

The Bilateral Effects of Sleep-Related Breathing Disorders and Opioid Agonist Use: A Vicious Cycle in Methadone Maintenance Clinics

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Substance use disorder is a critical social and health problem placing a tremendous burden on the country's health care system (1). Harm reduction policy focusing on using opioid agonist make up the majority of the maintenance treatment options (2). Methadone and buprenorphine are two well-known opioid agonists used in most countries (2). Presently, about one million people in 7,000 licensed addiction treatment clinics in Iran are undergoing maintenance therapy (2). Sleep disorders are common problems among patients undergoing methadone maintenance therapy (MMT). The prevalence of sleep disorders in various studies has been reported between 75% to 84%. Sleep disordered breathing (SDB) is commonly seen in opioid users, and is as prevalent as 35% to 46% (3). Despite the high prevalence of SDB in opioid users, it is often ignored and remains underdiagnosed (3, 4). The aim of writing this letter was to warn addiction therapists about the serious consequences of under-diagnosis of sleep-related breathing disorders in opioid-agonist users.

Recent studies have shown that SDB, especially central sleep apnea, is directly related to the serum level of agonist drugs such as methadone and opium (4). Results of recent study by Chowdhuri and Javaheri showed that opioid use of equal to 200 mg of morphine and above was associated with more central sleep apnea (3).

Jungquist et al. showed that for every 100 mg morphine increase, central sleep apnea index raised by 2.8 (5). In a recent study in 7423 MMT patients in north east of Iran, mean dose of methadone was 80 mg which is equal to morphine equivalent daily dose (MEDD) of 400 mg (6). This amount of methadone can put Iranian patients at risk for SDB, especially central apnea. According to MMT protocol, therapists should replace illicit opioids with methadone, and increase the dose until the withdrawal symptoms and craving are eliminated (7). The therapist's judgment and the patient's craving symptoms indicate the appropriate dose of the methadone (7).

SDB in opioid users can simulate withdrawal symptoms through several mechanisms (Figure 1).

First of all, frequent desaturation and arousals reduce the pain threshold and increase pain which, in turn, may lead to a greater tendency in patients to use opioids (8). SDB also may cause depressed mood, which may incline the patients to request higher doses of methadone (8). They also cause excessive daytime sleepiness, and impair the patient's function, which may be misinterpreted as tiredness related to opioid withdrawal (9).

In a recent study by Baldassarri et al., 46% patients undergoing MMT had excessive daytime sleepiness (9). Ignoring the mechanisms mentioned above can lead the therapist and the patient into a vicious cycle of increasing the dose of agonist drugs and subsequent adverse effects.

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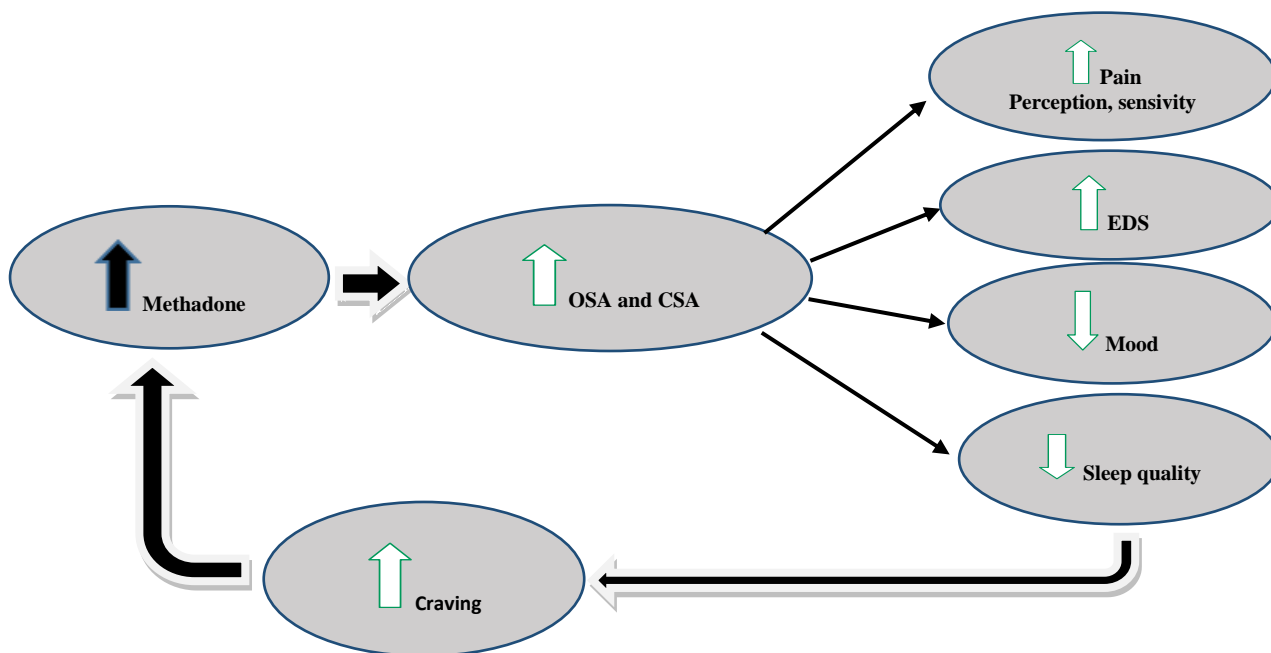


Figure 1. The model of potential relationship between methadone prescription, sleep breathing disordered, and increased craving in patients undergoing methadone maintenance therapy
 OSA: Obstructive sleep apnea; CSA: Central sleep apnea; EDS: Excessive daytime sleepiness

Educating therapists, especially general physicians, about the symptoms of SDB, and encouraging them to use sleep apnea screening tests such as Snoring history, Tiredness during the day, Observed stop of breathing while sleep, High blood pressure, Body mass index (BMI) more than 35 kg/m², Age more than 50 years, Neck circumference more than 40 cm, and male Gender (STOP-BANG) or Berlin questionnaire is highly recommended. Revising of national MMT protocol by attention to screening of SDB is highly recommended, too. General education of patients referring to addiction treatment centers about sleep disorders (e.g., using educational posters) is also suggested.

Conflict of Interests

Authors have no conflict of interests.

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