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Scopolamine detoxification technique for heroin dependence: a randomized trial.

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Abstract

BACKGROUND: Easing psychological symptoms associated with heroin use and heroin relapse are important goals in the treatment of heroin dependence. However, most detoxification methods are designed to decrease withdrawal-related discomfort and complications, but not to reduce the psychological effects of heroin addiction.

OBJECTIVE: The objective of this study was to evaluate the efficacy of scopolamine detoxification technique (SDT) relative to standard methadone detoxification (MD) to treat heroin withdrawal and psychological symptoms associated with heroin use and relapse.

METHODS: In this 10-week randomized, controlled trial, treatment-seeking heroin-dependent participants were enrolled consecutively from Ningbo Addiction Research and Treatment Center, Ningbo, China. Opioid dependence was confirmed by a naloxone challenge test. Participants were included if they met Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) criteria for opioid dependence, were without major comorbid psychiatric illness, and were not allergic to scopolamine and chlorpromazine. Participants (N = 91; 18-50 years) were admitted to inpatient beds for 15 days and randomly assigned to receive either SDT (N = 46) or MD (N = 45) prior to being discharged and undergoing 8 weeks of outpatient treatment. During the inpatient stay, all participants received methadone during days 1-3. Those in the MD group then underwent a 10-day gradual dose-reduction regimen. Those in the SDT group underwent an SDT, such that subjects were given scopolamine (0.03-0.05 mg/kg, intravenously) and chlorpromazine (0.6-1.0 mg/kg, intravenously) under light anesthesia for 4-6 h once per day on days 4-6 or 4-7, depending on the severity of opioid-withdrawal symptoms. Self-reported withdrawal symptoms were assessed each day during the in-patient treatment phase. Heroin craving (assessed using a visual analog scale), Beck Depression Inventory, Self-Rating Anxiety Scale, and working memory and attention tests (assessed using the Digit-span test and d2 test) were measured before (day 0) and after detoxification (day 15). Retention was assessed during the inpatient phase and the outpatient phase. Urine tests for opioids were assessed twice weekly in the follow-up phase. Reasons for Relapse Questionnaires were completed when each participant's urine sample was positive.

RESULTS: The vital signs of participants were stable and no serious adverse anesthetic events were observed during SDT. SDT considerably suppressed heroin withdrawal symptoms, which did not increase during the post-detoxification phase. Although groups did not differ on retention or the percentage of opioid-positive urine samples (SDT 73.2 ± 30.1% and MD 75.1 ± 37.6%), SDT significantly attenuated heroin craving, depression, and anxiety compared with MD (P < 0.001). There was a significant difference in the mean reductions (%) of amount of first heroin use after hospital discharge between the SDT group and the MD group (t 71 = 6.09, P < 0.01). There were no significant differences in the scores of the Digit-span and d2 tests by treatment conditions (P > 0.05). The percentage of participants citing "drug craving" and "anxiety and depression" as the primary reasons for relapse was significantly lower in the SDT group than in the MD group.

CONCLUSIONS: SDT may be an alternative to conventional detoxification techniques, especially for patients with psychological symptoms.

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