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Effect of Morphine Self-Administration on Water and Food Intake in Rat

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Abstract

Objective

Some lines of evidences demonstrate that opioids are involved in water and food intake. On the other hand the dopaminergic mesolimbic system that consists of ventral tegmental area (VTA), nucleus accumbens (NAc) and medial prefrontal cortex is considered to be crucial in the rewarding actions of opiates. There are also reports showing that this system has some roles in appetite and drinking behaviors. The aim of this study was to investigate the effects of morphine self- administration on food and water intake in rats.

Materials and Methods

Male Wistar rats were first trained to receive small pellets of food by pressing active lever in self-administration apparatus. Rats were anaesthetized with ketamine and their jugular vein was cannulated. After recovery the animals were placed in self-administration apparatus and allowed to self-administer morphine (0.5 mg in 0.1 ml per infusion, in morphine group) or 0.1 ml saline (in saline group) during 10 consecutive days for 2 h /sessions. The amount of 24 h water and food intake during the last 3 days compared between saline and morphine groups.

Results

The results showed that water and food intake in morphine group in days 8, 9 and 10 was lower than saline group.

Conclusion

This study indicates that morphine self - administration alters food intake and drinking water but the exact mechanism(s) need to be more investigated.

Keywords: Drinking, Food, Morphine, Rat, Self-administration

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