

论著

复方二精灵多糖对谷氨酸诱导的海马神经元凋亡的保护作用

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摘要 目的 探讨中药复方二精灵多糖(EJL)预防阿尔茨海默病的机制。方法 实验分为正常对照组、模型(100 $\mu\text{mol} \cdot \text{L}^{-1}$ 谷氨酸诱导)组、阳性对照组(50 $\mu\text{mol} \cdot \text{L}^{-1}$ 多奈哌齐)及EJL实验组(0.5, 1.0, 2.0及3.0 $\text{g} \cdot \text{L}^{-1}$)。体外培养9 d的海马神经元先用各药物预处理一定时间后,加入谷氨酸。采用MTT法、Hoechst 33258荧光染色、流式细胞术和Western蛋白质印迹法等方法检测细胞凋亡。结果 MTT检测发现,随着EJL浓度的增加,细胞的存活率也增加;与模型组((59.6 \pm 4.6)%)比较,EJL 2.0及3.0 $\text{g} \cdot \text{L}^{-1}$ 组细胞存活率明显升高((82.8 \pm 2.8)%和(89.4 \pm 4.1)%; $n=3$, $P<0.05$)。荧光染色观察形态学变化发现,EJL预处理组凋亡细胞明显减少。FITC-Annexin V和PI双染,在直方图中可以发现,模型组的凋亡率为32.33%,EJL预处理组则分别为24.33%,22.01%及12.12%。Western蛋白质印迹法结果显示,与模型组比,EJL 2.0 $\text{g} \cdot \text{L}^{-1}$ 预处理可以显著提高Bcl-2蛋白表达量,减少Bax蛋白表达量。结论 EJL对海马神经元有一定的保护作用。

关键词 [复方二精灵](#), [多糖](#) [海马](#) [神经元](#) [谷氨酸](#) [细胞凋亡](#)

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Neuroprotective effect of polysaccharides from Erjingling prescription on hippocampal neuron apoptosis induced by glutamate

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Abstract

AIM To explore the mechanism of polysaccharides from Erjingling(EJL), a traditional Chinese medicine prescription preventing Alzheimer disease. **METHODS** Cultured hippocampal cells were randomly divided into seven groups: normal group, glutamate (100 $\mu\text{mol} \cdot \text{L}^{-1}$) group (model), donepezil (50 $\mu\text{mol} \cdot \text{L}^{-1}$) group and EJL (0.5, 1.0, 2.0 and 3.0 $\text{g} \cdot \text{L}^{-1}$) groups. After culturing 9 d in vitro, hippocampal cells were pretreated with different concentration of EJL or donepezil respectively for a period of time, then exposed to glutamate. The apoptosis effects were detected by using MTT, Hoechst 33258, flow cytometry and Western blot assays. **RESULTS** The survival rate of hippocampal cells was raised with the increasing in EJL's concentration. Compared with model group ((59.6 \pm 4.6)%), 2.0 and 3.0 $\text{g} \cdot \text{L}^{-1}$ EJL had significant effect on the cell survival rate ((82.8 \pm 2.8)% and (89.4 \pm 4.1)%, $n=3$, $P<0.05$). The Hoechst 33258 staining was revealed that EJL-pretreatment could obviously reduce the apoptosis of neurons. By FITC-Annexin V/PI staining, the data demonstrated that apoptosis rate of glutamate group was 32.33%, but EJL-pretreated was 24.33%, 22.01% and 12.12%, respectively. Moreover, 2.0 $\text{g} \cdot \text{L}^{-1}$ EJL could remarkably increase the expression of Bcl-2 protein and decrease Bax protein. **CONCLUSION** EJL could protect the apoptosis of hippocampal neurons induced by glutamate.

Key words [Erjingling prescription](#) [polysaccharides](#) [hippocampus](#) [neuron](#) [glutamate](#) [apoptosis](#)

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