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Wellbutrin®: Misuse and Abuse by Incarcerated Individuals

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Misuse and abuse of prescription medications is increasing across both socioeconomic and age parameters. This article includes a review of the uses of Wellbutrin®, and its current misuse/abuse within the correctional setting. It includes a discussion regarding the pharmacodynamics involved in substance abuse. A review of current literature includes both academic research and public forums regarding this topic. It also discusses the role of dopamine in both Wellbutrin® and substance use. The author identifies the lack of current research regarding this topic and poses ethical questions for the provider.

Keywords Substance abuse, Wellbutrin abuse, incarceration, corrections, prescription drug abuse

INTRODUCTION

Misuse and abuse of prescription drugs, including psychiatric drugs, is increasing. Within the incarcerated population, abuse of prescribed medications creates issues for both the patient and provider. Approximately 72% of inmates with mental illness have a history of substance abuse or dependence (Laird & Narayan, 2007). Although prescribers often assess the potential for abuse before prescribing pain medications, benzodiazepines, and other hypnotic and or sedating drugs, practitioners often overlook atypical antipsychotics and antidepressants. Quetiapine (Seroquel®), Bupropion (Wellbutrin®), Gabapentin (Neurontin®), and recently Venlafaxine (Effexor®), have been identified as medications abused by inmates (Laird & Narayan, 2007).

Providers at a correctional facility in Fresno County, California identified the names inmates use for a few of these medications and the effect they are simulating. Within their institution, Seroquel® is known as "Quell" and "Baby Heroin." When combined with cocaine it is termed "Q-ball." It is often valued for its soporific effect. Brupropion, (Wellbutrin®) has the nickname "Welbys." It is often crushed and insufflated (snorted) to obtain a "rush" similar to methamphetamine. Gabapentin (Neurontin®) can be used alone for its sedating effect, or snorted with Wellbutrin® to decrease the irritation to the nares post-insufflation (Laird & Narayan, 2007).

Approximately 6 years ago, correctional facilities in California responded by removing both Seroquel® and Wellbutrin® from the formulary (Laird & Narayan, 2007). This article will focus specifically on Wellbutrin®, its misuse and abuse within correctional settings, and the implications post release. A description of appropriate use of Wellbutrin® will be identified as well as some forms of misuse and abuse. The author will conclude by raising both questions for further investigation and ethical concerns for providers to ponder.

Wellbutrin®: Description and Use

Wellbutrin® is a dual reuptake inhibitor for both norepinephrine and dopamine (NDRI). Its effect on serotonin reuptake is negligible. Studies have also demonstrated Wellbutrin® does not have an appreciative affinity for postsynaptic histamine, acetylcholine, or alpha eta and adrenergic receptors (GlaxoSmithKline, n.d.; Stahl et al., 2004). The lack of effect on these postsynaptic receptors contributes to its unique profile, and may explain decreasing impact on weight gain, sexual dysfunction, and sedation. Wellbutrin® is the only NDRI on the market. It increases the dopamine neurotransmitter in both the nucleus accumbens and the prefrontal cortex (Stahl et al., 2004). It is imperative to remember Wellbutrin® impacts dopamine, which is one of the primary neurotransmitters involved when discussing many drugs of abuse.

Wellbutrin® is indicated for the treatment of Major Depressive Disorder. However, according to a survey of Advanced Psychiatric Nurses, it is not usually a first-line choice. Selective Serotonin reuptake inhibitors (SSRIs) are prescribed for initial onset of depression approximately 97% of the time (Wolfe, Talley, & Smith, 2008). Wellbutrin® is manufactured in three different formulations. Wellbutrin® is the short-acting formula. Wellbutrin SR® is the sustained release formula, while Wellbutrin XL® is the long acting product. Both regular and SR Wellbutrin® require twice a day dosing. Wellbutrin® XL is prescribed once a day. Zyban® (bupropion hydrochloride) is utilized as treatment for smoking cessation. Because it inhibits dopamine reuptake, Zyban® is utilized to decrease cravings and withdrawal symptoms related to smoking cessation

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(GlaxoSmithKline, n.d; Stahl et al., 2004; Wellbutrin, 2011). Wellbutrin® also has a few "off label" uses. It is prescribed for Attention Deficit Hyperactivity Disorder (ADHD) in order to mitigate both dopaminergic and noradrenergic dysregulation. It has also been the only antidepressant identified for treating the symptoms of seasonal affective disorder (SAD). Clinicians also may add it to a current Selective Serotonin Reuptake Inhibitor (SSRI) to treat sexual side effects. Most recently, practitioners utilize it as a weight loss adjunct (Stahl et al., 2004; Wellbutrin, 2011; GlaxoSmithKline, n.d.).

The side effect profile for Wellbutrin® includes dry mouth, nausea, insomnia, and anorexia and is associated with a dose-related risk of seizures. Consequently, it is contraindicated for patients with a seizure disorder or patients with a current or prior diagnosis of anorexia, bulimia, or a recent head trauma which also increases seizure risk. Patients with a history of excessive use of alcohol, benzodiazepines, or addiction to opiates, stimulants, amphetamines, cocaine, or methamphetamines are identified as "at greater risk" for reduction of seizure threshold. Wellbutrin® is not to be combined with other medications that contain bupropion.

The delivery mechanism for intake of Wellbutrin® can also cause an increase in seizure risk. For example, all administration references, including the manufacturer and the Physician Desk Reference, explicitly state not to crush the pills. In 2010, the Food and Drug Administration required the manufacturer to change the language in this warning to reflect harsher, more specific warnings regarding this practice, and the increased risk of seizures (Food and Drug Administration, 2010). Wellbutrin® research regarding seizure risk has been calculated solely on oral administration. No research is available regarding insufflations and its impact on seizure threshold. When taken orally, 95% of the dose undergoes extensive first-pass metabolism before being distributed throughout the body. When an individual crushes and snorts the drug it bypasses first-pass metabolism and is delivered directly to the body and cerebral spinal fluid (Kim & Steinhart, 2010). The consequence is a higher plasma concentration, which can result in a seizure. Those experienced with providing treatment within the correctional setting report patients post-insufflation described feeling they were going to die. These two case reports further describe the problem. A 38 year-old male who presented in an emergency department twice in 1 day for seizures told the provider he had learned how to snort the drug while incarcerated to get high (Kim & Steinhart, 2010). The second case report was a 50-year-old homeless male brought into an emergency room secondary to seizures post insufflation. The seizures had been witnessed by bystanders who called emergency services. In both instances, the patients had a history of incarceration (Stahl et al., 2004; Hill, S., Sikland, H., & Lee, J., 2007).

DRUG ABUSE & MISUSE

Dopamine release is a normal occurrence during the experience of pleasurable activities. Drugs of abuse change this process by increasing the amount of dopamine released. For example, when humans consume alcohol or nicotine approximately 100–200 units of dopamine are produced. Cocaine produces approximately 100–350 units of dopamine. Methamphetamine produces an extreme euphoria by releasing approximately 1250 units of dopamine. This is why individuals become addicted so readily to methamphetamine. The brain was not designed for this release to be repeated over and over so it results in altered brain chemistry and hyper-stimulation (Rawson, 2006).

In addition to methamphetamine, alcohol and cocaine also increase the release of dopamine. The dopamine can attach to the reuptake pumps and block their function resulting in dopamine remaining in the synapse for an extended duration. If the individual continues to use substances, additional receptors are formed and over time it takes more of the substance to achieve the same result. Cocaine will remain on the receptor for an hour or two. Methamphetamine remains for 8–12 hours. These terminals can be eventually destroyed due to their exposure to methamphetamine. If the patient remains drug-free, it is possible for the terminals to regenerate; but, it may take a very long time and some of the terminals will not regenerate. In the meantime the individual continues to crave the feeling they experienced while abusing substances. As the affected area of the brain also controls judgment, the person's decision making skills are compromised (Rawson, 2006). This process may result in significant cognitive changes and the brain may or may not return to baseline functioning once drugs are stopped.

Wellbutrin® is an inhibitor of the neuronal reuptake of both norepinephrine and dopamine and may be helpful for methamphetamine users to calm their craving while in recovery. However, some inmates have discovered that they can simulate the high by crushing and snorting the drug. Obtaining information supporting misuse, and directions regarding how to snort Wellbutrin®, is very easy as it is readily available on the Web. That information specifically outlines a process to make it less irritating to the nasal mucosa. One individual's post to a blog revealed that he learned how to complete this process while in jail and utilized it as currency to trade for food while incarcerated (Fnord, 2007; Nicaine, 2007; Upperdecker, 2007). Providers should be aware this information gives Wellbutrin® value both within the correctional setting and post-release on the street. It is often utilized as currency, sold for income, and snorted (Leard-Hansson & Guttmacher, 2007).

While there is little research in the literature, there is anecdotal information relating to adolescents who reported snorting Wellbutrin®. One presented in the emergency department with seizures, while the other patient was discharged on Wellbutrin®SR, after admitting to stealing the medication from home, taking it to school, and snorting the crushed pills with two schoolmates (Liebert, 2004; Stahl et al., 2004). These cases could indicate there is beginning to be an impact on the adolescent population due to abuse and misuse of Wellbutrin® by incarcerated individuals. Further investigation is necessary to determine if adolescents are obtaining directions, or information, from inmates post-release via the Web related to abusing

Wellbutrin®. It should be noted three out of four cases of insufflation resulted in seizures. One patient was continued on Wellbutrin® despite self-report of abuse and misuse.

The epidemiology of drug-induced seizures is evolving. A retrospective study was conducted in 2003 within a California Poison Control System to determine the leading cause of drug-induced seizures. The following medications were listed in order of frequency of causation: Wellbutrin®, Diphenhydramine, Tricyclic antidepressants, Tramadol, Amphetamines, Isoniazid, and Venlafaxine (Zagaria, 2010). A study in 2002 related new-onset seizures to drug use for patients presenting in the ED. The most commonly used drugs in this study were cocaine, benzodiazepines, and Wellbutrin® (Kim & Steinhart, 2010). In 2007 poison control centers reported that the top three medications used prior to drug-induced seizures were Wellbutrin®, Tramadol, and Venlafaxine (Zagaria, 2010). Current data regarding Wellbutrin® induced seizures within the correctional setting is not available. Often providers prescribe the extended -release form of the drug in an effort to mitigate seizures. However, it has been proposed that the prolonged half-life of these extended release medications may result in an increased duration of neurologic toxicities, including seizures related to overdose (Zagaria, 2010). This situation indicates the need for more research on the associated risks of seizures in prescription and illicit drugs of abuse.

NURSING AND CLINICAL ISSUES

Healthcare professionals are aware of the potential for misuse and abuse of medications, which highlights the importance of obtaining a complete patient history prior to formulating a diagnosis, providing appropriate treatment, and prescribing medications. Incarcerated and released inmates who abuse drugs face numerous obstacles to care access. These obstacles often culminate in long periods of no treatment and the discontinuation of medications prior to completion of a full trial. In addition, some patients self-medicate with drugs or alcohol. Nurses working with this high risk population in all settings can identify some commonly encountered "red flag" behaviors and history which might indicate a patient is at high risk for drug misuse and abuse. Based upon this author's clinical experience, the following patient presentations may include:

1. History of crack, cocaine, methamphetamine, or other amphetamine and/or stimulant abuse.
2. Refusal of alternative drugs by claiming "Wellbutrin® is the only medication that works for me."
3. No previous full trials of alternative anti-depressants.
4. Claiming allergies to SSRIs, without being able to describe the typical allergic reaction.
5. Feigning inability to remember, or pronounce previous medication, but when the provider moves on, surprisingly the inmate is able to name Wellbutrin®.
6. Threatening a provider to obtain Wellbutrin®.

These behaviors have implications for nursing and healthcare staff. A nurse should document behaviors and concerns in the medical record and the medication administration record. If threatened, they should report the incident immediately.

In addition, it is helpful to have information about a patient's behaviors outside of the healthcare setting. Patients can behave very differently outside of their appointments with psychiatric staff. Data about incongruent behaviors and presentation of self in other situations provides valuable insights into the patient's motivations regarding medication use and assists in determining if the patient may be abusing or misusing his medications or feigning symptoms to obtain specific medications. Increasing multi-disciplinary communication aids in appropriate diagnosis and treatment. Nurses and security staff are present during medication passes. This is the critical period when a patient diverts his medication. Therefore, increased monitoring and diligence during medication passes is required to reduce risk of diversion.

When nurses determine that a patient is abusing or misusing their medication, some providers in prisons practice crushing and floating Wellbutrin®. This practice involves the medication nurse crushing the pills, and floating them in water, prior to administration to the inmate. When nurses crush and float a medication against the manufacturer's recommendations, they are increasing the risk for seizures in some patients. Nurses in these facilities need to consider whether or not this protocol is the most effective diversion barrier and how the cost-benefits of this procedure affect the system and individual patient. The practice of crushing and floating Wellbutrin® raises numerous ethical questions. If it is known that a patient is misusing/abusing Wellbutrin® while incarcerated, why continue it? Why would an order be written for a nurse to crush it against manufacturer recommendations? Does this practice increase the patients' risk for a bad outcome? What is the liability of the provider when they continue a medication which they are aware the patient is abusing? It has been identified that this behavior may be learned while in prison (Stahl et al., 2004). It was an individual with a history of incarceration who posted directions for insufflation on the Web (Fnord, 2007; Nicaine, 2007; Upperdecker, 2007). Based upon this knowledge, if the prescription is continued upon release, does that contribute to the increase of society's prescription drug abuse?

It is well known that some inmates cheek their medications either to abuse or sell. One incident within the literature describes the resourcefulness of the inmate to continue his misuse despite nurses crushing his medications. All of this inmate's medication was crushed prior to administration. However, he pretended to swallow the powder, but left it on the back of his tongue. After the nurse had left, he scraped the powder off his tongue and combined it with saliva to form a paste. He dried this concoction and sold it to fellow inmates (Keller, 2011). This example demonstrates the resourcefulness of some inmates to achieve their goal.

A few correctional facilities have addressed this problem by taking known prescriptive drugs of abuse off their formulary

(Laird & Narayan, 2007). It is not proposed that Wellbutrin® never be utilized within the correctional setting. However, when there is documentation verifying an inmate is actively abusing a medication, stockpiling it, or selling it, there is a responsibility to protect the inmate and others from harming themselves by limiting access to the medication.

When a patient diverts or abuses his medication on his own accord without coercion, he is demonstrating a lack of commitment to treatment. This behavior raises concerns regarding the continuation of the medication (Appelbaum, 2008). When a known drug of abuse is prescribed within the correctional setting both the risks and benefits associated with prescribing this medication need to be considered.

Providers have described the targeting of chronically mentally ill inmates based on their medication regime (Paggio, 2005). Clinical experience mandates patients kept on Wellbutrin® within the correctional setting be assessed for victimization regarding their medication regime. This risk needs to be discussed with the patient and a rapport built which empowers the inmate to confide to the provider regarding victimization, intimidation, or threats, including those based upon taking Wellbutrin®.

DISCUSSION

When one reviews the biochemistry involved with substance abuse, combined with the fact Wellbutrin® is the only NDRI, it becomes apparent why some patients abuse Wellbutrin®. They may be either trying to mitigate their cravings and withdrawal symptoms, or searching for a similar high. Wellbutrin's® effect on dopamine would make it an optimal choice for treating patients with a history of substance abuse as long as the patient is monitored closely and the provider is confident they are not abusing or misusing the medication. Providers are accountable for their knowledge regarding the patient's active misuse/abuse of medications they prescribe. It appears some incarcerated patients have a tendency to abuse or misuse psychotropic medications (Laird & Narayan, 2007; Paggio, 2005). However, there are no studies regarding the prevalence of this phenomenon within the incarcerated population. Providers within incarcerated settings have revealed they were well aware of the abuse and misuse and have documented a variety of methods they have witnessed. Within the literature, providers also express concern regarding the time and resources diverted from mentally ill patients within the correctional setting due to this phenomenon (Keller, 2011; Laird & Narayan, 2007).

When a patient misuses/abuses Wellbutrin®, they jeopardize their own safety, and possibly the safety of fellow inmates. This behavior also impacts the provider. Ultimately, all prescribers have a responsibility regarding patient safety and the medications they prescribe. Providers have the responsibility to provide optimal care for patients and "do no harm." This extends to making the decision regarding which medications are contraindicated. Clinicians cannot wait until the morbidity and mortality rates increase, nor can they ignore the data available, which indicates Wellbutrin® is increasing as a cause of drug-induced seizures (Zagaria, 2010). Prescribed psychotropics have become a new legal resource for drug abuse/misuse. The question remains for clinicians, how to address this phenomenon?

CONCLUSION

Approximately 77% of inmates are released from prison and return to society. When reviewing the statistics regarding county jail release, the percentages are even higher, with 79.2% released after 5 days, and 99.8% released between 6 months and 1 year (Community Resource Services CRS Inc., 2004; Justice Center the Council of State Governments, 2001). Although prevalence of Wellbutrin® abuse and misuse has not been investigated, it is known that diversion and abuse of Wellbutrin® exists within jails and prisons. Therefore, continuing a medication when it has been documented the inmate misuses/abuses it increases the risk versus benefit to both the inmate and the provider. If this same patient is getting released, he will be enabled to continue this behavior post-release. If continued, this practice has the potential to impact society as a whole. The severity of this impact one cannot fathom.

Since there is no research regarding this phenomenon, individual facilities have been reported to implement their own standards of care. Some correctional institutions take Wellbutrin® off the formulary. There have been no documented negative outcomes from removing Wellbutrin® from the formulary (Laird & Narayan, 2007). Other facilities crush and float the medication. The manufacturer has indicated crushing the Wellbutrin® increases the risk of seizures (GlaxoSmithKline, n.d.; Wellbutrin, 2011). There is no research regarding the outcome of this practice. The practice of crushing medication prior to administration does not always prevent inmates from misusing/abusing their medications. Research is indicated to determine the prevalence of abuse, and misuse regarding Wellbutrin®, and other psychotropics within the incarcerated population. Investigation regarding the percentage of medication diversion by inmates, may aid protocol development and staff education regarding the magnitude of this inmate behavior.

Education for new staff is paramount when implementing protocols. Diligence in monitoring medication passes, and unannounced cell searches, could aid in lessening the abuse/misuse. Providers should monitor patient presentation, and continue assessing patient progress. Obtaining information regarding the patient's demeanor outside the appointment could alleviate some misdiagnosis. If identified as "at risk," a discussion of possible negative outcomes related to misuse and abuse is indicated. If prescribed Wellbutrin®, continued monitoring of risk versus benefit, combined with victimization assessment, is indicated throughout incarceration.

The manufacturers may consider warnings regarding insufflation of medication, and the impact of this behavior on seizure threshold.

Better treatment regarding inmates suffering from withdrawal signs and symptoms should be considered to decrease

possible abuse and misuse of psychotropic medication. Programming and education targeting alternative coping skills, and recovery, may lessen the number of inmates who try to self-medicate with psychotropic medications. Standardized protocols regarding abuse and misuse, and their consequences, could alleviate staff splitting among the inmate population.

This article has raised more questions than it has answered. Obviously, many of these concerns and questions can be extended to other prescribed medications. Much remains to be determined by further investigation. Open and honest discussion, clinical review, research, and personal reflection can aid in an adequate response to this alarming unintended outcome. This phenomenon has inherent risk to both the patient and the provider. Through educating the public, professional collaboration, increasing communication between treatment facilities both during incarceration and post-release, the impact this type of substance abuse has on the patient, providers, and society can be mitigated. In the meantime, healthcare providers have a responsibility to review these concerns, and exercise prudence when prescribing psychotropic medications.

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