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跑台训练对大鼠脑缺血再灌注后脑组织基质金属蛋白酶-2和血管内皮生长因子表达的影响

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摘要：

摘要目的：探讨跑台训练对大鼠脑缺血再灌注神经功能恢复和缺血脑组织中MMP-2和VEGF表达的影响。方法：用线栓法制作Wistar大鼠大脑中动脉梗死再灌注模型，35只大鼠随机分为假手术组、跑台训练组和手术对照组。跑台训练和手术对照组又分为跑3天、跑7天、跑14天3个亚组，各亚组及假手术组每组5只大鼠。跑台组于术后第3天开始给予跑台训练，假手术组及手术对照组不予跑台训练。于跑3天、跑7天、跑14天3个时间点进行神经功能评估后处死大鼠。采用RT-PCR技术测定缺血区脑组织中MMP-2及VEGF的水平。结果：跑台训练组在跑7天、跑14天神经功能评分明显低于对照组(P＜0.05)。跑台训练组缺血区脑组织在跑7天、跑14天MMP-2水平高于对照组（P＜0.05），各时间点VEGF水平均高于对照组(P＜0.05)。结论：跑台训练能通过上调MMP-2及VEGF的表达,促进血管形成和神经再生等,有利于脑损伤后神经功能的恢复。

关键词：脑缺血　跑台训练　基质金属蛋白酶-2　血管内皮生长因子

Effects of treadmill training on matrix metalloproteinases-2 and vascular endotheliar growth factor in ischemic brain of rats after cerebral ischemia-reperfusion

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Abstract:

Abstract Objective: To study the effects of treadmill training on the recovery of neurological function and the expression of MMP-2 and VEGF in ischemic brain of rats after cerebral ischemia-reperfusion. Method: A total of thirty-five male adult Wistar rats were given cerebral ischemia-reperfusion and were randomly divided into sham-operated group, control group and exercise group, with treadmill running. Neurological function was measured at the 24h after the operation, the 3rd, the 7th and the 14th day after the beginning of exercise respectively. RT-PCR was used to detect the expression of MMP-2 and VEGF in the ischemic brain at the 3rd, 7th and 14th day. Result: Compared with those in the control group, the behavior scores in exercise group was much lower at the 7th and 14th day (P<0.05). MMP-2 expression in exercises group was higher than in the control group at the 7th and 14th day (P<0.05). The expression of VEGF in the exercise group was greater than that in the control group at all points (P<0.05). Conclusion: The expression of MMP-2 and VEGF in the brain ischemic area can be improved through treadmill training. It can promote recovery of neurological function by developing neurogenesis and promoting vascularization after cerebral infarction.

Keywords:cerebral ischemia　exercise　matrix metalloproteinases-2　vascular endotheliar growth factor

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