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行为学训练对局灶性脑缺血大鼠梗死侧海马CA3区突触结构的影响

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基金项目:

DOI:

摘要:

摘要目的:研究行为学训练对局灶性脑缺血大鼠梗死侧海马CA3区突触结构的影响并探讨其机制。方法:48只健康雄性Wistar大鼠制成右侧大脑中动脉脑梗死模型后随机分为训练组和对照组,每组各24只,2组又随机分为7d、14d和21d 3个时段进行观察,每个时段8只。训练组于造模1d后,给予Morris水迷宫训练,对照组置于普通笼中正常喂养,不给予干预。透射电子显微镜下观察各时间点不同组大鼠梗死侧海马CA3区突触结构参数的变化。结果:电镜下观察到各时段电针组梗死侧海马CA3区突触后致密物(PSD)厚度、活性区宽度、突触后膜曲率均较对照组明显增加,差异有显著性意义(P<0.05)。结论:行为学训练可以改善局灶性脑梗死大鼠梗死侧海马CA3区突触结构参数的表达,促进神经功能的恢复,从而改善脑梗死大鼠的学习记忆能力。

关键词:脑缺血 水迷宫 突触结构 大鼠

The effect of behavior training on synaptic structures of hippocampal CA3 neurons in rats with ischemia cerebral infarction

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Fund Project:

Abstract:

Abstract Objective: To evaluate the effects of behavior training on synaptic interface structures around the area of cerebral infarction and to explore its role of functional recovery in cerebral infarction. Method: Forty-eight adult male Wistar rats were randomly divided into training group and control group after the establishment of models of ischemic cerebral infarction, and the training group was divided into 7d, 14d, and 21d sub-groups. Training group was given morris water training 1 day after model establishing. The control group fed normal ordinary apartments and was not given any treatment. Synaptic ultrastructure in the hippocampal CA3 area in ischemia side were observed under transmission electron microscopy. Result: The synaptic curvatures and thickness of postsynaptic density (PSD) as well as the length of active area were obviously increased in training group when compared with control group (P<0.05). Conclusion: Behavior training can promote the recovery of cerebral infarcted neural function and the learning and memory abilities in rats, which are likely to be related to the synaptic structure changes in hippocampus CA3 area.

Keywords:cerebral infarction morris water training synaptic structure rat

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