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运动训练对脑出血大鼠脑组织中IL-10和Caspase-3表达的影响

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孙 皓 郭富强 王多姿 张红艳 曾宪容 汪瑾宇 代红源 吴文斌 潘福琼

四川省人民医院神经内科,成都, 610072

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摘要：

目的：研究运动训练与脑出血大鼠脑组织中白细胞介素-10（IL-10）和半胱氨酸天冬氨酸蛋白酶-3（Caspase-3）的相互关系，探讨运动训练促进脑出血（ICH）后神经功能恢复的机制。方法：采用自体血注入法将80只SD大鼠制作成右侧纹状体脑出血模型，造模成功后按照随机化的原则将其分为对照组和运动训练组（运动组），每组又分为第1、3、7、14、21天 5个时间点。运动组行网屏训练、平衡木训练、滚笼训练，对照组不作任何干预。分别于不同时间点对大鼠进行神经功能评分。然后将其处死，取右侧脑组织用免疫组化和原位杂交的方法检测IL-10和 Caspase3的蛋白及mRNA表达。结果：在脑出血后第14天和第21天运动组大鼠的神经功能评分优于对照组，运动组大鼠的IL-10表达高于对照组；在脑出血后第7天运动组大鼠的Caspase 3表达低于对照组。结论：运动训练可使脑出血大鼠脑组织内IL-10含量增高，而使Caspase-3的含量降低，这可能是运动训练促进神经功能的恢复机制之一。

关键词：脑出血 运动训练 白细胞介素-10 半胱氨酸天冬氨酸蛋白酶-3 神经功能

Effect of exercises on the expression of caspase-3 and IL-10 in the brain of rats after intracerebral hemorrhage

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Department of Neurology, Sichuan Provincial People′s Hospital, Chengdu,610072

Fund Project:

Abstract:

Objective: To study the interrelation between exercises and interlukin-10(IL-10) and cysteine asparate protease-3 (caspase-3) in the brain of rats after intracerebral hemorrhage(ICH),and to explore the mechanism of exercises promoting the neurological function recovery after ICH. Method: Eighty SD rats were made to be the models of ICH in right striatum with its autoblood.The successful models were randomly divided into exercises group(Group E) and control group(Group C), each group including 1,3,7,14,21d sub-groups. Group E exercised with rolling cage training, net curtain training and walking balance beam training, but Group C had no intervention. The neurological function of rats were evaluated at different time points.Then rats were executed and the right brains were taken out for the detection of protein and mRNA expressions of IL-10 and caspase-3 by immunohistochemistry and hybridization in situ. Result: At the 14thd and 21std after ICH the neurological function scores in Group E were better than that in Group C, and the expression of IL-10 in Group E were higher than that in Group C. At the 7thd after ICH the expression of caspase-3 in Group E were lower than that in Group C. Conclusion: Exercises could elevate the content of IL-10 in the brain of ICH rat and reduce the content of caspase-3 in the brain of ICH rat. Exercises could be one of the mechanisms of promoting neurological function recovery.

Keywords: intracerebral hemorrhage exercises interleukin-10 cysteine asparate protease-3 neurological function

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