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Case Report Open Access

Drug Monitoring with Substance Use Disorders Presents Opportunities for Patient Advocacy: A Case Report

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Introduction

Drug testing is widely accepted as an important component of chronic opioid therapy for chronic pain patients [1-4], and a consensus is emerging that drug testing may also play a critical role in the treatment of substance use disorders (SUDs) [5-9]. For example, according to the recently released American Society of Addiction Medicine's White Paper on drug testing:

A knowledgeable clinician can use drug testing to verify self-reports, confirm diagnoses, identify denial and minimization of drug and alcohol use, enhance motivation for treatment, measure biological adaptation, assist in development of treatment planning, monitor treatment response, document treatment effectiveness and outcomes, support patient advocacy by validating abstinence from alcohol and drug use, and validate adherence in taking prescribed controlled substances [5].

Obstacles to more optimal use of drug testing have also been acknowledged in the literature. For example, some providers may fear potentially stigmatizing their patients, burdening the therapeutic relationship, or causing legal consequences for their patients [7,10,11]. Another critical issue likely impacting the ability of drug testing to aid in the treatment of SUDs is confusion around the recent shift from forensic to clinical models [6]. The forensic model, originating from a public-safety perspective, is traditionally based on immunoassay (IA) technology that suffers from a relative lack of the sensitivity and specificity necessary for clinical and therapeutic purposes [12,13]. For example, relatively higher concentration cutoffs associated with IAs result in tests that are less sensitive. IA tests are also less specific in that they are designed to detect only a few drugs or medications within a class, and are often incapable of detecting multiple drugs in a particular drug class or many of the most abused drugs and medications.

The forensic model of drug testing, and the IA tests that are its mainstay, is intended to identify merely a subset of individuals who who pose the greatest threat to public safety, such as in occupations involving driving trucks or piloting planes. The lack of sensitivity is the tradeoff for not falsely accusing anyone of an offense that might come with grave legal and other consequences, such as the loss of a job or child custody. Since the intent of the forensic model is to "catch" people doing "bad things," it's not surprising that there may be a stigmatization associated with forensic drug testing, which, at times, carries over to clinical drug testing and impedes its potential clinical and therapeutic value for optimizing individual patient care [10,11,7].

However, the advent of more sophisticated methodologies, such as gas chromatography with mass spectrometry (GC-MS) and liquid chromatography with tandem mass spectrometry (LC-MS/MS) allows for the detection of a much wider range of substances with greater sensitivity and specificity [5,12]. These improvements in accuracy, along with the ability to deliver the results in an increasingly timely fashion, allow clinicians to utilize drug and medication monitoring for the benefit of the individual patient, such as providing an opportunity for earlier intervention in cases of relapse in patients with SUDs.

One important use of drug testing, which is frequently cited but often overlooked, is its use as a tool for advocating on behalf of a patient. Unexpected drug test results often lead down a path of greater therapeutic vigilance for unsafe drug taking behaviours, but as the following case study demonstrates, drug testing also has the potential power to help detect other unsuspected risks to a patient's health, to validate their self-reporting, and to justify their continued treatment -- even in the wake of unexpected results:

Case Report

A 47 year old man with a long history of alcoholism and occasional prescription drug abuse was nearing the end of a 30 day intensive inpatient rehabilitation program. He was a highly motivated and eager participant in the multimodal program that included group and individual counselling, art therapy, physical therapy and physical exercise. However, as is typical, he confessed to feeling "stressed out and not (myself)" as completion of the program and a return to the triggers and temptations of everyday life approached.

As part of the standard protocol for the program, the patient underwent weekly urine drug testing throughout the intensive early phases of treatment as well as targeted testing for changes in mental state. Given the "uneasiness" the patient had recently been exhibiting and an instance of him "nodding off" during a group meeting, a targeted testing was ordered. The center utilized both an immunoassay (IA) testing methodology (via the point of care (POC) specimen cup) and a definitive laboratory test via the liquid chromatography with tandem mass spectrometry (LC-MS/MS). The IA POC testing proved negative. However, LC-MS/MS testing revealed findings of tramadol in the patient's urine.

The patient was adamant that he had not taken tramadol nor any other non-prescribed or illicit drug. He was highly embarrassed as he was due to "graduate" and receive his certificate. He enjoyed occupying a position of status in the community as a result of his efforts toward recovery and his active engagement in groups. He was

quite open in discussing his worry about leaving the protected environment of the intensive program and returning to a home in which there were chronic pain patients treated with opioids and where there was a great deal of mistrust directed towards him because he had on occasion used some of his brother's medication.

Yet the patient was steadfast in his denial of using Tramadol. He had blamed his recent uncharacteristic symptoms on anxiety and stress. The staff, knowledgeable about LC-MS/MS, knew the test result was highly unlikely to be a false positive (and remained confident in this after discussions with lab toxicologists). Serial tests over the next several days showed tramadol metabolite levels increasing. The patient was given the chance to complete the program, but faced being discharged without his certificate (which his employer required prior to allowing him to return to work). The patient's psychologist's intuition was that the patient was not willfully using drugs. Based on his close therapeutic relationship with the patient and his awareness of the patient's consistent and sincere efforts in the program, the psychologist decided to ask the patient to show him the medications he had recently received from the pharmacy. The still "blister-packed" tablets, were inspected and, indeed, were found to be tramadol (a pain medication with serotonin reuptake and mu-opioid agonist properties), not the patient's previously prescribed trazodone (an antidepressant medication commonly used in the program for sleep problems). This constituted a clear pharmacy error, perhaps the result of their similar chemical names or, perhaps, the fact that the patient's brother had on occasion been prescribed tramadol for his back pain. The psychologist used this discovery to advocate on behalf of the patient regarding his sobriety and standing in the community. The medication was disposed of and the patient graduated with his certificate.

Discussion

This case provides an important reminder that drug testing can provide information to help clinicians protect patients and provide a basis for patient advocacy. It also underscores the importance of (a) properly selecting and understanding different testing methodologies, (b) understanding how to properly interpret, or seek assistance in interpreting, the results, and (c) understanding that test results are not diagnostic by themselves and need to be considered in the full clinical context, which may involve combining the results of drug testing with data from other relevant sources. This is a particularly informative case in that some of the classic "aberrant behaviors" [14] that providers look for -- such as "nodding off" -- can be misinterpreted as willful misbehavior when viewed through a mindset that can be guided, understandably, by our stereotyped assumptions about people, particularly those struggling to recover from SUDs. It is an example of how the stigma associated with SUDs can interfere with treatment and, in particular, with the therapeutic potential of drug testing.

There were several places in this case study where the story could have ended poorly for the patient if the initial incomplete interpretation of his test results had gone unchallenged. It is noteworthy, for example, that the IA point-of-care (POC) test returned a negative result for both trazodone and tramadol. The vast majority of IA drug tests are incapable of detecting many antidepressants, such as trazodone, as well as many synthetic opioids, such as tramadol. This is also a problem for testing many types of benzodiazepines [13]. However, many providers are not aware of these limitations of IA tests [15-17]. The use of mass-spectrometry technologies for confirmation of positive IA tests is a fairly common procedure, owing in part to the etiology of this practice in the forensic model of drug testing (and the desire to not falsely accuse someone of drug use and its consequences without "confirming" the results). However, laboratory follow-up of IA negatives is less common, and the need to do so poorly understood. There is a growing understanding of the medical necessity of confirming negative IA results because of the consequences of the high rate of false negatives inherent in the use of this methodology [2,13]. Among these consequences are missed opportunities to detect and intervene in early relapse. The American Society for Addiction Medicine prefers the term "laboratory definitive testing" rather than "confirmatory" testing when referring to the use of mass-spectrometry technologies, such as LC-MS/MS, in situations where IA tests are relatively incapable of detecting relevant substances [5].

Had this patient's drug monitoring ended with the "clinically false" negative of the IA test, he could have been left in a dangerous situation, exposing him, for example, to the risks associated with tramadol, such as CNS and respiratory depression, overdose or potentially triggering relapse in a patient with a history of opioid misuse. Similarly, the IA false negative for the trazodone could have led to the incorrect conclusion that this patient was willfully noncompliant with his prescribed medications (perhaps even diverting them), potentially leading to an undeserved discharge from treatment and plausibly preventing him, unjustly, from returning to the work force.

Another poor outcome would have resulted if the patient's psychologist had failed to think of inspecting the medication that ultimately led to revealing the pharmacy error. The psychologist had this idea in part because of his close and trustworthy working relationship with the patient. The test result needed to be reconciled with the psychologist's clear clinical impression of the patient's sincere efforts at recovery. The laboratory definitive test results, in this case LC-MS/MS, correctly revealed the presence of tramadol. Yet, this case study shows us how laboratory definitive testing, like many diagnostics, may be necessary but by itself is insufficient to fully interpret the clinical situation and make the most appropriate treatment decisions.

Conclusion

The goal of optimizing the use of drug testing in patients with SUDs may be informed by the literature on drug testing with chronic pain patients, especially those prescribed opioid therapy, where the need to use drug testing in the context of a comprehensive clinical approach has been well documented [1-4,10]. Fortunately, in this case, the clinician took the necessary steps to accurately interpret the laboratory definitive "true" positive test results by setting aside reflexive assumptions we can all be guilty of making, especially in settings where stigma often interferes with optimal patient care.

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