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Systematic Review

METHADONE IN THE TREATMENT OF METHAMPHETAMINE WITHDRAWAL SYMPTOMS

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Abstract: Background: Methamphetamine dependence is considered an advancing problem. **Objective:** To demonstrate the function of methadone in the management of methamphetamine withdrawal symptoms. **Results:** 40 mg of methadone per day is profit making in the treatment of methamphetamine withdrawal symptoms. **Discussion:** This study demonstrates that methadone 40 mg/d is effective in the reduction and cessation of methamphetamine withdrawal symptoms. So, our finding is a substantial addition to the literature. Conclusions: Methadone is a satisfactory medication for the treatment of methamphetamine withdrawal symptoms. Continued study of methadone administration, is highly recommended for the management of methamphetamine dependence.

Key words: Methadone; Methamphetamine withdrawals.

Introduction: Methadone could be administered for the treatment of opioid dependents. It decreases the incidence of HIV and other diseases and help to relieve other problems coming from opiate abuse. Some new synthetic oral opioids, such as methadone, slow release morphine, and LAAM (levo-alpha-acetyl-methanol) were appraised as potential treatment options for opioids dependents (1-3).

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Numerous studies have demonstrated that methadone maintenance treatment directed to a decline in illegal substance abuse, progressed rehabilitation of intravenous opioids dependents, and conducted a reduction in HIV infection and also a decline in criminal and antisocial behaviors (4-6)

Methadone treatment is joined with some problems, including limited society and client acceptance, hence methadone is not ideal for all patients (6-7). Methadone and slow-release morphine are full mu-receptor agonists, whereas buprenorphine is a partial agonist and a kappa-receptor antagonist. Buprenorphine, as a result of its high rate of metabolism by the liver, has insufficient bioavailability after oral ingestion,

however, could be applied sublingually with an excellent result (8).

In the past, methamphetamine was illegally smuggled in from other nations of the world primarily the west countries, but currently it is illegally manufactured in Iran in 'underground' laboratories. It should mentioned that the methamphetamine synthesized in Iran is more powerful and is ordinarily connected with psychosis, so that even a single experience of methamphetamine abuse might be resulted in auditory or visual hallucinations and delusions of persecution.

Methamphetamine particularly produces a sense of well-being associated with elevated energy, wakefulness, and physical over activity (9). Protracted abuse frequently resulted in lengthy mental and physical health consequences, cognitive deficits, severe dependency, weight loss, remembering deficits, unstable mood and affect, poor concentration, impulsive behavior, increased violence, delusions and hallucinations (10, 11).

The prevalence of mental health diseases, mainly in the developed countries is hoisting (12-19). Analyzing mental health disease, substance induced and allied disorders, mainly opioids and stimulants derivatives have been classified as going up enigma (30-98). Stimulants and opioids abuse and affiliated disorders are proceeding problems that have achieved in more admissions to substance abuse treatment hospitals and outpatient centers (99-111).

With reference to the DSM-5 criteria we provided a **reliable and valid** questionnaire (112-119)to measure methamphetamine craving, including scores from 0 to 10 (0 means no craving at all and 10 means severe craving all the time).

Craving Scale of measurement: **0-1-2-3-4-5-6-7-8-9-10**.

Patient picture: We illustrate a methamphetamine dependent patient who successfully responded to methadone 40 mg/d for 21 days.

MM was a married 39 year old track driver with primary school education. He inhabited with his family in the capital city of Shiraz of Fars province in southern Iran.

He began smoking tobacco, methamphetamine, and opioid since 12 years prior to admission.

Before of the present admission he was a heavy smoker of methamphetamine and heroin.

At the time of admission he was depressed, hopeless, irritable, anxious, a hedonic and suicidal. MM was experiencing severe craving and temptation for methamphetamine as well.

In comprehensive psychiatric interview and mental status examination he was impulsive, depressed, withdrawn and agitated. In precise and complete physical and neurological examinations we could not detect, any important abnormality.

Tests for viral markers (HIV, HCV and HB Ag) were within normal limits.

Laboratory tests for urine drug screening were positive for methamphetamine, amphetamine, morphine and methadone.

Considering DSM-5 criteria and with reference to the comprehensive medical, psychiatric, and substance use history MM was diagnosed as "methamphetamine related psychotic disorder.

In the beginning of hospitalization, we began methadone 40 mg per day for the treatment of methamphetamine withdrawals and craving, valproate 400 mg, and olanzapine 5 mg per day for the treatment of psychosis and aggressive behavior.

Out of 10, the mean scores of methamphetamine craving for 21 days of admission were 5, 3, 2.1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 and 0 respectively.

With reference to the close monitoring, precise measurement and detailed interview (3 times a day) for methamphetamine withdrawal craving, MM experienced and reported a decreasing level of craving after beginning of methadone

He was discharged without any significant withdrawal symptoms and psychiatric problems after 21 days of admission.

Discussion: Methadone could be administered for the treatment of opioid dependents. It decreases the incidence of HIV and other diseases and help to relieve other problems coming from opiate abuse. Now we are using methadone for the management of methamphetamine withdrawal symptoms.

Our work indicates that methadone 40 mg/d is very helpful in the diminution and ending of methamphetamine withdrawal symptoms. Therefore, our finding is a substantial addition to the literature.

Conclusions: It appears that methadone is a safe and suitable medication for the treatment of methamphetamine withdrawal symptoms. We concluded that methadone might be much better than traditional treatments, such as gradual step down in the dosage or rapid discontinuation of methamphetamine without applying any medication. Continued study of methadone administration, is highly recommended for the treatment of methamphetamine dependence.

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