EFFICACY OF A NICOTINE (4 mg) CONTAINING LOZENGE ON THE COGNITIVE IMPAIRMENT OF NICOTINE WITHDRAWAL

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Controversy exists over the effect of tobacco deprivation in nicotine-dependent volunteers and the efficacy of nicotine in reversing performance decrements (Snyder & Hemmingfield, 1989). There is growing evidence that abstinence specifically impairs working memory (Mendrek et al., 2006) but less evidence for other cognitive domains such as sustained and divided attention and executive functioning.

The aim of this study was to assess the efficacy of nicotine (4 mg lozenge) and placebo on aspects of cognitive functioning, psychomotor performance, mood and withdrawal symptoms in male and female established smokers.

Male and female smokers (N = 22, 21 to 55 years) were recruited onto the study. Treatments commenced following 18 hours of abstinence with nicotine or placebo administered every 2 hours over an 8 hour period. Cognition and psychomotor performance were assessed 30 minutes post dose by a cognitive test battery including: the rapid visual information processing task (RVIP); continuous tracking task (CTT); critical flicker fusion (CFF); choice reaction time (CRT); Stroop test and Sternberg’s short term memory scanning task (STM). Withdrawal (Minnesota Withdrawal Scale) and mood were also assessed. A mixed-model ANCOVA was performed. Baseline measures were obtained just prior to treatment at approximately 17 hours of abstinence. Compared with placebo nicotine (4 mg) significantly improved vigilance (RVIP task), divided attention and executive functioning (CTT and Stroop test), working memory (STM), and sensori-motor performance (CRT) in abstinent volunteers (P ≤ 0.05 for all).

Measures of withdrawal including craving, difficulty concentrating, irritability and restlessness were also attenuated and affective state was improved following nicotine 4 mg.

Compared with placebo, nicotine (4 mg) improved measures of vigilance, memory and attention and reduced symptoms of withdrawal and improved mood (anxiety and depression). These findings suggest that repeated nicotine replacement therapy over a period of 8 hours can improve cognitive deficits associated with nicotine withdrawal.


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