

Methylphenidate in the Treatment of Methamphetamine Withdrawal Craving: A Novel Outcome

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Abstract

Background: Methamphetamine abuse and Methamphetamine induced disorders are growing problems in the world especially in Asia.

Objective: To evaluate the efficacy of adding methylphenidate 30 mg daily to the treatment of methamphetamine withdrawal craving.

Method: To study double blindly a single case.

Results: Methylphenidate is very effective in the reduction of methamphetamine withdrawal craving.

Discussion: This study illustrates that adding methylphenidate 30 mg per day to the treatment of methamphetamine withdrawal symptoms dramatically reduce withdrawal craving. This is a fascinating result.

Conclusion: According to our study adding methylphenidate to the treatment of methamphetamine withdrawal craving significantly reduces withdrawal craving.

Keywords: Methylphenidate; Methamphetamine; Withdrawal craving

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Introduction

We illustrate a patient with methamphetamine withdrawal craving who responded much better after adding methylphenidate to the treatment of methamphetamine withdrawal craving.

Mental health disturbances and psychological disorders have been a growing problem globally including Iran [1-8]. In mental health disorders, substance use disorders, especially stimulants such as cocaine and amphetamines use disorders have been considered as a worldwide and progressive problem [9-29]. Methamphetamine (crystal) abuse was a minor problem in Iran in the past, but nowadays, there has been increased methamphetamine use, especially in the young people, with an increase in methamphetamine induced psychiatric presentations to hospitals and clinics [27-29].

In the past times, methamphetamine was illegally imported in from other parts of the world especially the west, but now it is prepared and synthesized illegally in Iran in 'underground' laboratories. We should mention that the methamphetamine prepared illegally in Iran is much more potent and is usually associated with psychosis.

A single episode of methamphetamine abuse could induce visual or auditory hallucinations and persecutory delusions as well.

The approved FDA use of methylphenidate is for the treatment of ADHD and narcolepsy [15].

Now we are adding methylphenidate to the treatment of severe methamphetamine craving, because we think that (our rationale) methylphenidate can increase dopamine in the brain (like methamphetamine) and so decrease methamphetamine withdrawal craving.

According to DSM-5 criteria, we ourselves made a valid and reliable scale to evaluate the methamphetamine withdrawal craving only, ranging from 0 to 10 (0 means no craving at all and 10 means severe craving and temptation all the time).

Withdrawal craving: 0-1-2-3-4-5-6-7-8-9-10.

Patient was precisely evaluated and interviewed 3 times a day for methamphetamine withdrawal craving only (by a nurse who was blind to the patient's medications).

To our knowledge we could not find published information on this matter (adding methylphenidate to the treatment of

methamphetamine craving by buprenorphine and bupropion), so report of this Iranian case could represent an innovative result.

Case Presentation

AP was a married, 36 year old graduate in guide school and self-employed. He lived in Shiraz city of Fars province in south Iran.

AP began irregular smoking of substances mostly opioid and methamphetamine since 15 years Prior To Admission (PTA). Since a couple of years PTA he has been a daily smoker of opioid and also heavy smoker of methamphetamine.

In short, when AP was brought to hospital by his relatives, he had been smoking methamphetamine and opioid daily for a couple of years PTA. He developed restlessness, insomnia and agitation few weeks PTA.

In psychiatric interview and examinations he was very restless and agitated.

In exact and complete physical and neurological examinations we could not find any abnormal findings. Urine drug screening tests were positive for methamphetamine, opioid and benzodiazepine. Serology for HIV and hepatitis were normal.

According to DSM-5 criteria, and also complete medical, psychiatric, and substance use history he was diagnosed as "methamphetamine induced psychosis."

AP was given chlorpromazine 200 mg daily to reduce agitation and restlessness. Also he was given bupropion 300 mg and buprenorphine 8 mg per day to subside opioid and methamphetamine withdrawal symptoms. He was closely monitored by interview.

AP was taking medications every day and was in good condition. AP was discharged after 2 weeks.

Few months after discharge, he stopped taking medications and also again began abusing methamphetamine and opioid. He developed aggressive behavior, restlessness, insomnia and agitation since few weeks prior to second admission. Overall, 12 months after discharge he was admitted again. At the time of second admission, AP was given the same medications with the

same dosages (chlorpromazine 200 mg, bupropion 300 mg and buprenorphine 8 mg daily to reduce agitation, restlessness and substance withdrawal symptoms).

In second admission we added methylphenidate 30 mg daily, to reduce methamphetamine withdrawal craving more than the first admission. He was closely evaluated and interviewed every day.

In addition, AP was monitored precisely by an expert for methamphetamine craving (by interview 3 times a day: morning, afternoon, and evening) inquiring about level of methamphetamine craving, ranging from 0 (minimum) to 10 (maximum).

He was discharged after 2 weeks of hospitalization.

The mean of methamphetamine craving scores for 2 weeks duration of the first admission was 7 (Mean=7) and for 2 weeks duration of the second admission was 1 (Mean=1).

As the patient reported he experienced more methamphetamine withdrawal craving in the first admission than the second admission (in the second admission we added methylphenidate 30 mg daily).

Discussion

It is very difficult to treat methamphetamine craving. A few studies indicate that buprenorphine and bupropion could be effective in the treatment of methamphetamine withdrawal craving [23, 24].

Our case study shows that methylphenidate facilitates reduction and cessation of methamphetamine craving. Adding methylphenidate to buprenorphine and bupropion in these conditions has not been reported previously, so our finding is a substantial addition to the literature.

Conclusion

Based on this study we conclude that adding of methylphenidate in these situations promotes decreasing and cessation of methamphetamine craving. Administration and adding methylphenidate to buprenorphine and bupropion in this situation have not been reported in the past, therefore this finding is a significant addition to the literature. This finding is novel and beneficial.

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