

Retrospective Study

Illicit Drug Use in the Pain Patient Population Decreases with Continued Drug Testing

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Background: A major concern of physicians treating pain patients with chronic opioid therapy and similar drugs is determining whether the patients are also using illicit drugs. This is commonly determined by urine drug testing (UDT). However, there are few studies on whether or not monitoring patients by this technique decreases illicit drug use.

Objective: To determine if the presence of illicit drugs decreases over a number of physician visits where UDT was performed.

Method: The method involved a retrospective study of tests for the illicit drugs marijuana, cocaine, methamphetamine, ecstasy (MDMA) phencyclidine (PCP) and the heroin metabolite, 6-acetylmorphine as confirmed by Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS). A database of 150,000 patient visits was examined for the presence of any of these 6 drugs.

Results: A total of 87,000 patients were initially tested. The number of patients who were repeatedly tested decreased over time. The percentage of patients positive for any of these illicit drugs decreased from 23% to 9% after 14 visits where UDT was performed. When graphed there was a trend to decreasing use. The Spearman correlation = -0.88, $P < 0.0001$. The major illicit drug was marijuana. When this was removed from the analysis, there was an even greater correlation with decreased illicit drug use. Spearman correlation = -0.92 ($P < 0.0001$) using a weighted correlation.

Limitation: Patients continuing to use illicit drugs might be dismissed from practices thus biasing the study towards illicit drug avoidance.

Conclusion: Continued UDT might decrease illicit drug use among pain patients.

Key words: Pain patients, UDT, urine drug testing, LC-MS/MS, illicit drugs, decrease drug use

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Many physicians are reluctant to prescribe controlled substances to non-cancer chronic pain patients who are shown to be taking illicit drugs (1,2). For this study illicit drugs are defined as marijuana, cocaine, methamphetamine, ecstasy (MDMA), phencyclidine, and heroin. Other drugs used, such as the taking of drugs not prescribed by the pain physician, were not considered. However,

a compassionate view is that this population requires and deserves appropriate treatment for their pain. Urine drug testing (UDT) offers the physician one way to objectively evaluate illicit drug use (3-19). It is used by some clinicians as a non-confrontational method to discourage the patient's use of illicit drugs.

The fact that these patients might use marijuana and more powerful and dangerous illicit drugs has

been well-documented both by clinical observations (11-17,20-23) and by reports from independent laboratories serving this population (13-15,24-28). It has been described that individuals who abuse or are addicted to drugs such as opioids, cocaine, and methamphetamine might have a higher treatment failure rate (28,29).

Practitioners treating these patients are not only motivated to identify patients using illicit drugs because of potential health risks, they are required to monitor those patients to establish compliance and determine if those patients are at risk for diversion and use of illicit drugs (1,2,20-23). Additionally, the Drug Enforcement Agency (DEA) and licensing restrict prescribing controlled substances to these patients. As the National Drug Intelligence Center (NDIC) states in its 2009 report on the drug threat assessment, "...abusers of Schedule II controlled prescription drugs usually acquire the drugs through traditional diversion methods such as prescription fraud and doctor-shopping"(1).

Urine drug testing in this population is used to detect illicit and non-prescription drug use as well as incidences of illicit drug use excursions (6,7).

The use of UDT in helping to deter illicit drug use has been reported (21). The availability of a large database of urine drug tests covering a nearly 3-year period makes possible a longitudinal study of the effect of drug testing on illicit drug use in this patient population.

Within the limitations of a retrospective study, the authors endeavored to determine to what degree performing UDT over time decreased the incidence of illicit drug use in these patients.

METHODS

This human research was approved by the Aspire IRB, 9320 Fuerte Dr. Suite 105, La Mesa, CA, 91941. All data was collected at the San Diego facility that houses Millennium Laboratories and Millennium Research Institute. Physicians in their office practices initiated the test requests and collected the urine specimens for this study. The study represented more than 1,000 physician practices in the United States. Most physicians conducted initial drug screens using point of care devices. These results were used to select the test menu for the additional screening and confirmation testing performed at Millennium Laboratories. As this study was retrospective in nature, treatment of patients was not affected. No outside funding was provided for this study.

The cohort comprised 87,156 patients treated with opioids for chronic pain from the more than 1,000 practices in the United States used in this study. This was

the initial number of patients, and their numbers decreased significantly over time. A total of 132,410 tests were confirmed utilizing liquid chromatography. No exclusion criteria were used in the selection of these patients. The patients selected for testing were part of the usual practices of the treating physicians.

The urine specimens were tested for the illicit drugs or their metabolites using the following cutoffs: cocaine, 50 ng/mL; heroin metabolite 6-monoacetylmorphine, 10 ng/mL; methamphetamine, 100 ng/mL; MDMA, 100 ng/mL; PCP 10 ng/mL; THC 15 ng/mL, according to methods utilized at Millennium Laboratories, San Diego, CA. Drugs were scored as being present or absent using the nominal cutoffs listed in Table 1. The reference standard was the Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS) determination of the presence of the drug or its metabolite. The analytical methods used have been previously described (13,26).

Statistical analysis was conducted using SAS Version 9.1 (SAS Institute Inc., Cary, NC). Where a patient's result was not recorded for any of the illicit drugs, that patient entry was deleted in the analysis.

RESULTS

The data from the analyses are given in Table 1 and Fig 1. As the number of visits increased, the number of patients decreased. On the first visit 23% of the patients were positive for one or more illicit drugs. Clearly the most prevalent drug was marijuana, making up 68% of the total illicit drug use. There was a slow but definite decline in the incidence of illicit drug use as continued testing was done.

Figure 1 graphically describes the decline in illicit drug use with subsequent visits. Statistically, the Spearman correlation was -0.88 , $P < 0.0001$. The most commonly seen illicit drug was marijuana. When this was removed from the analysis, there was an even greater correlation with decreased illicit drug use. Spearman correlation was -0.92 ($P < 0.0001$) using a weighted correlation.

Marijuana use declined by about half (from 15.72% to 8.70%) over the 14 visits used in this analysis. More importantly, the more dangerous illicit drugs such as heroin, cocaine, and methamphetamine were reduced from 7.47% to 0.0%.

DISCUSSION

This analysis posits that there is a decrease in illicit drug use among pain patients after continued drug testing. However, the study is limited by the decrease-

Illicit Drug Use Decreases with Continued Drug Testing

Table 1 Number of patients, visits and percent of illicit drug use. Illicit drugs include cocaine, heroin metabolite 6-monoacetylmorphine, methamphetamine, MDMA, PCP, THC

Visit	Patients	Number of patients using illicit drugs	% All	Patients	Number of patients using illicit drugs other than marijuana	% Without THC
1	87,156	20,209	23.19	84,500	6,311	7.47
2	24,720	5,182	20.96	23,548	1,534	6.51
3	9,783	1,899	19.41	9,347	524	5.61
4	4,607	807	17.52	4,383	191	4.36
5	2,107	406	19.27	1,987	96	4.83
6	1,223	224	18.32	1,158	56	4.84
7	824	151	18.33	782	32	4.09
8	578	103	17.82	563	25	4.44
9	440	74	16.82	424	19	4.48
10	295	38	12.88	285	7	2.46
11	242	32	13.22	230	6	2.61
12	194	18	9.28	185	4	2.16
13	149	14	9.4	141	2	1.42
14	92	8	8.7	86	0	0

Column one is the number of visits at which the patient was tested. Column 2 is the number of individual patients tested. Column 3 is the frequency of positive illicit drug tests. Column 4 is the calculated percent of positive illicit drug tests. Columns 5 through 7 are the same observations with THC removed.

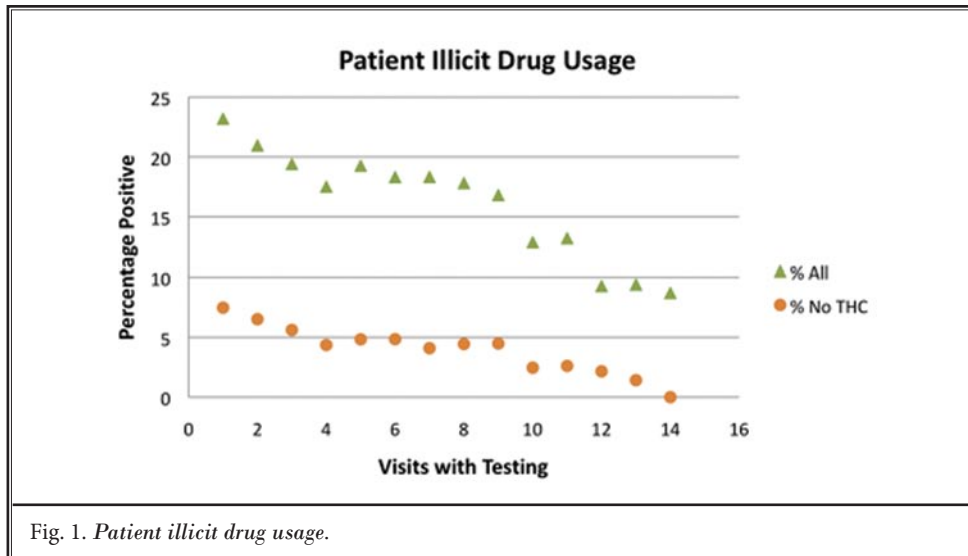


Fig. 1. Patient illicit drug usage.

ing proportion of the chronic patient population that is tested over time. It is probable that this might at least in part be due to patients being discharged from practices due to their continued use of illicit drugs, or patient decision to stop treatment. Arguing against this bias is

that even though the numbers decreased, the proportion of illicit drug users only declines slowly. Therefore, the lower numbers still represent the proportion of illicit drug users in this population. The decrease in the percentage of patients using illicit drugs even after

repeated drug testing was gradual. This implies that many pain patients continue to use these substances over long periods of time even at the risk of being counseled by their physician. However, studies have shown that it is difficult to wean patients off of their drug abuse behavior (27-29).

Although the study is limited, it describes both the illicit drug use and the effect of monitoring it over time in this patient population. These observations also indicate that physicians treating pain patients have compassion for them and do not simply

discharge them because of their drug abuse behavior (30). This study elaborates on the extensive use of marijuana in this patient population and describes the difficulty these patients have in reducing its use. Many patients use the drug because it aids in the reduction of pain and helps them sleep (31-34). Although many patients continue to use illicit drugs while under the care of a pain physician, it appears that repeated drug testing might reduce this occurrence. Further study is warranted.

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