[1]梁小敏,陈甲,许志强.快速眼动期睡眠剥夺对大鼠海马齿状回神经元增殖与凋亡的影响[J].第三军医大学学报,2013,35(19):2014-2018.

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# 快速眼动期睡眠剥夺对大鼠海马齿状回神经
# 影响(PDF)

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《第三军医大学学报》[ISSN:1000-5404/CN:51-1095/R] 卷: 35 期数: 2013年第19期 页码: 2014-2018 栏目: 论著 出版日期: 2013-10-15

Title: Effects of rapid eye movement sleep deprivation on proliferation and apoptosis of hippocampal dentate gyrus neurons in rats

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关键词: 快速眼动期睡眠剥夺; 海马齿状回; 神经元增殖; 凋亡

Keywords: rapid eye movement sleep deprivation; hippocampal dentate gyrus; neuron proliferation; apoptosis

分类号: R329.28; R338.26; R338.63

文献标志码: A

摘要: 目的 探讨快速眼动期（rapid eye movement，REM）睡眠剥夺（sleep deprivation，SD）对大鼠海马齿状回神经元增殖与凋亡的影响。 方法 45只Sprague-Dawley大鼠按随机数字表法分为3组：①普通鼠笼对照组(CC，$n$=15)；②睡眠剥夺组(SD，$n$=15)；③睡眠恢复组(RS，$n$=15)。采用改良多平台睡眠剥夺法连续72 h剥夺大鼠REM睡眠后，利用BrdU 标记增殖细胞，运用免疫组织化学方法观察大鼠海马齿状回神经元增殖情况，并利用免疫荧光染色检测大鼠海马齿状回新生神经元标记物微管相关蛋白(doublecortin，DCX)和星形胶质细胞标记物胶质纤维酸性蛋白(glial fibrillary acidic protein，GFAP)的表达情况。采用TUNEL法观察大鼠海马神经元凋亡情况。 结果 免疫

组化结果显示SD组及RS组每张切片BrdU阳性细胞平均数均明显少于CC组($P<0.01$)，但是RS组与SD组相比无显著性差异($P>0.05$)。免疫荧光染色结果显示，DCX阳性细胞在BrdU阳性细胞中所占比例最大，各组间BrdU/DCX、BrdU/GFAP双阳性细胞的百分比相差不显著($P>0.05$)。CC组、SD组及RS组各组海马区均未见TUNEL阳性细胞。 结论 REM睡眠剥夺抑制海马齿状回神经元增殖，短期睡眠恢复后无显著改善。REM睡眠剥夺对海马齿状回神经元的分化和凋亡无影响。

Abstract: Objective To determine the effect of rapid eye movement (REM) sleep deprivation on the proliferation and apoptosis of hippocampal dentate gyrus neurons in rats. Methods Forty-five Sprague-Dawley rats were randomly divided into 3 groups: cage control group (CC), sleep deprivation group (SD) and sleep revival group (RS). The modified multiple platform method was used to establish sleep deprivation model for 72-hour REM sleep deprivation in rats. Immunohistochemical assay was used to observe the neuron proliferation and differentiation in the dentate gyrus of rats, while the apoptosis of hippocampal neuron was detected by TUNEL assay. Immunofluorescence staining was used to detect the expression of newborn neurons， biomarker, microtubule-associated protein, doublecortin (DCX), and astrocytes， biomarker, glial fibrillary acidic protein (GFAP) in the