

论文

DHA对老年大鼠嗅球神经因子和载脂蛋白影响

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摘要:

目的 探讨二十二碳六烯酸(DHA)对老年大鼠嗅球中神经生长因子(NGF)和脑源性神经营养因子(BDNF)和载脂蛋白E(APOE)和J(APOJ)的影响。方法 分别用180、360 mg/kg DHA灌胃24月龄老年大鼠49 d,处死大鼠取嗅球,用酶联免疫吸附试验(ELISA)测定脑组织NGF、BDNF含量,用western blotting测定载脂蛋白E和J的表达量。结果 180、360 mg/kg DHA组NGF分别为(11.17±1.27)、(12.48±2.35)pg/mg,与老年对照组(8.21±1.17)pg/mg比较,分别提高了36.05%和52.01%;180、360 mg/kg DHA组BDNF分别为(28.23±2.74)、(30.76±2.71)pg/mg,与老年对照组比较,分别提高了17.45%与28.01%;同时DHA组还增加老年大鼠嗅球的载脂蛋白APOJ含量,降低APOE的含量。结论 二十二碳六烯酸对老年大鼠嗅球有保护作用。

关键词: 二十二碳六烯酸 神经营养因子 载脂蛋白E 载脂蛋白J

Effects of DHA on NGF, BDNF, APOE, APOJ in olfactory bulb of aged rat

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Abstract:

Objective To explore the effects of docosahexaenoic acid(DHA)on neurotrophic growth factors(NFG), brain derived neurotrophic factor(BDNF),apolipoprotein E(APOE),and apolipoprotein J(APOJ)in olfactory bulb of aged rat.Methods Sprague-Dawley(SD)rats of 24 months were treated with 180,360 mg/kg · d of DHA via oral gavage for 49 days.The rats were killed and the olfactory bulb was collected.NGF,BDNF levels were determined with enzym-linked immunosorbent assay(ELISA)and western blotting method was used to assay APOE and APOJ protein levels.Results DHA supplementation increased the levels of NGF(11.17±1.27 pg/mg for 180 mg/kg DHA group,12.48±2.35 pg/mg for 360 mg/kg DHA group)with the increases of 36.05% and 52.01%,respectively,compared with those of the aged group (8.21±1.17 pg/mg).The levels of BDNF(28.23±2.74 pg/mg for 180 mg/kg DHA group,30.76±2.71 pg/mg for 360 mg/kg DHA group)increased by 17.45% and 28.01%,respectively,compared with those of the aged rat.DHA also increased APOJ protein level and decreased APOE protein level in olfactory bulb of the aged rat,compared with those of the control group significantly.Conclusion Docosahexaenoic acid has a protective effect on olfactory bulb of aged rat.

Keywords: docosahexaenoic acid neurotrophic factor brain derived neurotrophic factor apolipoprotein E apolipoprotein J

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参考文献:

[1] Moriguchi T,Greiner RS,Salem Jr N.Behavioral deficits associated with dietary induction of decreased brain docosahexaenoic acid concentration[J].Journal of Neurochemistry,2000,75: 2563-2573.

[2] Slotnick B.Animal cognition and the rat olfactory system[J]. Trends in Cognitive Sciences,2001,5: 216-222.

[3] Slotnick B,Bodyak N.Odor discrimination and odor quality perception in rats with disruption of

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connections between the olfactory epithelium and olfactory bulbs[J]. Journal of Neuroscice,2002,22: 4205-4216.

[4] Greiner RS,Moriguchi T,Slotnick BM,et al.Olfactory discrimination deficits in n-3 fatty acid-deficient rats[J].Physiology Behave, 2001,72: 379-385.

[5] Benowitz LI,Perrone-Bizzozero NI,Neve RL,et al.GAP-43 as a marker for structural plasticity in the mature CNS[J].Prog Brain Res,1990,86: 309-320.

[6] Siuciak JA,Boylan C,Fritsche M,et al.BDNF increases monoaminergic activity in rat brain following intracerebroventricular or intraparenchymal administration[J].Brain Res,1996,712(1): 11-20.

[7] 黄芳,吴小南,陈洁,等.亚油酸/二十二碳六稀酸对胃癌细胞凋亡作用[J].中国公共卫生,2010,26(2): 198-200.

[8] Lefebvre PP,Malgrange B,Staecker H,et al.Neurotrophins affect survival and neuritogenesis by adult injured auditory neurons in vitro[J].Neuroreport,1994,5(8): 865-868.

[9] Poirier J,Baccichet A,Dea D,et al.Cholesterol synthesis and lipoprotein reuptake during synaptic remodelling in hippocampus in adult rats[J].Neuroscience,1993,55: 81-90.

[10] Ignatius MJ,Gebicke-Haerter PJ,Skene JH,et al.Expression of apolipoprotein E during nerve degeneration and regeneration[J]. Proc Natl Acad Sci USA,1986,83: 1125-1129.

[11] Trougakos IP,Gonos ES.Functional analysis of clusterin/apolipoprotein J in cellular death induced by severe genotoxic stress [J].Ann N Y Acad Sci,2004,1019: 206-210.

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3. 公为洁, 高田林, 程佳, 姜路路, 孙士华, 陈晶晶, 谢克勤, 赵秀兰.DHA对脂多糖致小鼠急性肺损伤保护作用[J]. 中国公共卫生, 2012,28(6): 799-801
4. 覃远汉, 周添标, 苏丽娜, 雷凤英, 赵艳君, 黄韦芳, 彭小铜.肾小球硬化大鼠血清和肾脏apoE水平及作用[J]. 中国公共卫生, 2011,27(10): 1283-1284
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