, Hb% and WBCs elevated. Plt decrease. MCV increase. MCH and MCHC decrease. Lymphocyte, monocyte and esinophil decrease. neutrophil increase. reactive lymphocyte founded in 8.3% in peripheral blood picture.

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