Traditional Chinese Medicine-facilitated switch from methadone to buprenorphine-naloxone for treatment of heroin dependence: a case report

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Abstract

The switch from methadone to buprenorphine-naloxone for individuals with heroin dependence is associated with several obstacles and challenges. Such patients may experience discomfort from discontinuing methadone, precipitated withdrawal symptoms induced by buprenorphine-naloxone, and poor psychosocial adjustments such as anticipatory anxiety regarding severe opioid withdrawal. We herein describe a 46-year-old man with a history of heroin dependence who underwent Traditional Chinese Medicine (TCM)-facilitated switching from methadone to buprenorphine-naloxone. No precipitated withdrawal was induced by buprenorphine-naloxone. The drug-switching process was successful and smooth. He maintained abstinence from heroin for the following year. In this case, we applied TCM for enhancement of methadone metabolism and detoxification, analgesic effects, and anxiolytic and hypnotic effects during the drug switch. We observed that TCM effectively facilitated the switch from methadone to buprenorphine-naloxone in our case. Further studies regarding TCM-facilitated treatment for heroin dependence should be conducted.

INTRODUCTION

Heroin use, particularly heroin injection, is a major public health concern. Heroin is a highly addictive drug. It induces euphoric, anxiolytic, and analgesic central nervous system effects that may result in drug dependence and global functional loss. The social costs of heroin-associated crime significantly exceed those of most of other illicit drugs. Heroin use is associated with the spread of various infectious diseases, such as HIV, syphilis, and viral hepatitis, and the death rate of users is 13 to 17 times higher than that of their age-matched peers primarily because of overdosing, traumatic accidents, and suicide. The negative effects of heroin use involve significant loss of life years and life quality. Methadone maintenance treatment (MMT) is the most widely used and extensively researched treatment for opioid dependence. MMT has been shown to reduce illicit heroin use, mortality, and the incidence of
infectious diseases as well as improve the life quality of opioid users. Treatment with buprenorphine-naloxone (Suboxone®; Indivior, Richmond, VA, USA), another therapeutic option for opioid dependence, has also been shown to be effective in reducing opioid use and craving for opioids. Traditional Chinese Medicine (TCM) is being considered as a new approach to the safe and effective treatment of opioid dependence. Past reports have shown that TCM is effective in the treatment of the acute withdrawal symptoms of methadone when used in patients with opioid dependence. However, few studies have revealed the effects of TCM treatments during the switch from methadone to buprenorphine. Several obstacles and challenges remain in the switch from methadone to buprenorphine, including the discomfort of discontinuing methadone, precipitated withdrawal symptoms, and poor psychosocial adjustments such as anticipatory anxiety regarding severe opioid withdrawal. Tapering high methadone doses before switching to buprenorphine involves discomfort and a high risk of relapse. The experience of precipitated withdrawal and the effect of buprenorphine-naloxone-induced acute opioid withdrawal symptoms can be very traumatic for a patient seeking help, and these symptoms may be one of the leading causes of discontinuation of buprenorphine-naloxone. A case report by Yu et al. indicated that TCM-facilitated treatments may relieve symptoms of anxiety during the switch from methadone to buprenorphine-naloxone. We herein present a case report of a 46-year-old man who successfully switched from methadone to buprenorphine-naloxone under TCM-facilitated treatments.

CASE REPORT

This case involved a 46-year-old man with a 24-year history of heroin dependence. He had started using heroin at the age of 22 years. Shortly thereafter, he exhibited symptoms of full heroin dependence and was infected with hepatitis C because of needle sharing. He was repeatedly incarcerated, and during his fifth jail term, his father died. His incarceration caused him to miss his father’s funeral and motivated him to quit heroin. The patient’s first methadone clinic visit occurred in 2008. The methadone dose fluctuated from 20 to 70 mg with active heroin use during the following 5 years. In 2013, his heroin craving was more effectively controlled and the methadone dosage was decreased to 10 to 20 mg per day with full heroin abstinence. The patient maintained a low dose of methadone with good adherence; however, he found daily visits for MMT inconvenient because of his work. Buprenorphine-naloxone was introduced by the methadone clinic, but the patient refused because he was concerned about methadone withdrawal during the drug switch and was doubtful of the effectiveness of buprenorphine-naloxone for relieving opioid craving symptoms. He decided to start the drug switch under TCM-facilitated treatments.

In April 2016, he attempted to stop the use of methadone at 10 mg/d and switch to buprenorphine at 2 mg every 2 d with TCM herbal treatments after a TCM diagnosis. The TCM physical inspection revealed dark red tongue with bilateral tooth marks and thin-yellow fur, while the pulse examination revealed a bilateral wiry pulse. Therefore, the TCM constitutional diagnosis involved liver Qi stagnation and blood stasis. We accordingly prescribed an herbal synergic regimen of Xue-Fu-Zhu-Yu decoction (XFZYD, to promote the circulation of liver Qi), Suanzaoren decoction (SZRD, to provide central nervous system tranquilizing effect and to improve sleep quality), Chaihu-Shugan-San (CSS, to improve the flow of systemic Qi, to relieve the stagnation of liver Qi, to relieve depression, and to provide analgesic effects), and Chin-Gin-Kuan-Ming tablets (CGKM, to promote Qi movement and to sedate and calm the spirit). Initially, the patient experienced methadone withdrawal symptoms such as sleeplessness, sneezing, running nose, mild tremors, itchy skin, and appetite loss. These acute methadone withdrawal symptoms gradually improved while the staff provided support and affirmation. He maintained treatment with buprenorphine at 2 mg every 2 d. Four months later, he attempted to reduce this dosage. He finally stopped buprenorphine in September 2016 and maintained abstinence from heroin, methadone, and buprenorphine until May 2017. The XFZYD, SZRD, CSSS, and CGKM regimen was continued. Five unscheduled urine drug screenings were performed during follow-up, and all indicators of heroin and amphetamine use were negative.

DISCUSSION

Opioid dependence is a chronic illness that may result in considerable physical and psychological functional disturbances. Opioid agonist therapies, such as methadone treatment and buprenorphine-naloxone maintenance treatment, have revealed significant clinical effects. MMT was launched in Taiwan in 2006 following an HIV/AIDS outbreak among intravenous drug users, and the treatment programs are being continuously developed. In Taiwan, MMT has effectively controlled drug cravings, facilitated lifestyle remodeling, prevented the spread of infectious diseases, and reduced criminal activity associated with heroin use. However, because take-home methadone programs are not available in the current practice system of Taiwan, daily MMT may considerably inconvenience patients. Traffic congestion, the service hours of the methadone clinic, and weather disturbances such as the frequent typhoons that occur during summer in Taiwan may inconvenience the patients. Consequently, poor methadone adherence and active heroin use are common.
Therefore, buprenorphine-naloxone use can be considered a treatment of choice for better quality of life. The switch from methadone to buprenorphine-naloxone may be challenging. The patients may experience discomfort of discontinuing methadone, possible precipitated withdrawal symptoms induced by buprenorphine-naloxone, and psychosocial adjustment issues such as anticipatory anxiety regarding severe opioid withdrawal. Sufficient bio-psycho-social interventions should be provided for these challenging events.11,12,13 Although one study revealed that providing non-TCM ancillary medication during buprenorphine detoxification does not improve treatment outcomes,14 TCM was provided to our patient. We hypothesized that successfully switching from methadone to buprenorphine would enhance the patient’s perceived control and psychological resilience as well as improve his quality of life.15

Some herbal regimens have been proven effective in relieving the withdrawal symptoms of opioid use.16 TCM treatments can deliver pain relief and treat comorbidities such as hepatitis, constipation, and pain in heroin users; they can also provide a collaborative and holistic care model that is based on TCM healthcare theory. Individuals in the Han ethnic group are noted for their aversion to the long-term use of Western medication. Moreover, methadone is often highly stigmatized and incorrectly considered a hepatic and renal toxin. In addition to relevant knowledge of MMT, adjunctive TCM treatments may offer heroin users new and culturally appropriate approaches with higher motivational enhancement and psychological acceptability.

In the present case, we applied TCM to attain enhancement of methadone metabolism and detoxification, analgesic effects, and anxiolytic and hypnotic effects during the drug switch. XFZYD was prescribed to reduce the concentration of methadone and expel the remaining methadone from the body to prevent precipitated withdrawal. SZRD was prescribed to relieve anxiety and improve sleep quality. Because the patient was often depressed and irritated, CSS and CKGM were prescribed to relieve anxiety, depression, and pain symptoms.

Animal models and in vitro studies have provided hypotheses for the mechanisms underlying TCM treatment. Past studies have revealed that XFZYD potentiates r-tPA-mediated neuroprotection against thromboembolic stroke in rats. This neuroprotection is probably mediated by the inhibition of hypoxia-inducible factor-1α and tumor necrosis factor-α, followed by the inhibition of inflammatory responses (i.e., inducible nitric oxide synthase) and apoptosis (active caspase-3).17 SZRD increases sleep activity and exhibits binding affinity for serotonin receptors.18 An aqueous extract of CSS has shown antidepressant-like effects in animal models, and its antidepressant mechanisms are mediated by reversing the stress-induced disruption of ERK5 activity.19 CGKM tablets are composed of ingredients including Cha-hu-Jia-Long-Gu-Mu-Li-Tang, Xiao-Chaihu-Tang, and Wei-Dan-Tang. Cha-hu-Jia-Long-Gu-Mu-Li-Tang may also protect against hypercholesterolemia and atheromatous lesions by affecting the expression of apolipoprotein E and low-density lipoprotein receptor mRNA in the liver.20 Xiao-Chaihu-Tang exhibited therapeutic effects in animal models of depression through enhancement of the serotonergic system in the prefrontal cortex and hippocampus.21 Wen-Dan-Tang treatment may regulate negative emotions induced by sleep deprivation through regulation of orexin-A and leptin expression.22 In conclusion, the present study showed that TCM medications were effective in alleviating discomfort during the initial methadone withdrawal period and reducing the occurrence of precipitated withdrawal induced by buprenorphine-naloxone treatment. The medications also produced a holistic and multidisciplinary treatment effect that improved the patient’s psychological resilience. A TCM-facilitated drug switch from methadone to buprenorphine has potential as an optimal treatment model. Further studies should address TCM treatment for heroin-dependent individuals during the period of switching from methadone to buprenorphine-naloxone.

REFERENCES


