

Eight-Milligram Single Dose of Buprenorphine as an Expeditious Treatment for Severe Suicidal Ideation: A Case Report

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Abstract

Introduction: Buprenorphine is used to treat opioid use disorder and pain syndromes. This drug may be a suitable treatment choice for refractory depression, anxiety, self-injurious behaviors, and suicidal ideation. However, it has a significant abuse potential, which limits its use in suicidal patients with a history of substance abuse.

Case Report: In this report, we present a case of chronic suicidal ideation due to substance-induced depressive disorder in a 25-year-old man from Noorabad, Fars, Iran. The patient was successfully treated with an 8-mg single dose of sublingual buprenorphine with minimal probability of diversion or misuse. We observed that 8 mg of buprenorphine exerted a rapid effect on the reduction and cessation of suicidal thoughts and depression.

Conclusions: We demonstrated the antisuicidal effectiveness of a single dose of buprenorphine, which can be administered with minimum risk of diversion or misuse for suicidal patients with a history of substance abuse.

Keywords: Buprenorphine, Depression, Suicide, Case Report

1. Introduction

Suicide is the tenth leading cause of death in the USA and a major public health problem worldwide (1). Most research on suicide has focused on the risk factors, while little attention has been paid to the development of new treatments for patients with suicidal ideation and/or attempts. These patients are routinely hospitalized to prevent their self-injurious behaviors, provide counseling, and adjust or change their medications. However, it takes several weeks for antidepressants to exert their effects; therefore, it is unlikely to promptly treat suicidal crises (2).

Prefrontal repetitive transcranial magnetic stimulation (1), electroconvulsive therapy (3), and administration of ketamine (4), clozapine, and lithium (5) have been introduced as acute treatments for suicidal ideation or attempts. In 2014, for the first time, Streribel et al. used sublingual buprenorphine for rapid dissolution of suicide ideation in a patient with treatment-resistant depression and severe opioid use disorder (6). Moreover, Yovell et al. conducted a double-blind, placebo-controlled trial on the use of ultra-low-dose buprenorphine as a time-limited treatment for severe suicidal ideation. The results revealed that treatment caused a reduction in Beck suicide ideation scale (BSIS) scores after 2 weeks (7).

Buprenorphine is a partial agonist at μ -receptors, an antagonist at κ -receptors, an agonist at δ -receptors, and a

partial agonist for nociceptin receptors (8). The drug enforcement administration (DEA) has designated buprenorphine as a schedule III drug (9), meaning that abuse may lead to moderate or low physical dependence or high psychological dependence. Therefore, use of buprenorphine in suicidal patients with a history of drug abuse is quite challenging. Previously, we reported the case of a patient with cannabis-induced psychotic disorder, opioid depressive disorder, and severe suicidal ideation, who was successfully treated with a single high dose of buprenorphine (96 mg) (10). In this report, we present a case of chronic suicidal ideation and substance-induced depressive disorder, with successful dissolution of suicidal thoughts after administration of 8 mg of sublingual buprenorphine.

2. Case Presentation

The patient was a single, unemployed, 25-year-old man with a university degree, who lived with his parents in Noorabad, Fars, a small town in Southern Iran. He was admitted to Ebnesina Psychiatric Hospital, affiliated to Shiraz University of Medical Sciences due to severe suicidal ideation in February 2016. In the intake interview, the patient stated that he had started smoking cigarettes at the age of 18; thereafter, he had been an irregular abuser of opioids, alcohol, and benzodiazepines. In addition, four

years prior to admission, he smoked marijuana on a regular daily basis. One year before admission, he had become increasingly aggressive, hypersensitive, restless, anxious, insomniac, and depressed. In addition, his symptoms had aggravated, and suicidal thoughts had emerged a couple of months before admission.

During comprehensive psychiatric interview and detailed examinations, the patient was found to be anxious, very restless, agitated, and depressed. On precise physical and neurological examinations, we did not detect any abnormal findings. Urine drug tests were positive for cannabis. All other laboratory data were within the normal range.

Based on the diagnostic and statistical manual of mental disorders (DSM-5) criteria and thorough medical, psychiatric, and substance-use records, the patient was diagnosed with substance-induced depressive disorder. We administered BSIS (11) to the subject at both baseline and end of each day during hospitalization. In addition, we used the Beck Depression Inventory (BDI) (12) to evaluate changes in the symptoms of depression with treatment over time. We started olanzapine (20 mg) and valproate (400 mg) daily to treat agitation, anxiety, restlessness, depression, and suicidal thoughts. Two days later, the patient received 8 mg of sublingual buprenorphine to boost his mood; he was closely monitored and interviewed for depression. Before administration of buprenorphine, he complained of suicidal thoughts, and his BDI was 42. A few hours after receiving buprenorphine, the patient's suicidal thoughts almost disappeared (an 80% reduction in the SSI score), and he reported a depression score of 24. Based on the daily interviews and close monitoring, the patient was more severely depressed before the administration of buprenorphine (mean, 43), compared to the post-administration interval (mean, 16). A written informed consent was obtained from the patient, and he was discharged without any suicidal thoughts or major depression after 10 days of hospital admission (Table 1).

3. Discussion

In general, buprenorphine is used to treat opioid use disorder and pain syndromes. Depression, substance use disorders, and suicidal ideation involve overlapping neural pathways in the brain (10). Furthermore, there is a well-established association between the endogenous opioid system and mood regulation. Overall, κ -opioid receptor are considered as a "druggable" target for depression (13).

Buprenorphine is a semisynthetic opioid, derived from thebaine (an opiate alkaloid) with unique activities of κ -opioid receptor antagonists and μ -opioid receptor partial agonists. Therefore, it is a suitable treatment choice

Table 1. The Patient's Suicidal Ideation and Depression Scores During Hospitalization

| Day of Hospitalization | Suicidal Ideation | BDI |
|--|-------------------|-----|
| Day 1 | Present | 44 |
| Day 2 | Present | 42 |
| Intervention (8 mg of sublingual buprenorphine) | | |
| Day 3 | Absent | 24 |
| Day 4 | Absent | 22 |
| Day 5 | Absent | 24 |
| Day 6 | Absent | 18 |
| Day 7 | Absent | 12 |
| Day 8 | Absent | 12 |
| Day 9 | Absent | 9 |
| Day 10 | Absent | 6 |

Abbreviation: BDI, Beck Depression Inventory.

for refractory depression, anxiety, self-injurious behaviors, and suicidal ideation (6, 7, 14-17). In the present report, we observed that 8 mg of buprenorphine had a rapid effect on the reduction and cessation of suicidal thoughts and depression. Previously, Striebel and Yovell indicated the antisuicidal potential of low-dose buprenorphine administration in a limited period (6, 7). Overall, buprenorphine reduces physiological and subjective responses to social stressors, including social rejection (14). In this regard, Karp et al. demonstrated the effectiveness of low-dose buprenorphine for treatment-resistant depression in older adults (17). Norelli et al. also successfully treated severe self-injurious behaviors with buprenorphine (16). There were certain limitations in this study. First, we did not collect any follow-up data after the patient's discharge. Moreover, buprenorphine has a significant abuse potential, which limits its application (9). In fact, diversion, misuse, and illicit use of buprenorphine have been widely documented (18). Accordingly, Yovell et al. suggested buprenorphine prescription to suicidal patients with no history of substance abuse (7). In this report, we demonstrated the antisuicidal effectiveness of a single dose of buprenorphine, which can be administered with minimum risk of diversion or misuse for suicidal patients with a history of substance abuse.

Footnote

Conflicts of Interest: None.

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