Abstract

Background: Chronic morphine exposure creates dependence and, upon cessation, withdrawal symptoms. Studies indicate the phosphodiesterase type 5 (PDE5) inhibitor sildenafil may provide centrally mediated benefits against withdrawal, and therefore, this study evaluated morphine withdrawal signs in dependent mice with and without sildenafil treatment. Method: Dependence was induced by repeated treatments with morphine over 5 consecutive days. The morphine-dependent mice received sildenafil (1, 5, 10, or 20 mg/kg, i.p.) 15 min prior to the precipitation of morphine withdrawal. On the last day, naloxone was injected 2 hours after the last morphine injection, and withdrawal signs were evaluated for 30 min after naloxone injection. Results: The administration of sildenafil reduced all of the morphine withdrawal symptoms. Conclusions: The administration of sildenafil diminished morphine withdrawal signs in morphine-dependent mice. We hypothesize that the mechanism involves enhanced cyclic guanosine monophosphate (cGMP) activity, but further studies are recommended for a better understanding.

Keywords
Sildenafil, morphine withdrawal, mice.