


 **Current Issue** **Browse Issues** **Search** **About this Journal** **Instruction to Authors** **Online Submission** **Subscription** **Contact Us** **RSS Feed**

Acta Medica Iranica

2009;47(4) : 241-249

A comparative evaluation of acute stress and corticosterone on the process of learning and emotional memory in rat

Vafaei AA*

Rashidy-Pour A

Learning and Memory Lab. Department and Research Center of Physiology, Semnan University of Medical Sciences

Abstract:

Background: Previous studies suggested that stressful events that release Glucocorticoid from adrenal cortex and also injection of agonists of glucocorticoids receptors probably affect emotional learning and memory process and modulate them. The aim of this study was to determine the effects of acute stress and systemic injection of Corticosterone (as agonist of glucocorticoid receptors) on acquisition (ACQ), consolidation (CONS) and retrieval (RET) of emotional memory in rat.

Methods: In this experimental study we used 180 male Wistar rats (220-250). At the first rats was training in one trial inhibitory avoidance task. On the retention test given 48 h after training, the latency to re-enter the dark compartment of the apparatus (Step-through latency, STL) and the time spent in light chamber (TLC) were recorded during 10 min test. Intraperitoneal corticosterone in doses of 0.5, 1 and 3mg/kg injected 30min before, immediately after instruction and 30min before retrieval test. Also some groups received 10min stressful stimulation by restrainer at the same time. At the end locomotor's activity was measured for all animals.

Results: The data indicated that administration of corticosterone 30min before ACQ (1mg/kg), and immediately after CONS (1, 3mg/kg) enhance and 30min before RET (1, 3mg/kg) impair emotional memory ($p < 0.05$). Acute stress impaired emotional memory in all phases ($p < 0.05$). Also acute stress and injection of Corticosterone have not significantly affect motor activity.

Conclusions: These findings show that Glucocorticoid receptors in activation dependently plays an important role in modulation of emotional spatial memory processes (ACQ, CONS and RET in new information) for emotional events and these effects varies in different phases.

Keywords:

Corticosterone , acquisition , consolidation , retrieval , memory , passive avoidance learning

TUMS ID: 14101

Full Text HTML  Full Text PDF  177 KB

top ▲

[Home](#) - [About](#) - [Contact Us](#)

TUMS E. Journals 2004-2009
Central Library & Documents Center
Tehran University of Medical Sciences

Best view with Internet Explorer 6 or Later at 1024*768 Resolutions