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The Effect of Buprenorphine on the Reduction of Cannabis and Heroin Craving and Suicidal Thoughts: A New Finding

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Abstract

Background: The efficacy of single high dose buprenorphine on the improvement of heroin and cannabis craving and suicidal thoughts has not sufficiently been studied.

Objective: To examine the effects of high dose of buprenorphine on the reduction of cannabis and heroin craving and suicidal thoughts.

Discussion: This study illustrates that administration of only one dose 96 mg buprenorphine is quite successful for the improvement of heroin withdrawal symptoms, cannabis caving and suicidal thoughts. So, our finding could be an important addition to the literature.

Conclusion: Administration of 96 mg buprenorphine as a single dose only is as efficient as standard daily use for the improvement of heroin withdrawal symptoms. In addition, single high dose of buprenorphine is very useful for the speedy management of cannabis withdrawal craving and suicidal ideas.

Keywords: High dose buprenorphine; Heroin withdrawals; Cannabis craving; Suicidal thoughts

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Introduction

Opium administration has a long history of therapeutic goals in some of the eastern countries [1-3]. Buprenorphine has been under intensive studies for the opioid dependence treatment [4]. Research studies illuminated that buprenorphine is more potent and also safer than other opioids such as methadone [5-7]. Besides, Johnson, Jaffe, and Fudala illustrate that 8 mg of buprenorphine is as potent as 60 mg of methadone [8]. Methadone is well absorbed orally and buprenorphine is well absorbed sublingually [4,9,10]. Buprenorphine as a mixed agonist-antagonist drug has been under study as a potential detoxification medication for the management of opioid dependence. Research studies have described buprenorphine as a mu agonist, and as a strong antagonist at K-receptor [11,12].

A partial agonist is a drug for which even at complete saturation of the receptor system its effect is still less than the maximal effect obtainable with full agonists. Hence buprenorphine has lower intrinsic activity at preceptors compared to full agonists [13-15].

Dose-response studies of buprenorphine administration in animals have produced data explained by a flattened curve or inverted U-shaped curve, indicating dose related enhancing in efficacy in the lower dose range, with higher doses inducing either no greater or a decreased effect [14,15].

Moreover, a ceiling on the respiratory depressant effects of buprenorphine would describe the safety of drug in clinical practice. Respiratory depression is the most common lethal adverse effect of opioids. Therefore, it would be highly acceptable to have an effective opioid medication with a low potential for inducing this side effect [14-16].

Buprenorphine use is chiefly for the treatment of pain and opioid withdrawal symptoms [3]. Now we are evaluating high dose of buprenorphine for the management of heroin dependence, cannabis craving and severe suicidal thoughts. To the best of our knowledge, we could not find published reports on this matter; so we think, this study could end to a novel finding.

We prepared a visual analogue scale (VAS) and verified it

empirically for reliability and validity to score the substance withdrawal pain and craving, ranking from 0 to 10 (0 means no craving or pain at all and 10 means severe craving and desire all the time). In addition, we trained the subject fully about scoring. Validated and reliable Craving Scale: 0-1-2-3-4-5-6-7-8-9-10 [17-19].

Patient description

We report a patient with cannabis and heroin dependence and suicidal thoughts who successfully responded to a single high dose of 96 mg of buprenorphine. HN was a single 27-year old unemployed with 3rd year of high school education. He inhabited with his parents in the capital city of Shiraz of Fars province in southern Iran. He began drinking alcohol and smoking tobacco, opium, heroin and hashish since 8 years prior to the admission. He had been abusing amphetamine derivatives and benzodiazepines occasionally. He gradually developed anxiety, irritability, depressed mood, hopelessness, suicidal thoughts, depression, idea of references and suspicion. Since one year prior to admission his symptoms were aggravated.

Due to severe abuse of hashish (10 hashish cigarettes per day), heroin dependence, depression, suicidal ideas, and paranoid behaviors he was admitted in the dual diagnosis ward of psychiatric hospital. At the time of admission, in comprehensive psychiatric interview and itemized mental status examination he was depressed, suicidal, irritable, restless and paranoid. In careful and precise physical and neurological examinations we could not detect any significant abnormality. Viral markers tests (HIV, HCV and HB Ag) were normal. Urine drug screening tests with Thin Layer Chromatography (TLC) were positive for morphine only.

Based on DSM-5 and accurate medical, psychiatric, and substance use history, he was diagnosed as cannabis induced psychotic disorder with severe use disorder and opioid depressive disorder with severe use disorder.

In hospital admission, we administered olanzapine 20 mg per day for the treatment of psychosis. He received only a single dose of 96 mg buprenorphine for the reduction and cessation of severe heroin withdrawal symptoms, severe cannabis craving and severe suicidal ideas.

It is necessary to remember that the FDA (Food and Drug Administration) approved buprenorphine for the treatment of pain and opioid withdrawal symptoms. Before buprenorphine administration patient's craving was eight for cannabis and seven for heroin. He had also severe suicidal tendencies.

One hour after administration of buprenorphine patient's craving declined to four for hashish and two for heroin. He also reported a rapid reduction in suicidal ideas severity from severe to mild. Eight hours later he stated that he had not any craving for heroin or cannabis. Out of 10, the mean scores of heroin craving and pain for 7 days of admission were 7 (7), 0 (0), 0 (0), 0 (1), 0 (0), 0 (0), and 0 (0) respectively. Out of 10, the mean scores of hashish craving for 7days of admission were 8, 0, 2, 3, 2, 2 and 2 respectively.

According to the exact monitoring, detailed scoring and precise interview (3 times a day) he experience a fast declining level of pain, suicidal tendency and craving for heroin and cannabis after administration of only 96 mg single dose of sublingual buprenorphine. After seven days of hospitalization HN was discharged without any heroin withdrawal symptoms, suicidal thoughts or significant cannabis craving.

Discussion

Iranian heroin dependents are mainly detoxified and treated with methadone, or clonidine or sometimes with buprenorphine. Our previous studies showed that administration of single high dose is very effective (111, 112 and 117). This work indicates that administration of only one dose (96 mg) of sublingual buprenorphine is quite successful for the improvement of heroin withdrawal symptoms, cannabis caving and suicidal thoughts. Therefore, this finding could be a significant addition to the literature.

Conclusion

We resulted to this finding that that administration of only one single high dose 96 mg of buprenorphine could improve heroin withdrawal symptoms, cannabis withdrawal craving and severe suicidal thoughts. In short, administration of 96 mg buprenorphine as a single dose only is as effective as standard daily use for the treatment of heroin withdrawal symptoms. Furthermore, single high dose of buprenorphine is very useful for the rapid management of cannabis withdrawal craving and suicidal desires.

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