

# Distinguishing of Abuse Drugs in Urine and Blood Samples of Abusers in Iran

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**Abstract:** In this study, one hundred urine samples and one hundred blood samples of abusers were examined for the presence of alkaloid substances and abuse drugs in urines and bloods. These numbers of blood and urine samples referred who addicts in clinics of Welfare Organization, during of detoxification treatment or maintenance treatment were screened for abuse drugs presence. Age ranges of female patients were  $35 \pm 15$  and age range of males patients were  $42 \pm 18$ . All patients filled questionnaire and satisfy forms too. All data were analyzed by t-test and were Anowa one way, and  $P < 0.05$  was considered significant. The  $P$  value of this study was  $P = 0.000$ . In this study we conclude that among all drug analytical methods the cheapest and easiest test to screening opioids and other abuse drugs in urine and blood samples is strip test for rapid diagnosis and TLC (thin-layer chromatography) is appropriate confirmation method to drug abuse distinguishing. Also tests on blood samples have high importance as a view point of accuracy to distinguishing of drugs abuse.

**Key words:** Abusers, urine and blood samples, Strip test, Thin-layer chromatography, abuse drugs.

## 1. Introduction

Nowadays, because of the increasing variety of abuse drugs it make incidence of epidemics addiction in the world. Also synthetic drugs make diagnostic and therapeutic problems among abusers. Several studies on biological samples for the detection of drugs have been reported, and these drugs are: tramadol, methadone, amphetamines, cannabis, buprexin, morphine, codeine, heroin. So they were tested. Based on studies to achieve the ideal treatment choice, the rights distinguishing of drugs are recommended. For the management of drug therapy several laboratory methods are sufficient and the most cost-effective to identifying but not accurate. The

most appropriate samples for the detection of patients with drug abuse are the use of urine samples of patients. Several studies show that the detection of abuse drugs in urine. Edward J. Cone, et al. research showed that of urine toxicology testing techniques and monitoring of opioids in patients. Rezaei-Basiri M. et al. [1] evaluated Screening of morphine and codeine in urine of opioid abusers by rapid and TLC analysis in Tabriz/Iran drug abuse distinguishing laboratory. Also Joseph Pergolizzi et al. [2] have researched about the Role and importance of urine drug testing for patients under opioid treatment [3]. But it might be there are false positive and negative between results of these studies as well as drug interactions have been reported. With this background the study on the blood and urine samples of abusers are suggested because they are inexpensive methods that have been used to

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ensure of proper treatment and follow up of abusers.

## 2. Materials and Methods

### 2.1 Study Population

The study included two groups of addicts women with aged  $35 \pm 15$  and men with age range of  $42 \pm 18$  have been recorded. First of all consent forms and questionnaires and also all satisfy forms filled for patients. Information such as age, sex, type of materials, medicines for the treatment and history of the forms have been recorded. All questionnaires and also all satisfy forms after filling confirmed in ethical committee of welfare organization [4].

### 2.2 Preparation of Samples

All blood and urine samples of addicts were tested using rapid strips test. 1 mL of all study samples such blood samples before and after detoxification or MMT duration were centrifuged in 3,000 g for 5 minutes and prepared. Then the serum of blood samples were removed and were exposed to rapid strip tests and the positive and negative and suspicious cases were recorded and reported. In this study for the presence of abuse drugs in Blood and urine samples detection limit was  $> 300$  mg/mL to drugs sensitivity and considered positive with using of rapid strip tests [5].

### 2.3 Samples Analysis

All urine samples with using rapid strip have been tested before and after detoxification or MMT duration. Also all blood samples before and after detoxifications have been tested with strips. Finally all of urine samples to confirm the presence of abuse drugs have been tested with using thin layer chromatography TLC.

### 2.4 List of Abuse Drugs

THC, tramadol, methadone, Buprenorphine, morphine, codeine, heroin, MOMA, amphetamines, methamphetamine, cannabis is the most basic nature [6].

### 2.5 Statistical Analysis

Before and after detoxification in each group Anova one way statistical analysis and after detoxification t-test among groups of men and women were used for statistical analysis.

## 3. Results

The results in Tabriz/Iran undrevision clinics of welfare organization were approximately showed that all of study populations had positive results in each of urine and blood samples. The results showed that the patients who encountered in the process of detoxification their blood samples due detoxification have been positive results. In the same study the blood test results of all groups after the detoxification were approach negative with rapid strip tests. Results of this study showed that all patients who consumed drugs, such as buprenorphine and methadone to maintenance treatment they have been positive results in blood test. Also, all of abusers who received maintenance treatments, were positive results in urine test that have been reported. The analysis of this study showed that some positive results and false negative test results can be seen in the urine samples of patients. Then the results of this study showed that all patients had positive in results of blood test because they were used abuse drugs. The 2% results of urine samples were reported false negative by the rapid methods, then these samples have been approved positive through TLC procedures. It also results have been recorded in 10% of cases through TLC with drug interaction. Because patients have used other drugs or medication. According to abusers questionnaire forms information some of the results of this study are showed in Tables 1-4. So Table1 is showed rapid results in duration of treatment in Blood samples of women abusers. Table 2 is showed rapid strip tests results of Blood samples during of detoxification between men and women abusers. Table 3 expresses that the urine test results have shown drug interaction in MMT process of some cases of men and women

**Table 1** Rapid test results in during of treatment course on blood samples.

No.	Women Age	Men Age	Consumption time month or year	Methadone or buprenorphine > 300 ng/mL
1	25	45	1 yr	+
2	30	21	2 yr	+
3	37	48	2 yr	+
4	33	30	1 yr	+
5	40	40	2 yr	+
6	46	55	3 yr	+
7	28	49	1 yr	+
8	32	50	5 yr	+
9	33	53	5 yr	+
10	35	38	1 yr	+
11	39	37	2 yr	+
12	44	35	2 yr	+
13	47	31	1 yr	+
14	49	27	2 yr	+
15	25	28	1 yr	+
16	27	29	1 yr	+
17	31	30	3 yr	+

> 300 ng/mL: positive results (+), N = 17, Rapid strip test, Blood samples.

**Table 2** Rapid strip tests results on blood samples during of detoxification course.

No.	Women Age	Before detoxification > 300 ng/mL	After detoxification < 300ng/mL
1	50	+	-
2	45	+	-
3	44	+	-
4	40	+	-
5	38	+	-
6	25	+	-
7	26	+	-
8	27	+	-
9	28	+	-
10	29	+	-
11	30	+	-
12	35	+	-
13	37	+	-
14	39	+	-
15	40	+	-
16	41	+	-
17	43	+	-
18	47	+	-
19	48	+	-
20	39	+	-
21	36	+	-
22	34	+	-
23	33	+	-
24	31	+	-
25	30	+	-
26	32	+	-
27	36	+	-
28	33	+	-
29	26	+	-
30	25	+	-

> 300 ng/mL: positive results (+), < 300 ng/mL: Negative results (-), N = 30, rapid strip test, opiod (heroin, morphine, Codein) detection in abuser women blood samples. Anowa one way,  $P = 0.000$ .

**Table 3** Urine test results have shown drug interaction in MMT process of some cases.

	Women	Men	Consumption Time	Methadone or Buprenorphine
No.	Age	Age	month or year	> 300ng/mL
1	50	35	2yr	±
2	48	45	3 yr	±
3	44	40	2 yr	±
4	40	35	1yr	±
5	38	39	4 yr	±
6	35	36	1yr	±

Age > 35, N = 6, drug interactions have after detoxification through TLC (thin layer chromatography) method.

**Table 4** Urine rapid test results during the period of detoxification in men group of population study.

	Women	Before detoxification	After detoxification
No.	Age	> 300 ng/mL	< 300 ng/mL
1	58	+	-
2	55	+	-
3	54	+	-
4	53	+	-
5	49	+	-
6	48	+	-
7	47	+	-
8	46	+	-
9	40	+	-
10	43	+	-
11	42	+	-
12	41	+	-
13	49	+	-
14	46	+	-
15	38	+	-
16	37	+	-
17	36	+	-
18	35	+	-
19	34	+	-
20	33	+	-
21	32	+	-
22	31	+	-
23	30	+	-
24	29	+	-
25	28	+	-
26	27	+	-
27	26	+	-
28	29	+	-
29	39	+	-
30	45	+	-

> 300 ng/mL: positive results (+), < 300ng/ml: Negative results (-) N = 30, rapid strip test, abuser drugs (AM, MA, MDMA, cannabis, tramadol, opioids) detection in abuser men Urine samples. Anova one way,  $P = 0.000$ .

abusers. Also urine rapid test results during the period of detoxification in men group of study population were shown in Table 4 [7].

#### 4. Discussion

The results of this study shows patients who chronically and persistently consume abuse drugs or other drugs so these substances and medications are

distributed in the body and then the existence of these drugs in their body fluids are often possible [8-10]. So the materials can be found in most biological fluids. Tables 1 and 2 and 4 are clearly show positive and negative results in treatment course of MMT and detoxification between men and women abuser patients. These results suggest that the Rapid strip test methods for accurate diagnosis are considered

appropriate and beneficial process [11, 12]. The results of Table 3 shows that most patients are over 35 years, and continuously for the treatment or detoxification have consumed drugs the Chromatography urine test results of them have shown drug interactions, Then use of TLC (thin layer chromatography) is very suitable to confirm of drug interactions. Obviously, such patients in addition of drug therapy for the treatment of addiction, also have used other drugs to treatment of drugs abuse side effects. The results of Tables 1 and 4 show the abusers who deny risk of their addiction and in these cases it might be in the urine samples positive and false negative results can be seen, then Using blood samples are suitable to diagnose and confirm the presence of addictive drugs. Nowadays The alternative and fecible methods to distinguishing of over dose drugs are requirement in drug poisoning in hospitals and forensic medicines, in order to detection and diagnosis of other medicinal or drugs poisoning with Rapid strip test kits with sensitivity above 300 ng/mL through urine samples are necessary, these kits have sensitty to distinguishing of drugs over dose in blood samples too [13, 14].

## 5. Conclusions

Depending on the strategy for the treatment of patients buprenorphine and methadone maintenance therapy are used. Always blood and urine tests will be positive for these substances duration of MMT. We conclude that between all drug analytical methods the cheapest and easiest tests of opioids and drugs in urine and blood samples is strip test for rapid diagnosis and TLC (thin-layer chromatography) is appropriate confirmation method to drug abuse distinguishing, Also doing test on blood samples are high importance to distinguishing of drugs abuse. The base function of Rapid strip test kits is immunochromatography. They are made and available cheaper than other methods in Iran [15]. According to backbone of this study, which will be proposed that to detection and diagnosis of

other medicinal or drugs poisoning using blood samples and Rapid strip test kits with sensitivity above 300 ng/mL are recommended.

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