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MATERNAL DEPRIVATION IN RAT: MODEL OF VULNERABILITY TO OPIATE ADDICITON

V. Dauge

Neurobiology & Psychiatry, INSERM U513, Université Pierre et Marie Curie, Paris, France

Aims: The concept of individual vulnerability applied to mental pathology involves genetic background and/or environmental context. We studied the impact of environmental factors such as maternal deprivation on the appearance of a vulnerability to addiction. Maternal deprivation represents an early stress, a lack of nursing occurring during a period of intense neuronal development and then could lead to long term brain functioning abnormalities. It has been recently shown that > 900 genes are stably regulated by maternal care in rat.

Methods: Pups were separated from their mother and littermate the day after birth 3h/day for 14 days. Place preference and oral auto-administration tests were performed at the adulthood. Opioidergic and dopaminergic systems were studied.

Results: We showed that maternal deprivation leads in adult male rats to a hypersensitivity to the rewarding and reinforcing effects of morphine correlated with a basal hypoactivity of the striatal enkephalinergic system. Maternal deprivation did not change oral self-administration behavior of cocaine and alcohol. Adolescent chronic tetrahydrocannabinol exposure suppressed morphine dependence in adult deprived rats.

Conclusion: Maternal deprivation represents a highly valuable model to study environmentally triggered inter-individual vulnerability to opiate addiction. The suppression of morphine dependence in adult deprived rats after adolescent chronic tetrahydrocannabinol exposure raise the question of the beneficial effects of cannabis in opiate dependence vulnerability context.