GLUCOCORTICOIDS MODULATE BEHAVIORAL EFFECTS INDUCED BY DOPAMINERGIC AGONISTS IN RATS

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Studies showing the presence of glucocorticoids, and their binding sites in the central nervous system indicate that these hormones may affect central neurotransmission. Both, dopaminergic brain system and glucocorticoids are considered to be involved in certain psychopathological conditions in humans, including depression, addiction or schizophrenia. The present study aimed to investigate the influence of glucocorticoids on dopamine agonists-induced stereotyped behavior and locomotor hyperactivity in rats. The results of the experiment demonstrate that prior to administration of prednisolone (4, 6, 10 or 20 mg/kg) or dexamethasone (4 or 8 mg/kg) intensified and prolonged the stereotypy induced by apomorphine (1 mg/kg sc) or amphetamine (2 mg/kg ip). The effect of dexamethasone was more potent. Amphetamine (0.4 mg/kg)- or amantadine (50 mg/kg)-induced locomotor hyperactivity was significantly reduced in rats pretreated with dexamethasone at a dose of 8 mg/kg or 4 mg/kg. Our observations suggest that exogenous glucocorticoids may enhance the activity of the dopaminergic agonists in the striatum but reduce it in the mesolimbic system of rats.

Key words: glucocorticoids, dexamethasone, prednisolone, apomorphine, amphetamine, amantadine, stereotypy, locomotor activity, rats

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