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THE EFFECTS OF LOCUS COERULEUS INACTIVATION ON I.V SELF ADMINISTRATION OF MORPHINE AND MORPHINE WITHDRAWAL SYMPTOMS IN RATS

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Biochemical, behavioral, and electrophysiologic studies indicate that activation of the noradrenergic cells in the Locus coeruleus (LC) play an important role in the symptoms of opiate withdrawal. There for in this study the effects of LC inactivation on self-administration of Morphine and on morphine withdrawal syndrome in rats has been investigated.
Male rats (250-300gr) were anaesthetized and implanted with silastic catheters inserted in to the right jugular vein. After 5 days animals were fitted and the external end of the catheter was connected with a syringe-driven pump, then were placed in the self-administration apparatus that had two lever (active, passive) for 2 h every day. Active lever switched on the infusion pump for 10 sec, injecting. 1ml of saline or saline containing 5 mg/ml of morphine (training period was 10days). LC was inactivated by (1ul) lidocaein (%2) five min befor training.
Animals were allowed to self administer morphine (1mg/kg per inf.) ten consecutive daily 2-h session. During all morphine self administration session lever pressing behavior was measured. Our results show that LC inactivation 5min before morphine self administration produced a significant decrease in the initiation of morphine self administration during all session. After the last test session morphine withdrawal symptom signs (MWS) precipitated by naloxone were measured. Our results show that most of MWS (but not all) were decreased by LC inactivation in comparison with morphine group.

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