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论著

二苯乙烯苷对脑缺血再灌注大鼠神经保护的作用机制

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摘要：

目的：探讨二苯乙烯苷（tetrahydroxystilbene glucoside，TSG）对脑缺血再灌注大鼠的神经保护作用机制。方法：雄性SD大鼠96只，随机分为4组：对照组，模型组，小剂量［60 mg/(kg·d)］TSG组，大剂量［120 mg/(kg·d)］TSG组，每组24只。TSG或生理盐水灌胃7 d后应用线栓法制备大鼠大脑中动脉缺血再灌注损伤模型，术后6，24，48 h及7 d观察动物神经行为学变化并评分，免疫组织化学法检测神经生长因子（NGF）、生长相关蛋白(GAP)-43和蛋白激酶A催化亚基(PKAc)蛋白的表达。结果：神经功能评分显示模型组各时间点均有明显的神经功能缺损症状，除6 h时间点外，两个剂量TSG治疗组其余各时间点神经功能评分明显低于模型组，差异有统计学意义（P＜0.05）；与模型组相比，两个剂量TSG组各时间点NGF，GAP-43及PKAc蛋白表达均升高，差异有统计学意义（P＜0.01）。NGF，GAP-43及PKAc蛋白表达两两之间呈正相关。结论：TSG可能通过诱导大鼠脑缺血-再灌注损伤后NGF蛋白表达上调，激活PKA通路，增加轴突再生标志物GAP-43蛋白的表达，从而起到神经保护作用。

关键词： 二苯乙烯苷 脑缺血再灌注 神经生长因子 生长相关蛋白-43 蛋白激酶A催化亚基

Neuroprotective mechanism of tetrahydroxystilbene glucoside on rats after cerebral ischemia-reperfusion

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Abstract:

ObjectiveTo investigate the neuroprotective mechanism of tetrahydroxystilbene glucoside (TSG), a Chinese medicine, on rats after cerebral ischemia-reperfusion.MethodsA total of 96 Sprague-Dawley male rats were divided into 4 groups (n=24): a control group, an ischemia-reperfusion (I/R) model group, a low dose TSG ［60 mg/(kg·d)］group, and a high dose TSG ［120 mg/(kg·d)］group. After 6 days intragastric(ig) administration of TSG or natural saline (I/R group),reversible middle cerebral artery occlusion (MCAO) model was established by intraluminal suture technique. The rats of control group were operated on while the middle cerebral artery was not blocked. At 6 h, 24 h, 48 h, and 7 d after the reperfusion, behavior test was used to evaluate the neurological deficiency of each group. The protein expressions of nerve growth factor (NGF), growth associated protein (GAP)-43, and protein kinase A catalytic subunit (PKAc) in the cortex were measured by immunohistochemical method.ResultsCompared with the I/R group, the neurological defect scores of the 2 TSG groups were significantly lower except at 6 h after the reperfusion. Compared with the I/R group, the protein expression of NGF, GAP-43, and PKAc after the reperfusion of the 2 TSG groups increased significantly. ConclusionThe protein expression of NGF may increase when treated with TSG after cerebral ischemia-reperfusion, which activates the PKA pathway and increases the protein expression of GAP-43 that protects the neuron.

Keywords: TSG;cerebral ischemia-reperfusion injury;NGF;GAP-43;PKAc

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