EVALUATION OF URINE DRUG SCREENING TEST RESULTS BETWEEN 2016-2018 YEARS IN KANUNI EDUCATION AND RESEARCH HOSPITAL LABORATORY

Nazime ÇEBİ MD, Hüseyin YILMAZ MD, Nizar TÜRKER MD, Neslihan KAYAOĞLU MD, Birsel YAYLA MD.

University of Health Sciences, Kanuni Education and Research Hospital Laboratory, Trabzon, Turkey

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MAIN ISSUE…

..Drug abuse is one of the most important health problems in the world and unfortunately it is rapidly increasing in Turkey as well.

..In order to to establish valid policies on this issue, the initial step is to define the extent of this problem by determining the prevelance of use.

We planned this study to determine which drugs are found to be positive more widely in our laboratory, to evaluate their distribution according to age-gender, and therefore to present data for taking measures.

AIM

URINE DRUG SCREENING TESTS (UDSTS)

• DHHS : Department of Health and Human Services guidelines for workplace UDSTs include 5 mandated drugs of abuse such as opiates, amphetamine, cocaine, cannabinoids, phencyclidine and other substances such as benzodiazepines.

• Primary reasons for using of urine sample in drug detection are convenience of collection, higher volumes, higher drug concentrations and longer (sufficient) durations of detection.

•Interpretation of UDSTs is required to know the different testing modalities, the detection times for specific drugs, kinetic of drugs and the common reasons for false-positive and false-negative test results.
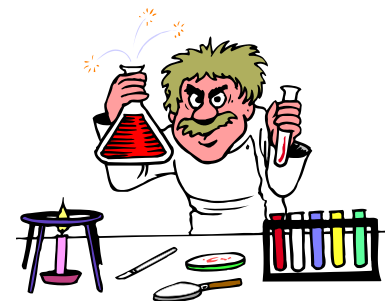
URINE DRUG SCREENING TESTS

- Misinterpretation of drug tests can have serious consequences , such as risk of prison sentence, termination from a job and possibly inappropriate medical treatment in emergencies.

- The goal of drug testing is to achieve accuracy with no **false-positive o**r **false-negative results.**

- **A false - positive** result is most commonly due to cross- reactivity of the assay with other substances that have structural similarity with the abused substance.

- **A false- negative** may occur when the concentration of the substance in the urine is below the accepted threshold or when the sample has been diluted or otherwise adultrated to obscure the presence of a drug.

	Onay İşlemleri				Açıklamalar		Diğer İşlemler		Dış lab
Teknisyen Onay		Uzman Onay		Onay İptal	Test Açıklama	Tıbbi Lab. Yorum	Test İşlemleri	Sonuç İşlemleri	

Tüm Üniteler	Biyokimya	İlaç Düzeyi

Örnek No	Test Adı	Sonuç		Referans	Panik	Birimi	Cihaz Adı	Rac...	Poz...
İlaç Düzeyi									
20325120	**AMFETAMIN**	**646 POZİTİF**	⬆	H(<500)		ng/mL	Uyuşturucu AU480 - Num...	0084	5
20325120	BARBITURAT	28 NEGATİF		N(<200)		ng/mL	Uyuşturucu AU480 - Num...	0084	5
20325120	BENZODIAZEPIN	0 NEGATİF		N(<200)		ng/mL	Uyuşturucu AU480 - Num...	0084	5
20325120	KOKAIN	0 NEGATİF		N(<300)		ng/mL	Uyuşturucu AU480 - Num...	0084	5
20325120	**OPIYAT (Morfin- E...**	**2456 POZİTİF**	⬆	H(<300)		ng/mL	Uyuşturucu AU480 - Num...	0084	5
20325120	**TETRAHİDROKAN...**	**87.0 POZİTİF**	⬆	H(<50)		ng/mL	Uyuşturucu AU480 - Num...	0084	5
20325120	BONZAİ K2/SPİCE	4.17 NEGATİF		N(<20)		ng/mL	Uyuşturucu AU480 - Num...	0084	5
20325120	BONZAİ K2/SPİCE 2	0 NEGATİF		N(<10)		ng/mL	Uyuşturucu AU480 - Num...	0084	5
20325120	**BUPRENORFİN**	**43.82 POZİTİF**	⬆	H(<5)		ng/mL	Uyuşturucu AU480 - Num...	0084	5
20325120	ECSTACY (MDMA)	0 NEGATİF		N(<500)		ng/mL	Uyuşturucu AU480 - Num...	0084	5
20325120	Spesifik Gravite	1.005		N(1.005 - ...			Uyuşturucu AU480 - Num...	0084	5
20325120	PH	6.16		N(4.5 - 9)			Uyuşturucu AU480 - Num...	0084	5
20325120	NITRIT	2		N(0 - 200)		µg/mL	Uyuşturucu AU480 - Num...	0084	5
20325120	CREA	28		N(20 - 250)		mg/dL	Uyuşturucu AU480 - Num...	0084	5

•The Department Of Health And Human Services (DHHS) has established specific cut-off levels that define positive results for workplaces, these values were determined to minimize both false-positive and false-negative results .
Values below the cut-off levels are reported as negative.

EXPECTED DURATION FOR A POSITIVE URINE DRUG SCREENING

AMPHETAMINE	2-4 DAYS
METHAMPHETAMINE	2-4 DAYS
BARBITURATES (SHORT ACTING)	2-4 DAYS
BARBITURATES (LONG ACTING)	UP TO 30 DAYS
BENZODIAZEPINES	UP TO 30 DAYS
COCAINE	1-3 DAYS
HEROIN/MORPHINE	1-3 DAYS
MARIJUANA (CHRONIC USE)	UP TO 30 DAYS
MARIJUANA (OCCASIONAL USE)	1-3 DAYS
METHADONE	2-4 DAYS
PCP (CHRONIC USE)	UP TO 30 DAYS
PCP (OCCASIONAL USE)	2-7 DAYS

•**Pharmacokinetics, presence of metabolites, patient variability, short or long term use of drug, pH of urine and time of last ingestion are some factors that influence detection time.**

RESULTS

• In our laboratory we test for: Amphetamine, Benzodiazepine, MDMA-Ecstacy, Barbiturate; Cannabis-THC, Cocaine, Bonzai-Spice1\ Spice2, Opiate and Buprenorphine with the urine integrity tests (pH, Creatinine, Nitrite, Specific Gravity)

•We evaluated urine drug tests with the retrospective LIS data.

•Cannabis (THC) was the most commonly used banned-substance being positive in **16%** of patients admitted between 2016-2018, followed by Benzodiazepine with **9.97%** and Buprenorfin with **8.93%** positivity rates.

•Positivity rates for Bonzai-Spice1\ Spice2, which are thought to be widely used, were 0.045% and 0.3%, respectively. The main reason for the low detection of these substances, whose usages have increased in recent years, is the existence of product variety that limits its detection by current method.

•Percentage of other substances being positive were:

-Cocaine 0.3 %, MDMA 1.76 %, Opiate 1.37%, Amphetamine 2.25%, Barbiturate 0.058%

-Male and female percentages of tested individuals were 95.61% and 4.51% , respectively.

- Average age of individuals being tested was around 31 years and the youngest and the oldest ages were 14 and 78 years, respectively.

SUMMARY OF THE URINE DRUG SCREENING TESTS RESULTS

	Total	Positive	Positive%	Negative%	% in positives
Amfetamin	6.823	154	2,26	97,7	5,6
Barbiturat	6.825	4	0,06	99,9	0,1
Benzodiazepin	6.830	681	**9,97**	90,0	24,8
Bonzai K2/Spice 1	6.504	3	0,05	100,0	0,1
Bonzai K2/Spice 2	6.644	20	0,30	99,7	0,7
Buprenorfin	6.850	612	**8,93**	91,1	22,3
Kokain	6.832	20	0,29	99,7	0,7
MDMA (Ecstasy)	3.228	57	1,77	98,2	2,1
Opioids (morphine/codein)	6.835	94	1,38	98,6	3,4
THC (cannabinoids)	6.828	1.100	**16,11**	83,9	40,1
Total	64.199	2.745			

CONCLUSIONS…

•Drug screen results are not always clear cut in their interpretation.

• Use of confirmatory tests are usually necessary and the Gas Chromatography-Mass Spectrometry (GC/MS) is considered the gold standard for confirmatory testing. Until today, 2 samples were sent to corfirmation and both are found to be positive with GC/MS.

•So, we only give results as a screening test and leave the final decision to the clinician who orders the test and clinician need to be aware that the tests performed by immunoassays give preliminary information only and also that external factors and variables can influence these results.

•However the research is regional and countrywide studies are needed.

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LEADER MUSTAFA KEMAL ATATÜRK

29 OCTOBER
HAPPY REPUBLİC DAY