

Poster presentation

Effects of male sex hormones on morphine dependence

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Background

Androgenic steroid (testosterone) has different neurobehavioral effects including sexual behaviors, rewards, learning and locomotor activity. Moreover opioids and opioid receptors are highly expressed in the brain regions which mediate both reward and reproductive behaviors. Thus, we investigated the effect of male sex hormones on morphine dependence.

Materials and methods

Male swiss mice (weighing 25-30 g) were divided into 3 main groups: unoperated, sham-operated and orchidectomized (ORC). Morphine dependence was induced in mice by a repeated injection of increasing doses of morphine for 5 days. Then, dependency was assessed using the behavioral model of naloxan-induced withdrawal (jumping behavior and diarrhea). Also, the effect of male hormone (testosterone) in dependency to morphine was assessed in ORC mice.

Results

Obtained results, indicate that gonadectomized mice had a significant decrease in the number of jumps compared with non-operated groups ($p < 0.001$). However there were no significant changes in the mean weight loss. Pretreatment with physiologic dose of testosterone in ORC mice caused a significant increase in jumping but had no effects on weight loss in compare with the appropriate control group.

Conclusions

The results show that the sensitivity of brain opioid systems, controlling some of the behavioral effects of morphine, is influenced by testosterone. More studies are needed to find the underlying mechanism(s) of this effect.

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References

1. Clark AS, Henderson LP: **Behavioral and physiological responses to anabolic-androgenic steroids.** *Neuroscience and Biobehavioral Reviews* 2003, **27**:413-436.
2. Cullrier E, Yazdi MT, Castapi A, Ghosland S, Nyberg F, Maldonado R: **Effects of nandrolone on acute morphine responses, tolerance and dependence in mice.** *Eur J Pharmacol* 2003, **465**:69-81.
3. Craft RM, Clark JL, Hart SP, Pinckney MK: **Sex differences in locomotor effects of morphine in the rat.** *Pharmacol Biochem behav* 2006, **85**:850-858.
4. Riazi K, Honar H, Homayoun H, Rashidi N, Dehghani M, Sadeghipour H, Gaskari SA, Dehpour AR: **Sex and estrus cycle differences in the modulatory effects of morphine on seizure susceptibility in mice.** *Epilepsia* 2004, **49**:1035-1042.