中南大学学报(医学版) 2013, 38(11) 1167-1171 DOI: 10.3969/j.issn.1672-7347.2013.11.014 ISSN: 1672-7347 CN: 43-1427/R

论著

康复训练对血管性痴呆大鼠胰岛素抵抗及海马胰岛素降解酶的影响

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摘要： 目的：研究康复训练对血管性痴呆（vascular dementia，VD）大鼠胰岛素抵抗及海马胰岛素降解酶（IDE）的影响。方法：采用结扎双侧颈总动脉法制作VD大鼠模型，将45只SD大鼠随机分为康复组、制动组、假手术组。术后4周评估大鼠学习记忆能力。采用ELISA法检测大鼠脑缺血不同时间点血浆胰岛素水平，免疫组织化学技术检测大鼠IDE的表达。结果：行为学评估提示康复组学习记忆能力强于制动组（$P<0.05$）。制动组在不同时间点血胰岛素水平均高于假手术组（$P<0.05$）。术后7 d和28 d，康复组血胰岛素水平均低于制动组（$P<0.05$）。康复组海马IDE表达较制动组明显增加（$P<0.05$）。结论：康复训练改善VD大鼠认知功能障碍可能与改善胰岛素抵抗并增加海马IDE的表达有关。

关键词： 血管性痴呆 康复训练 胰岛素抵抗 胰岛素降解酶

Effect of rehabilitation training on insulin-resistance and hippocampus amyloid-beta peptide in rats with vascular dementia

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Abstract: Objective: To investigate the effect of rehabilitation training on insulin-resistance and insulindegrading enzyme (IDE) in the hippocampus in rats with vascular dementia. Methods: A total of 45 female Sprague-Dawley rats were randomly assigned into a rehabilitation group (n15), an immobilization group (n15), and a sham-operation group (n15). The rats in the former 2 groups were operated on to establish the experimental vascular dementia model by bilateral common carotid artery permanent ligation. The rats' learning and memory were assessed 4 weeks after the operation. The plasma level of insulin was determined by ELISA at different time points after the operation. Immunohistochemical staining was used to detect the IDE expression in the hippocampus area. Results: The rats in the rehabilitation group showed significantly better learning ability than that in the immobilization group ($P<0.05$). The plasma level of insulin in the rehabilitation group was lower than that in the immobilization group ($P<0.05$), IDE expression in the rehabilitation group was higher than that in the immobilization group ($P<0.05$) at 7 d and 28 d after the operation. Conclusion: Rehabilitation can accelerate the recovery of learning and memory in rats with vascular dementia, and the mechanism is possibly related to the amelioration of insulin resistance and increase of IDE expression in the hippocampus.

Keywords: vascular dementia rehabilitation training insulin-resistance insulin-degrading enzyme

收稿日期 2012-09-19 修回日期 网络版发布日期

DOI: 10.3969/j.issn.1672-7347.2013.11.014

基金项目:

衡阳市科技计划项目（2010KJ43）。

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