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Case Report

## Abrupt Discontinuation of Champix in a Patient with Major Depressive Disorder, In Full Remission, Can Induce Serious Adverse Events: A Case Report

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### Abstract

**Objective:** The smoking cessation drug, varenicline, has had effective results, but has also been linked with psychiatric side effects, particularly during treatment. Many cases of varenicline - induced psychosis have been reported, however, very few cases are seen with onset during withdrawal. This case report describes the development of a serious adverse event induced by the discontinuation of varenicline, in a patient with major depressive disorder in full remission.

**Methods and Results:** A patient, with a psychiatric history of major depressive disorder, in full remission, discontinued the use of varenicline on two separate occasions. The first instance, the patient experienced out of character changes, including irritability, aggression, and inappropriate and bizarre public behaviour. The second attempt, the patient experienced the same symptoms, as well as a serious adverse event, where she stabbed herself 15 times in the abdomen. A psychiatric review was performed, and no underlying psychotic disorders were noted.

**Conclusion:** Abrupt discontinuation of the varenicline treatment in patients with past, current, or family psychiatric history could trigger withdrawal-related serious adverse events. Physicians should carefully monitor these patients when terminating their treatment, as well as screen patients for any psychiatric history before prescribing the medication. Research should be conducted to further explore the topic of varenicline discontinuation in psychiatric patients.

**Keywords:** Varenicline; Dopamine; Champix; Dyscontrol

## 1. Introduction

Tobacco dependence is a chronic disease that requires continual intervention and can take multiple attempts from the patient in order to successfully quit [1]. Varenicline (Champix) is a novel medication prescribed to adults as a smoking cessation treatment, and works by activating the  $\alpha 4\beta 2$  neuronal nicotinic acetylcholine receptors, allowing it to act as a partial agonist by stimulating receptor-mediated activity at a significantly lower level than nicotine [1-3]. The ability of varenicline (Champix) to stimulate the central nervous mesolimbic dopamine system, by releasing low levels of dopamine, reduces the craving and withdrawal symptoms in patients [4]. However, there have been concerns about the potential links between varenicline and serious health risks [2, 3].

Serious adverse side effects have been reported, including suicidal ideation and behaviour, where patients with past or current mental illness are at a greater risk [2]. However, a recent meta-analysis, conducted by Thomas et al. found no link between varenicline treatment and increased risk of suicidal behaviour or depression. Other observational studies have also reported no association between varenicline and depression, suicidality, or violence [3]. Although these findings can provide reassurance to varenicline users currently on treatment, the studies do not consider the risks associated with abrupt discontinuation of the drug in mentally ill patients [3, 5].

In this paper, the development of a serious adverse event is reported after the abrupt discontinuation of varenicline treatment, for smoking cessation, in a patient with major depressive disorder in full remission.

## 2. Case Report

KP is a 54-year-old woman, who lives with her husband and their three children, in a stable household in Southern Ontario. She began smoking at the age of 11 and was diagnosed with mild to moderate COPD in January 2015. This diagnosis prompted KP to quit smoking, having previously attempted unsuccessfully in the past. She requested to try Champix, since she had tried other smoking cessation methods before, including nicotine patches and Wellbutrin. She was started on Champix at 1mg po bid by her family physician, and successfully quit smoking. She took Champix at the current dose without any issues for two months, when she unintentionally stopped the medication while on vacation with her husband. Four days after the medication was stopped, the patient noticed she was being unnecessarily verbally aggressive and rude to her husband, which her husband had mentioned

was out of the ordinary for her. She had also begun asking inappropriately intimate and bizarre questions to her husband in public, which was also out of character. Once the patient disclosed to her husband that she stopped taking Champix, they both decided that she should resume her medication until they were back in Canada. Once she resumed Champix at 1 mg bid, the verbal abuse and inappropriate questions ceased.

She continued Champix at this dose after her vacation, and then stopped one month later, after being informed to do so by a pharmacist. About four days after stopping, she began being verbally abusive and irritable towards both her coworkers and husband, as well as sending inappropriate emails at work. Her husband wondered if her bizarre behaviour and inappropriate actions were due to KP stopping the medication.

One week after Champix discontinuation, the patient's daughter returned to her home to visit. KP drank three alcoholic beverages over the course of the evening, which was a usual amount for the patient to consume on special occasions. That evening, when the patient was alone, she grabbed a paring knife from the kitchen and headed to the forest behind her fence, where she stabbed herself 15 times in the abdomen. The patient believes that she did not intend to hurt herself or end her life. However, she was aware she was stabbing herself and felt the pain, but did not actively think of why she was doing so. She stopped stabbing herself when she noticed that she was covered in her own blood, and realized she needed to get help. The patient rolled herself to the street, where she was found, and was brought to the hospital.

After assessment by surgical and emergency staff, the patient was not in need of surgical intervention, and her wounds were closed with staples by the emergency room physician. Under psychiatric review, a past psychiatric history of major depressive disorder was indicated in full remission, and the patient has been taking Effexor 300 mg p.o. q.a.m, as a treatment method over the past ten years. Effexor was not discontinued during the incident, and there were no acute changes in medical health prior to this event. KP, during the initial interview, denied symptoms suggestive of generalized anxiety disorder, social anxiety disorder, panic disorder, obsessive-compulsive disorder, posttraumatic stress disorder, bipolar disorder, personality disorder or derealization disorder. She denied auditory hallucinations, visual hallucinations or any sort of paranoia. Also, a family history of depression on the paternal side was noted.

The patient also admits to having suicidal ideation about once a year, but copes using positive thinking strategies. Her thought content did not include any suicidal or homicidal ideation, delusions, obsessions, rumination or perseveration, or magical thinking. Her thought process was ordered in a linear and logical fashion, and she demonstrated reasonable insight. The patient does not understand why she behaved the way she did during the incident and does have insight into her major depressive disorder, which is in full remission. Her cognition was described as full, and there was no past history of depersonalization, derealization, or personality disorder. There was also no history of other substance abuse. She feels deeply remorseful about her actions, and this was the only episode in which she did not feel as though she had control over her own body.

### 3. Discussion

The interest in this case is that it is one of the few that reports a serious adverse event in a subject with major depressive disorder in full remission, after the abrupt discontinuation of varenicline treatment.

It can be suggested that the withdrawal of the drug sparked the serious adverse event in this patient, suggesting that varenicline has the ability to trigger dyscontrol when discontinued abruptly, especially in patients with a history of mental disorders. Additionally, there have been many other behavioural changes reported as a result of both varenicline treatment and withdrawal in previous literature viewed, with a strong emphasis on patients with significant history of mood disorders [4, 6, 7]. Possible causes of this dyscontrol include dopaminergic overstimulation secondary to agonism of the  $\alpha 4\beta 2$  neuronal nicotinic acetylcholine receptors in individuals with genetic vulnerability, as well as the downregulation of cholinergic system by the abrupt lack of cholinergic stimulation, due to the withdrawal of varenicline, inducing an anticholinergic response [6, 8].

Evidence also supports the strong link between smoking and depression, as well as other mood disorders [9, 10]. However, quitting smoking has been linked with positive outcomes, such as a reduction in depression and anxiety [5]. Additionally, patients who were treated with varenicline had a threefold increased chance of smoking cessation, which could explain the reduced levels of anxiety and depression found in the meta-analysis [5]. However, this study did not focus on the potential link between abrupt varenicline discontinuation and serious adverse events. Moreover, the observational study by [3], still found a statistically significant link between varenicline and the incidence of new psychiatric conditions, such as mood and anxiety disorders, in patients with a history of mental illness. Therefore, providing these patients with a safe and effective way to discontinue smoking cessation medications, such as varenicline, is crucial.

The adverse psychiatric effects of varenicline could be reduced in this at-risk population by screening for family and personal history of mental disorders, especially mood disorders, in patients looking for smoking cessation treatment [4]. Additionally, since there is a higher rate of smoking in psychiatric patients, as well as severe adverse side effects, this population should be included in trials, including close observation during drug discontinuation, before the drug is approved [11].

### 4. Conclusion

This case report supports the findings of previously published cases, in which serious adverse events occurred, in patients with a history of psychiatric disorders during varenicline discontinuation. Clinicians should use caution when prescribing this medication to patients with a psychotic illness. Particularly, health care professionals must closely monitor such patients during the discontinuation of the drug, since withdrawal symptoms may induce serious adverse events. Research should be conducted on how to effectively terminate the use of varenicline, in patients with a current or previous history of mental disorders.

## References

1. Marotta F, Dipaolo A, et al. Medication/Product Showcase: Chantix (Varenicline). *Journal of Asthma and Allergy Educators* 4 (2013): 85-86.
2. Cahill K, Stead LF et al. Nicotine receptor partial agonists for smoking cessation. *Cochrane Database Syst Rev* 4 (2012): CD006103.
3. Molero Y, Lichtenstein P, et al. Varenicline and risk of psychiatric conditions, suicidal behaviour, criminal offending, and transport accidents and offences: population based cohort study. *Bmj* 350 (2015): h2388-h2388.
4. Annagur BB, Bez Y. Varenicline-induced psychotic depressive episode in a patient with bipolar disorder. *Therapeutic Advances in Psychopharmacology* 2 (2012): 35-37.
5. Thomas KH, Martin RM, et al. Risk of neuropsychiatric adverse events associated with varenicline: systematic review and meta- analysis. *Bmj* 350 (2015): h1109-h1109.
6. Lopez Arteaga M, Amo C, et al. Induced psychosis after withdrawal of varenicline : a case report. *Acta Neuropsychiatria* 23 (2011): 252-255.
7. May AC, Rose D. Varenicline Withdrawal-Induced Delirium With Psychosis. *The American Journal of Psychiatry* (2010): Jun 1.
8. Laine P, Marttila J, et al. Hallucinations in the Context of Varenicline Withdrawal. *Am J Psychiatry* 166 (2009): 619-620.
9. Benowitz NL. Clinical Pharmacology of Nicotine : Implications for Understanding , Preventing , and Treating. *Tobacco Addiction* 83 (2008): 531-541.
10. Hall SM, Prochaska JJ. Treatment of Smokers with Co-Occurring Disorders: Emphasis on Integration in Mental Health and Addiction Treatment Settings. *Annu Rev Clin Psychol* 5 (2009): 409-431.
11. Liu M, Tsai S, et al. Varenicline-induced Mixed Mood and Psychotic Episode in a Patient with Schizoaffective Disorder. *CNS Spectrum* 14 (2009): 346.



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