

Evaluation of the effect of intraperitoneally injection of duloxetine in preventing of morphine dependence in male rat

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Background and Aims: Physical dependence to opioids has been described as expression of withdrawal symptoms as a result of abrupt withdrawal of opioids, reduction in opioid doses or administration of opioid antagonists. In this study using intraperitoneally injection of duloxetine from SNRIs we tried to clarify its role in morphine withdrawal syndrome.

Methods: Male Wistar rats (200-240g) were selected (n=6) randomly and divided into five groups. Morphine sulphate (daily 10mg/kg) distilled twice per day and injected daily. 1ml as SC injection. Duloxetine (10, 20, 40mg/kg) was dissolved in normal-saline and injected as IP by insulin syringe. We considered 2 control groups, one of them received morphine (daily 10mg/kg SC+normal saline) and the other took only morphine (daily 10mg/kg SC). Immediately, after morphine injection duloxetine was injected IP. On ninth day, an hour after the last dose of morphine and duloxetine, naloxane (4 mg/kg, IP) was injected and the withdrawal signs (Jumping, Standing on feet, Genital grooming, Abdomen Writhing, Teeth chattering and Wet dog Shake) were recorded for 60 minutes. Then the data was analyzed with one way ANOVA and post tests. The level of significant was set at $p < 0.05$ (5%).

Results and Conclusions: Duloxetine (20, 40mg/kg) evidently reduced all morphine-induced withdrawal symptoms while duloxetine (10mg/kg) suppressed standing on feet and genital grooming. Duloxetine didn't produce any withdrawal signs.

Keywords: Withdrawal symptoms; SNRIs; Duloxetine; Morphine