

赵文娟, 张 玥, 邹春颖. 重复经颅磁刺激对侧脑室内注射A β 淀粉样蛋白的阿尔茨海默病大鼠学习记忆功能的影响[J]. 中国康复医学杂志, 2011, (1): 45-49

重复经颅磁刺激对侧脑室内注射A β 淀粉样蛋白的阿尔茨海默病大鼠学习记忆功能的影响 [点此下载全文](#)

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基金项目:

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摘要:

摘要目的: 旨在探讨重复经颅磁刺激 (rTMS) 对侧脑室内注射A β 淀粉样蛋白 (A β 25-35) 的阿尔茨海默病 (AD) 大鼠学习记忆障碍的影响。**方法:** 选用健康雄性SD大鼠, 采用电跳台法进行筛选, 分为模型组、磁刺激组、假手术组和正常组, 每组10只。A β 25-35侧脑室内注射制备AD大鼠模型。磁刺激组大鼠给予rTMS, 刺激强度0.5T, 频率为1Hz, 每次连续刺激30个脉冲, 刺激间隔2s; 每天2次, 间隔8h, 连续2周。假手术组线圈垂直于颅骨表面, 仅听见刺激声音实际未给予刺激; 模型组和正常组不给予rTMS。rTMS结束后, 所有大鼠均进行Morris水迷宫实验。结果: 采用侧脑室内注射淀粉样蛋白A β 25-35成功地制备AD大鼠模型。通过Morris水迷宫检测各组大鼠的记忆功能: ①定向航行实验: 磁刺激组大鼠的逃避潜伏期比模型组明显缩短 ($P < 0.01$), 但仍长于正常组和假手术组的平均逃避潜伏期 ($P < 0.01$); 假手术组和正常组组间比较无显著性差异 ($P > 0.05$); ②空间探索实验: 各组大鼠的平台象限游泳时间比较有显著性差异 ($F = 5.864, P < 0.05$), 磁刺激组大鼠的平台象限游泳时间比模型组的平台象限游泳时间所占百分比明显提高 ($P < 0.05$)。结论: rTMS能够部分修复侧脑室内注射A β 25-35的AD大鼠的记忆障碍, 是一种潜在的AD治疗方法。

关键词: [阿尔茨海默病](#) [重复经颅磁刺激](#) [A \$\beta\$ 淀粉样蛋白](#) [学习记忆功能](#)

A study on repetitive transcranial magnetic stimulation improving dysfunction of learning and memory of Alzheimer's disease rats by injecting β -amyloid protein into lateral cerebral ventricle [Download Fulltext](#)

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Abstract:

Abstract Objective: To investigate the effect of repetitive transcranial magnetic stimulation (rTMS) on dysfunction of learning and memory of Alzheimer's disease (AD) rat model by injecting β -amyloid protein (A β 25-35) into lateral cerebral ventricle. **Method:** Forty healthy male SD rats were randomly divided into four groups. The AD rat model was established by injecting A β 25-35 into lateral cerebral ventricle of rats. The sham operation group was given injecting normal saline at the same site. From the AD rat models, 10 rats were chosen as rTMS group. The rTMS group was given rTMS, 30 pulses for each session, with intensity of 0.5T and frequency of 1Hz, twice a day with 8h intersession, for 2 weeks. And then, Morris water maze tests were investigated to detect memory function in four groups. **Result:** The AD rat model was successfully made by injecting A β 25-35 into lateral cerebral ventricle. The results of Morris water maze behavioral tests: ①In place navigation test, the average escape latency in rTMS group was shorter than that in AD group significantly ($P < 0.01$) and longer than that in normal group and sham operation group ($P < 0.01$), but there was no significant difference between normal group and sham operation group ($P > 0.05$); ②In spatial probe test, the swim time in platform quadrant in rTMS group was longer than that in AD group ($P < 0.05$). **Conclusion:** The rTMS intervention can improve learning or memory function of AD rat model by injecting A β 25-35 into lateral cerebral ventricle. The outcome suggested that rTMS may be a potential rehabilitative treatment for AD.

Keywords: [Alzheimer's disease](#) [repetitive transcranial magnetic stimulation](#) [\$\beta\$ -amyloid protein](#) [learning and memory function](#)

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