

Co-administration of dextromethorphan with methamphetamine attenuates methamphetamine-induced rewarding and behavioral sensitization

葉健全

Yang PP;Huang EY;Yeh GC;Tao PL

摘要

Abstract

Methamphetamine (MA) is well known as a potent CNS stimulant, which produces strong rewarding and behavioral sensitization after repeated administration. In the present study, we investigated whether co-administration of dextromethorphan (DM) with MA could suppress these effects induced by acute and chronic MA treatment. The conditioned place preference (CPP) test was used to examine the rewarding/drug seeking effects and locomotor and stereotypic activities were measured to investigate behavioral sensitization induced by chronic MA. Our results revealed that co-administration of DM (20 mg/kg, ip) with MA (2 mg/kg, ip) almost completely abolished the MA-induced CPP and behavioral sensitization. Furthermore, both of the acute and chronic MA could result in an increase of dopamine (DA) turnover rate in the NAc and mPFC. The acute effects of MA on DA turnover rate could be attenuated by the co-administration of DM in both regions. The chronic effect of MA on DA turnover rate in the mPFC was also attenuated by the co-administration of DM. These results suggest that the effect of DM on blocking MA-induced rewarding and behavioral sensitization may be related to its effect on inhibiting the activity of DA neurons projected to mPFC and/or NAc