[1]陈筱山,何选丽,朱丽娟,等.外源性硫化氢对原代神经元早老素1和β淀粉样蛋白的影响[J].第三军医大学学报,2013,35(19):2060-2064.
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Title: Effects of exogenous hydrogen sulfide on expression of presenilin 1 and β-amyloid in primary cultured neurons

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摘要: 目的 探讨外源性H_2S对原代培养皮质神经元早老素1(presenilin 1，PS1)和β淀粉样蛋白(β-amyloid peptide, Aβ)的影响及机制。 方法 ①NaHS为外源性H_2S的供体，不同浓度NaHS（0、5、10、20、30、40、50 μmol/L）作用于原代培养的皮质神经元，TUNEL法检测细胞凋亡，酶联免疫吸附实验(ELISA)检测Aβ1-42水平，Western blot检测PS1蛋白表达水平。②神经元分为对照组（0 μmol/L NaHS）、20 μmol/L NaHS组、A干预组（NaHS 20 μmol/L加PI3K通路阻断剂LY294002 20 μmol/L）和B干预组（NaHS 20 μmol/L加MAPK通路阻断剂PD98059 20 μmol/L），Western blot检测PS1蛋白表达。 结果 ①5~20 μmol/L浓度NaHS干预时，不引起明显神经元凋亡；30~50 μmol/L时，神经元凋亡明显增加（$P<0.05$）；10、20 μmol/L浓度NaHS显著降低Aβ1-42水平和PS1蛋白表达水平（$P<0.05$）。②与对照组相比，20 μmol/L NaHS组和B干预组PS1蛋白表达降低（$P<0.05$），而A干预组PS1蛋白表达无改变（$P>0.05$）；而20 μmol/L NaHS组和B干预组间无差异（$P>0.05$）；与A干预组相比，B干预组PS1蛋白表达显著降低（$P<0.05$）。 结论 低浓度外源性H_2S(30 μmol/L浓度NaHS范围内)不引起神经元明显凋亡，降低Aβ1-42水平和PS1蛋白表达，并可能通过PI3K信号通路发挥降低PS1蛋白表达的作用。

Abstract: Objective To determine the effect of exogenous hydrogen sulfide (H_2S) on the expression of presenilin 1 (PS1) and β-amyloid (Aβ) in primary cultured neurons. Methods Sodium hydrosulfide (NaHS), as H_2S donor, was used

to treat primary cultured cortical neurons derived from newborn SD rats at a dose of 0, 5, 10, 20, 30, 40 and 50 μmol/L respectively for 24 h. Cell apoptosis was observed by TUNEL assay. Aβ1-42 level in the supernatant was measured by ELISA. The expression of PS1 protein was determined by Western blotting. The neurons was treated respectively by 0 μmol/L NaHS (control), 20 μmol/L NaHS, 20 μmol/L NaHS+20 μmol/L LY294002 (PI3K signal inhibitor), and 20 μmol/L NaHS+20 μmol/L PD98059B (MAPK signal inhibitor). Western blotting was used to detect the protein level of PS1. Results The apoptotic rate had no obvious change when the dose of NaHS was 5, 10 and 20 μmol/L, and was significantly increased at the dose of 30-50 μmol/L (P<0.05). NaHS treatment at 10 and 20 μmol/L resulted in a decrease in Aβ1-42 concentration in the supernatant (P<0.05) and in the protein level of PS1 (P<0.05). Compared to the control, the expression of PS1 in the neurons treated by 20 μmol/L NaHS in presence or absence of PD98059B was significantly decreased (P<0.05), but had no change in the cells treated in presence of LY294002 (P>0.05). There was also no difference in the protein level between the cells in presence or absence of PD98059B (P>0.05). The PS1 protein level was decreased in the cells treated by PD98059B than those by LY294002. Conclusion Low-dosed exogenous H_2S (<30 μmol/L NaHS) does not induce obvious apoptosis, and decreases the protein levels of Aβ1-42 and PS1 in primary cultured neurons, which probably through PI3K signal pathway.

参考文献/REFERENCES:

陈筱山,何选丽,朱丽娟,等. 外源性硫化氢对原代神经元早老素1和β淀粉样蛋白的影响[J].第三军医大学学报,2013,35(19):2060-2064.

相似文献/REFERENCES:

[1]李钢,杨双强.PI3K/Akt通路在硫化氢后处理保护心肌细胞缺氧复氧损伤中的作用[J].第三军医大学学报,2011,33(17):1803.
Li Gang,Yang Shuangqiang.Role of PI3K/Akt pathway in protection of cardiomyocytes against hypoxia-reoxygenation injury induced by hydrogen sulfide post-conditioning[J].J Third Mil Med Univ,2011,33(19):1803.

[2]罗孝美,陈远寿,潘贵书,等.海洛因成瘾大鼠硫化氢/胱硫醚β-合酶体系的变化[J].第三军医大学学报,2011,33(20):2177.
Luo Xiaomei,Chen Yuanshou,Pan Guishu,et al.Changes of hydrogen sulfide/cystathionine-β-synthase system in hippocampus of heroin-addictive rats[J].J Third Mil Med Univ,2011,33(19):2177.

[3]谭华炳,朱德文,谢杏榕,等.非酒精性脂肪性肝病兔脂肪肝程度与肝组织硫化氢浓度的关系[J].第三军医大学学报,2010,32(22):2440.

[4]沈钦海,秦召敏,于天贵,等.外源性硫化氢对大鼠肝纤维化的影响[J].第三军医大学学报,2012,34(08):754.
Shen Qinhai,Qin Zhaomin,Yu Tiangui,et al.Effect of exogenous hydrogen sulfide on liver fibrosis in rats[J].J Third Mil Med Univ,2012,34(19):754.

[5]韩晓伟,段茂海,陈远寿,等.外源性硫化氢改善癫痫大鼠脑认知功能障碍[J].第三军医大学学报,2012,34(13):1269.
Han Xiaowei,Duan Maohai,Chen Yuanshou,et al.Exogenous hydrogen sulfide improves epilepsy-induced cognitive dysfunction in rats[J].J Third Mil Med Univ,2012,34(19):1269.

[6]戚韵雯,何选丽,朱丽娟,等.糖尿病小鼠认知功能及不同时相点硫化氢的表达[J].第三军医大学学报,2013,35(24):2625.
Qi Yunwen,He Xuanli,Zhu Lijuan,et al.Cognitive function and cerebral hydrogen sulfide content in diabetic mice[J].J Third Mil Med Univ,2013,35(19):2625.