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摘要:

目的研究黄芩苷对大鼠局灶性脑缺血再灌注损伤后海马神经元热休克蛋白(HSP)70表达的影响。方法Wistar大鼠随机分为假手术组、脑缺血再灌注模型组、黄芩苷组($50, 100$ 和 $200 \text{ mg} \cdot \text{kg}^{-1}$)以及尼莫地平 $0.4 \text{ mg} \cdot \text{kg}^{-1}$ 组。利用大鼠大脑中动脉内栓线阻断法制备局灶性脑缺血再灌注损伤模型, 通过HE染色、流式细胞术、免疫组织化学以及RT-PCR等方法, 观察黄芩苷对缺血再灌注损伤后海马神经元热休克蛋白(HSP)70表达的影响。结果黄芩苷可明显改善缺血再灌注损伤后海马神经元热休克蛋白(HSP)70表达, 降低神经细胞凋亡率, 促进HSP70基因的转录与翻译。结论黄芩苷对大鼠局灶性脑缺血再灌注损伤具有保护作用, 其作用机制可能与黄芩苷促进HSP70表达、抑制神经细胞凋亡有关。

关键词: 黄芩苷 脑缺血 再灌注损伤 热休克蛋白70 细胞凋亡

Effect of baicalin on HSP70 expression of hippocampal neurons in focal brain ischemia-reperfusion injury rats

LIU Ping; WANG Ju-ying; LI Qian; XU Fu-yu; WANG Zi-ying; XU Hong-yan; LIU Zhao-ping; ZHANG Xiu-mei

Abstract:

AimTo investigate the effect of baicalin on the hippocampal neuronal apoptosis and the expression of HSP70 in rats with focal brain ischemia-reperfusion injury. MethodsOne hundred and twenty male Wistar rats were randomly divided into six groups: sham operated group, ischemia-reperfusion group, nimodipine group and three baicalin groups, to which baicalin was administered at doses of 50, 100 and $200 \text{ mg} \cdot \text{kg}^{-1}$, separately. The models of focal brain ischemia-reperfusion injury induced by middle cerebral artery occlusion (MCAO) were used in this study. HE stain was used to observe the pathological changes. Flow cytometry (FCM) was used for determination of neuronal apoptosis. HSP70 protein expression of the neurons was detected with immunohistochemistry. Reverse transcription polymerase chain reaction (RT-PCR) was used to detect the expression of the mRNA level of HSP70. ResultsBaicalin can significantly relieve the pathological changes and inhibit apoptosis in hippocampus CA1 area, and at the same time increase the expression of HSP70 and HSP70 mRNA. ConclusionBaicalin can relieve brain damage induced by focal brain ischemia-reperfusion in rats, which may be related to inhibiting the process of the neuronal apoptosis. The mechanism of antiapoptosis effect of baicalin may be related to the promotion of transcription of HSP70 mRNA and increasing the expression of the protein.

Keywords: brain ischemia reperfusion injury heat-shock proteins 70 apoptosis baicalin

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