Research Article

Medication Aberrant Behavior and Time in Treatment: A Descriptive Analysis

Ted Jones*

Behavioral Medicine Institute, University of Tennessee Knoxville, USA

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Abstract

It has become standard clinical practice to assess patients before opioids are first prescribed as to the patients' potential for future medication aberrant behavior (MAB). However, research to date has focused on the risk of medication aberrant behavior at the beginning of treatment. This descriptive study examined MAB as it occurred in the full course of treatment. Data was gathered on all patients at a single pain clinic who were discharged from care over a one year period for MAB (N=188). The length of time of time these patients had been in treatment was noted as well as what specific MAB they had engaged in and when their first MAB had occurred. Of these patients who had their care ended, the majority had been in treatment one year or less when they showed their first MAB (71%) and when their care was ended (57%). Use of illicit drugs, when it occurred, predominantly occurred in the first six months of treatment (81%). Other types of MAB (use of opioids not prescribed by the practice, being short or out of opioid medication and other violations of the medication agreement) generally first occurred within the first year of treatment as well. This general pattern was also true when just higher risk patients were examined. Implications of these findings are discussed particularly as it relates to patient monitoring as opioid treatment progresses.

INTRODUCTION

The treatment of chronic pain conditions frequently involves the prescribing of opioid medications. Pain practitioners who prescribe these medications are expected to monitor patients closely. Practice guidelines from the American Academy of Pain Medicine and the American Pain Society describe the processes of patient assessment and monitoring that should decrease misuse, abuse and diversion of opioid medications [1]. Misuse, abuse and diversion of opioid medications are called "aberrant drug-related behavior" or "medication aberrant behavior" (MAB). These are defined as "behavior outside the boundaries of the agreed on treatment plan which is established as early as possible in the doctor-patient relationship" [1]. Lists of MAB's vary to some degree but include such behaviors as producing an inappropriate urine drug screen, being short on the number of pills expected at a visit, and obtaining opioids from another provider without authorization.

Multiple tools have been offered as a way of predicting before opioids are prescribed who may or may not misuse them (i.e., engage in MAB) [1-6]. While a full review of the risk assessment literature is beyond the scope of this brief report, there are some important themes found in the literature to date. First, validation studies of all of these tools involved administering the assessment

measure and then following the patient for a period of 3-6 months and examining if any MAB has occurred. No validation study on any risk assessment tool has to date followed patients for longer than six months. Further, all risk assessment tools are designed by their very nature to be given before opioids are initiated. Thus, research on MAB has focused almost exclusively on the beginning of treatment with opioids. The frequency of occurrence of MAB later in treatment or when medication aberrant behaviors usually occur during the course of treatment has never been studied. The current study offers a first step in the examination of the natural history of MAB over the course of opioid treatment. This is a descriptive study which is designed to gather data about MAB's occurring in the long-term treatment of pain patients, and as such did not have specific study hypotheses.

METHODS

Data were gathered on patients at a pain practice in Tennessee. An IRB was approved by the University of Tennessee Knoxville. At this practice patients' behavior with opioids are monitored by staff at every visit. Monitoring includes periodic urine drug tests (UDT's) or oral fluid tests (OFT's), opioid pill counts at every visit (per state law), periodic review of pharmacy records through the state prescription database and discussion with the patient about events since the last visit. All patients are

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seen monthly. The presence of medication aberrant behavior is noted in the record and a form is completed (discharge review form) for staff input and review of the behavior. At times MAB is such that it is determined that it is best to discontinue opioid medication altogether. This is a physician decision based on staff input and many factors are taken into account, including medical dangerous of the behavior, if the behavior was illegal, perceived motivation of the patient, initial risk rating of the patient and perceived likelihood that the behavior will occur again. These factors and the decision-making process has been more fully discussed elsewhere [7]. Generally speaking, opioids are discontinued after one or two MAB's.

Patients for whom opioids are discontinued are listed in a monthly report. This study gathered data on all patients for whom opioids were ended between July 1, 2013 and June 30, 2014 (N=188). The study then focused only on patients who had engaged in significant MAB during the study timeframe. Once the study patients were identified, data were gathered from the medical record. These data included date of first visit, date of first opioid prescription, date of first MAB, date of MAB (that led to the discontinuation of treatment) and type of MAB that occurred. Medication aberrant behavior (MAB) was defined as documentation of a patient failing a urine drug test (UDT) (positive for non-prescribed opioids, negative for prescribed opioids, or positive for illicit drugs or alcohol), failing a pill count, obtaining opioids from another prescriber in violation of the treatment agreement (through checking the state prescription monitoring program or by some other information source), or a patient report of behavior that violated the treatment agreement. The latter could include a report of loss or theft of opioid medication, a report of overtaking medication or a report of giving medication to someone else. Troublesome interpersonal behaviors such as cursing, yelling at or threatening staff, though rare, were also included and counted as a MAB. MAB sometimes was found in the initial UDT of the patients when a UDT found an unexpected result (i.e., positive for unreported or illicit substances or negative for prescribed medications). Initial risk rating, as determined by the Brief Risk Interview, was also recorded for this study [8]. This risk evaluation tool rates patient

as Low, Low Medium, Medium, Medium High, High or Very High risk.

RESULTS

The frequency of the number of patients showing a first MAB graphed by total time in treatment (in months) is displayed in (Figure 1). The data show that the first MAB usually occurred within the nine months of treatment though these behaviors were seen later in treatment as well, even up to 181 months of treatment (15 years). The data here found that 133 of the 188 study patients, or 71%, showed MAB within the first year of treatment. Similarly, the final MAB – the event that led to discharge from opioid treatment – usually occurred within the first year of treatment, though it too occasionally occurred much later in treatment (up to 199 months or 16.5 years). One hundred eight (108) of the 188 study patients showed the final MAB within the first year of treatment (57%) (Figure 2).

The various types of MAB shown by the patients were collapsed into four general categories. These categories were (1) "illicit" (illegal drugs present in UDT or patient or reliable other report that drug use was occurring, or tampering with the UDT) (2) "non-rx" (non-prescribed opioid present in UDT, or information of same by report, PMP, records, calls or alcohol use reported or found in UDT), (3) "out" (negative UDT, failed pill count, refused pill count, lost/stolen medications or report of overtaking), or [4] "bad" (unacceptable behavior such as lying, verbally abusive to staff, excessively rude, repeatedly late, illegal behavior, failure to follow treatment plan or other). The relative frequencies of these categories for this patient population are shown in (Table 1). In this patient sample, taking other opioids or overtaking opioids were more common than use of illicit drugs or inappropriate behavior.

The frequencies of these categories for the first MAB are shown in (Figure 3). These data show that the first sign of illicit drug use occurs within the first six months of treatment (81%). Signs of taking opioids not prescribed by the pain practice usually occurred within the first year of treatment (72%) but happened at later points in treatment as well. This was also true
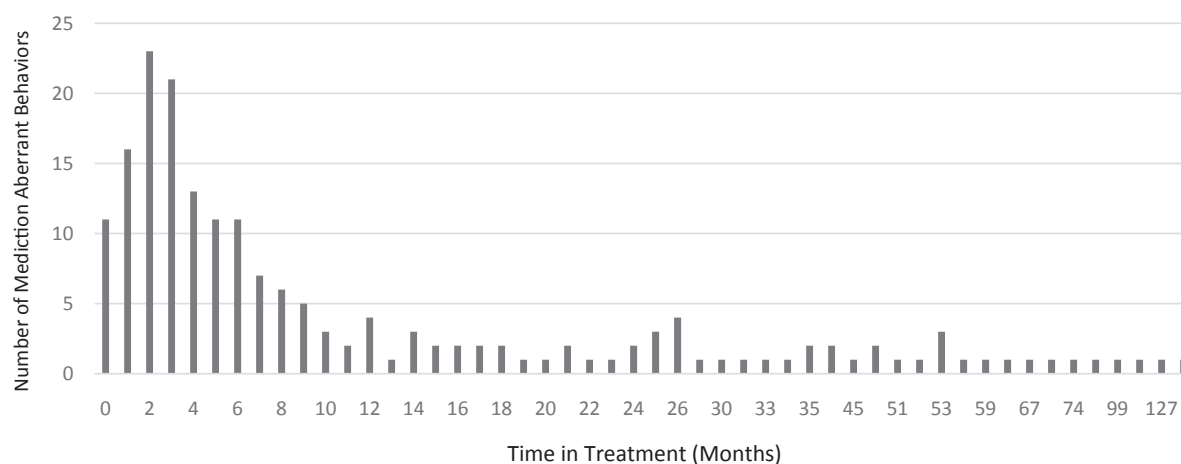

Figure 1 Frequency of first medication aberrant behavior by time in treatment.
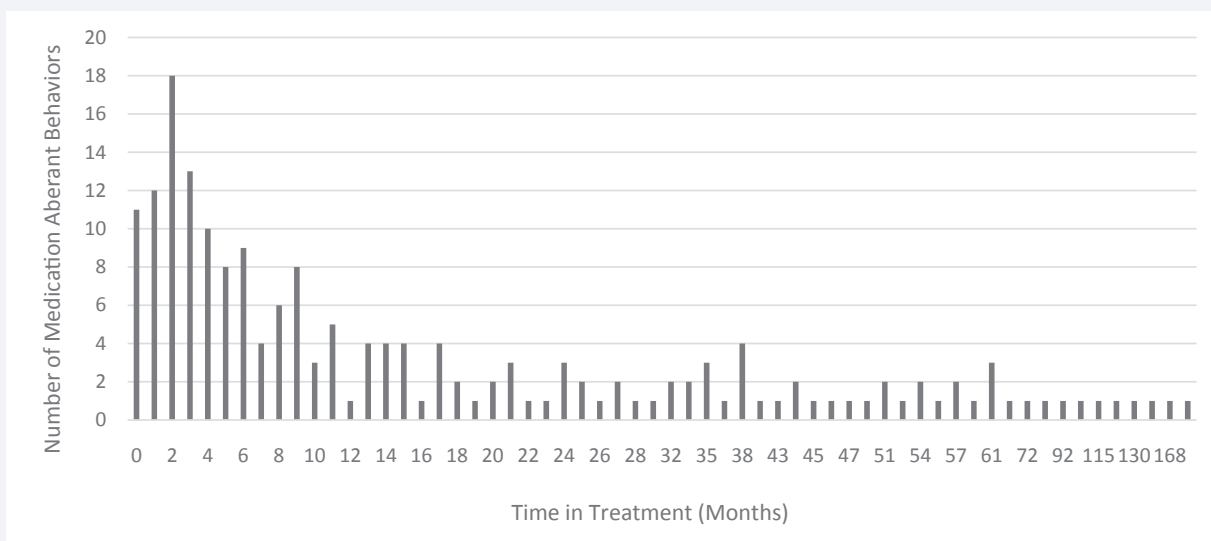
Figure 2 Frequency of last medication aberrant behavior by time in treatment.
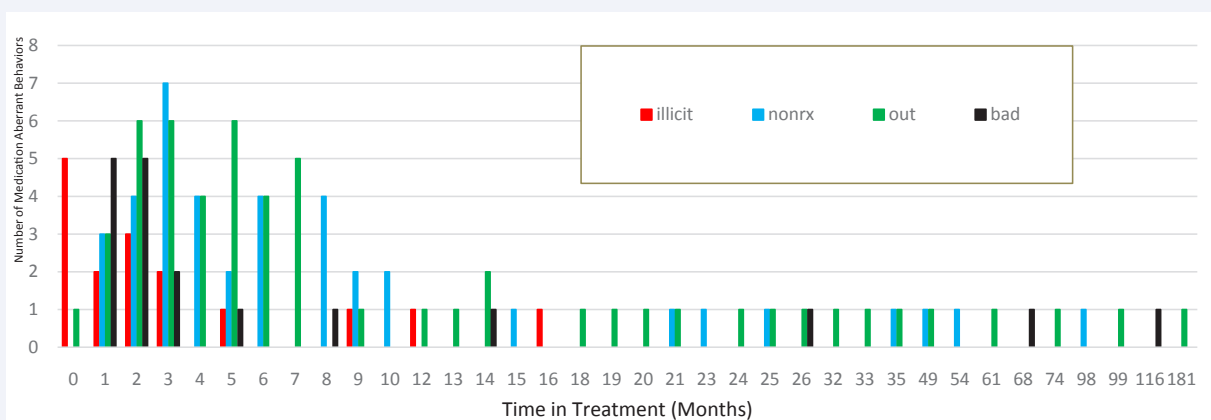

Figure 3 Frequency of four categories of first medication aberrant behavior by time in treatment.

for being out or short of opioid medication in some way (62%) and for other violations of the medication agreement (75%). The frequency of the last or final MAB by each type category are shown in (Figure 4) and offered similar results. Illicit drug use that results in discharge occurred primarily early in treatment (68% in the first six months and 84% in the first year). Taking opioids not prescribed by the practice, being out or short on opioids and other violations of the medication agreement most often occurred in the first year but occurred later in treatment as well (47%, 56% and 61%, of these behaviors respectively occurred with the first year of treatment).

Frequency of MAB was also examined based on patient risk rating and is presented in (Figure 5). The frequency of MAB by higher risk patients showed a similar pattern over time as the general patient population. Illicit drug use usually occurred within the first six months of treatment (81%) while other types of MAB also usually occurred in the first year but generally not at such a high prevalence and occurred later in treatment as well (80%, 67%, and 78%, for the three other categories, respectively) (Table 2).

DISCUSSION

This study offers a first examination of the natural history of medication aberrant behavior (MAB) over the course of opioid treatment. Data here showed some consistent patterns. First, for those patients whose opioids were eventually discontinued for significant MAB, the MAB's tended to occur within the first year of treatment. Here 71% of all MAB's occurred within the first year. Slightly different patterns are shown depending on the type of MAB seen. Illicit drug use, when found, tended to occur within the first six months of treatment (81%). Misuse of opioids and other violations of the treatment agreement also tended to occur within the first year of treatment (anywhere from 57% to 75%) but occurred later in treatment, even for patients who have been in pain treatment for years. This pattern was true for both the first MAB seen as well as the MAB's that lead to discharge from opioid care. The same pattern was also generally seen in higher risk patients. In sum, it appears here that if pain patients are going to violate their treatment agreement, they are very likely

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Table 1: Overall frequencies of various medication aberrant behaviors (MAB's).

MAB observed	Frequency of First MAB	Frequency of Last MAB
UDT positive for THC	6	7
UDT positive for cocaine	14	15
UDT positive for alcohol	8	6
UDT positive for ecstasy	1	1
UDT positive for methamphetamine	0	1
UDTpositive for several non-prescribed medications	22	36
UDT positive for non-prescribed hydrocodone	2	3
UDT positive for non-prescribed oxycodone	4	0
UDT positive for non-prescribed morphine	2	2
UDT positive for non-prescribed methadone	2	2
UDT positive for non-prescribed fentanyl	0	1
UDT positive for non-prescribed oxymorphone	2	3
UDT positive for non-prescribed benzodiazepine	2	0
UDT negative for several or not mentioned prescribed medication	5	10
UDT negative for prescribed hydrocodone	3	1
UDT negative for prescribed oxycodone	2	2
UDT negative for prescribed morphine	2	1
UDT negative for prescribed methadone	1	0
Information of patient using illicit drugs	0	1
Information that patient received opioids from another physician	12	10
Patient took leftover opioids	4	1
Patient reports taking someone else's medication	1	2
Short on pill count (more than one day's worth)	30	23
Refused or no showed for pill count	4	3
Patient not taking opioids as prescribed	10	12
Failure to secure medications (theft)	17	15
Patient lost medications	4	1
Patient lied or was dishonest	6	8
Patient verbally abusive or threatening to staff	6	7
Patient engaged in illegal behavior	2	2
Patient excessively rude or angry	4	2
Patient repeatedly late to appointments	1	1
Patients demands opioids and refuses all other treatments	1	1
Patient did not do all of expected treatment plan	4	6
Many no show or cancelled appointments	2	2
Patient did not bring bottle to appointment despite reminders	1	0
Spouse was discharged from care so patient was discharged	1	2

Table 2: Overall frequencies of the four categories of medication aberrant behaviors.

General Type of MAB	Frequency	% of total (rounded)
"illicit" - illicit drug use	21	11%
"non-rx" - use of opioids not prescribed by the practice	61	32%
"out" - out, short or missing opioids	78	41%
"bad" - other violations of the treatment agreement	28	15%
Total	188	

to do so within the first year of treatment, particularly when it involves the use of illicit drugs.

These data have significant implications for pain researchers and pain providers. Currently, prediction of violations of the treatment agreement (opioid risk assessment) has been carried out for patients beginning opioid treatment. While there are some assessment tools that can be used for patients while in treatment, such as the Current Opioid Misuse Measure (COMM) [9], this is not a predictive tool. The COMM assesses whether patients are currently likely to be misusing opioids or not and is not predicting future misuse. The data found here indicate that the frequency and types of MAB that occur in the beginning of treatment are not the same as those seen later in treatment. Thus, likely new, as yet undeveloped, opioid risk assessment tools may be needed for patients who have been in treatment for more than one year. While pain providers understand that risk is a dynamic process [1] the data here indicate that there need to be new tools for patients already in treatment.

The data here also have implications for patient monitoring. Currently, patient monitoring is expected to be commensurate with risk level rating with higher risk patients being monitored more closely. Some third party payers have stated explicitly that monitoring processes such as UDT's should be conducted commensurate with risk level [10]. As noted above, to date risk assessment research has been focused on the initial stages of treatment when patients are beginning opioids. There are no current protocols in the pain treatment field for reducing risk as treatment progresses. Thus, the current standard of care by default is "once high risk always high risk." Higher risk patients are monitored closely throughout their pain treatment career, including being given up to monthly UDT's. However, the data found in this study indicate that the frequency of MAB's appears to decrease significantly after 6-12 months in pain treatment, at least for those patients who are eventually discharged from care. These findings hint that patient monitoring might well be able to be reduced after a patient has been in treatment one year and have had no MAB's. This appears particularly true with regards to testing for illicit drugs. As the incidence of MAB related to illicit drug use decreased significantly across time in this study, it may be that testing for illicit drugs need not be done frequently
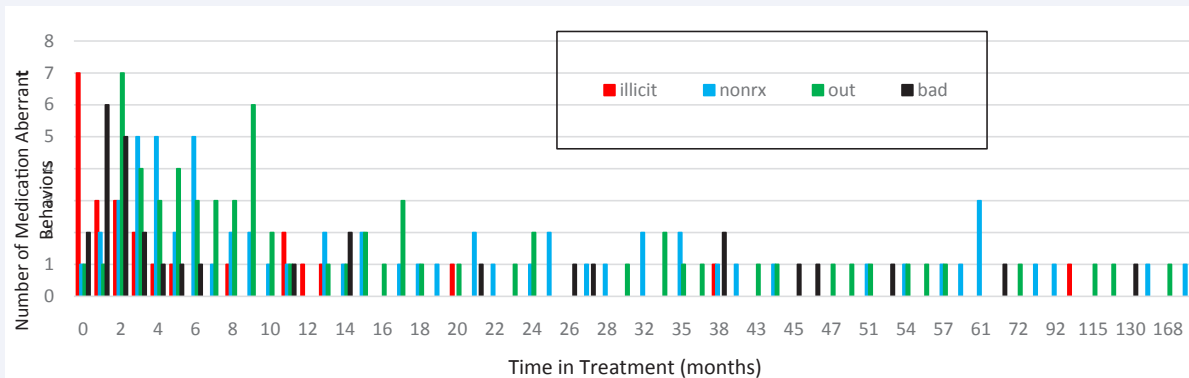
Figure 4 Frequency of four categories of last medication aberrant behavior by time in treatment.
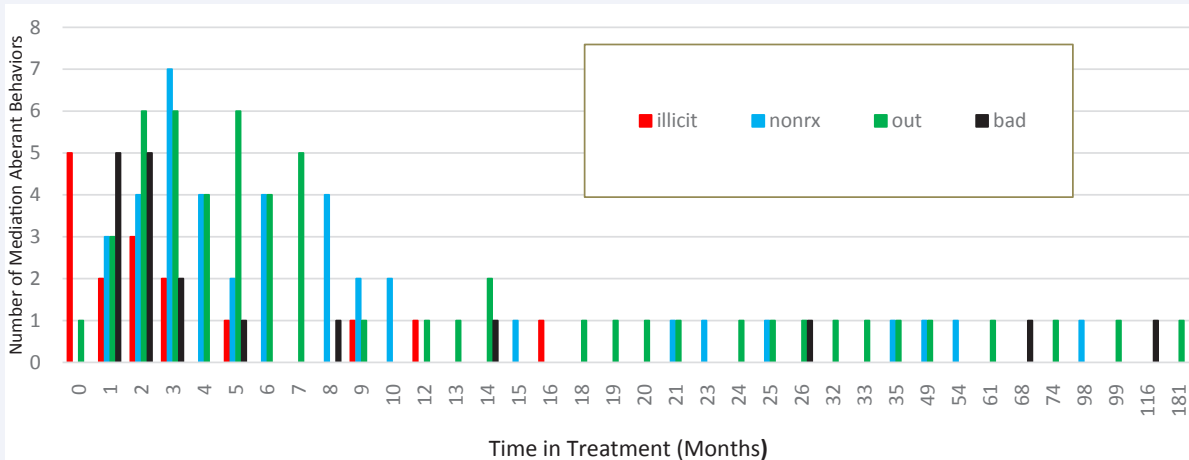

Figure 5 Frequency of four categories of first medication aberrant behavior by time in treatment for patients rated medium risk or higher.

after a year's worth of successful treatment, even for higher risk patients. Based on these data, a new standard protocol of pain treatment could be that pain patients are monitored and given UDT's at a frequency based on initial risk evaluation results. After a year of pain treatment with no MAB observed, all pain patients would then be tested for misuse of opioids with a frequency commensurate with either low or moderate risk patients while all patients would be tested for illicit drug use at a level commensurate with low risk patients. Pill counts and state prescription reports – both of which monitor misuse of opioids - should be conducted frequently even after one year of treatment as misuse of opioids can be a problem at any point in treatment.

If it is true that UDT's could be done less often after a year's worth of pain treatment with even higher risk patients, the cost savings to the healthcare system would be quite significant. Currently, UDT's comprise a large portion of the cost to third party carriers for long-term pain treatment. If UDT frequency could be reduced without harming patient care or increasing MAB, there could be substantial cost savings to the healthcare system.

This study offers a first look at MAB's throughout the course of patient treatment and its findings should be taken as tentative. There are clear limitations to the study design. First, this study examined one sample of patients at one single clinic for one period of time. Data from other clinics, with different patients and different staff assessing the presence of MAB and deciding on discontinuing opioids, are needed to obtain a more complete understanding of pain patients being treated with opioids over the long term.

The study also only included patients who were eventually discharged from care, rather than all patients at the clinic. What is not known here are how many patients were in care at any point in time – essentially, the denominator variable. It may be that most pain patents drop out of care in the first year, and if one looked at the data as a percentage of total patients being treated, the graphic distribution would look different. These sample limitations make the findings here tentative.

The descriptive study design also offers important limitations, and a randomized study design would be helpful. For example, it may be that patients are "kept on track" by frequent monitoring even later in treatment and reducing monitoring, as proposed above, would result in more MAB's and misuse of opioids. A randomized study of reducing monitoring in some patients who have been in treatment one year would be helpful in examining this hypothesis. The current study's data offer intriguing hints that patient risk and monitoring might be adjusted significantly

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after one year in pain treatment, but more data and study is clearly needed on this topic.

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