

论文

Alpha-DHEC神经保护作用依赖核因子Kappa B的激活

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摘要:

目的 探讨α-二氢麦角隐亭(alpha-DHEC)的神经保护作用与核因子Kappa B(NF-κB)激活的相关性。方法 采用大鼠大脑中动脉闭塞诱导神经元凋亡,用迁移率改变法(EMSA)检测NF-κB活性,流式细胞仪(FCM)和TUNEL法检测神经元凋亡。结果 脑缺血1, 3, 6和12 h均伴有NF-κB激活,其中以缺血3 h尤为显著。100 μg.kg⁻¹和150 μg.kg⁻¹的alpha-DHEC预防给药均可明显抑制缺血3 h诱发的神经元凋亡,当用PDTC选择性阻断NF-κB活性后,alpha-DHEC的神经保护作用明显减弱。结论 alpha-DHEC的神经保护作用可能依赖NF-κB的激活。

关键词: α-二氢麦角隐亭; 核因子kappa B; 脑缺血; 细胞凋亡

NEUROPROTECTIVE EFFECT OF ALPHA-DIHYDROERGOCRYPTINE DEPENDS ON ACTIVATION OF NUCLEAR FACTOR KAPPA B

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Abstract:

AIM To investigate the relationship between the neuroprotective effect of alpha-dihydroergocryptine (alpha-DHEC) and the activation of nuclear factor Kappa B (NF-Kappa B). METHODS Adult male rats were subjected to cerebral ischemia induced by middle cerebral artery occlusion (MCAO). DNA binding activity of NF-Kappa B was determined with electrophoretic mobility shift assay (EMSA) in animals subjected to varying durations of cerebral ischemia. Neuroapoptosis induced by ischemic damage was measured by deoxynucleotidy transferase-mediated dUTP nick end labeling (TUNEL) assay and flow cytometry (FCM) analysis. RESULTS No change was observed in nuclear NF-Kappa B DNA binding in normal animal. A low level of constitutive NF-Kappa B DNA binding was detected in animals subjected to cerebral ischemia of 1 h, and significant increase in the amount of active NF-Kappa B in nuclear extracts was observed after cerebral ischemia of 3 h, 6 h, and 12 h. Peak of NF-Kappa B DNA binding was observed at the time point of 3 h. Animals subjected to cerebral ischemia of 3 h potentially initiates neuroapoptosis and activates NF-Kappa B in nuclear extract. Alpha-DHEC (100 μg.kg⁻¹ and 150 μg.kg⁻¹) showed significant protective effect on neuroapoptosis-induced by cerebral ischemia of 3 h, and inhibiting NF-Kappa B activation using 100 mg.kg⁻¹ pyrrolidinedithiocarbamate (PDTC) in the continuous presence of alpha-DHEC, the neuroprotective effect of alpha-DHEC was blocked. CONCLUSION The findings suggest that the neuroprotective effect of alpha-DHEC may depend on the activation of NF-Kappa B.

Keywords: nuclear factor kappa B apoptosis cerebral ischemia alpha-dihydroergocryptine

收稿日期 2000-03-18 修回日期 网络版发布日期

DOI:

基金项目:

通讯作者:

作者简介:

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