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Effects of Tripteryginm hypoglaucum hutch on HPRT gene of human promyelocytic leukemia cells

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Abstract Objective: To investigate the effects of Tripteryginm hypoglaucum hutch (THH) on the HPRT gene of human promyelocytic leukemia cells. Methods: HL-60 cells were infected with TTH with different concentrations and put into single-cell wells at different time phases. Then the numbers of positive wells were counted and the cell plating efficiency, cloning efficiency and mutation frequency were determined. Results: When the concentration of THH was from 3.35 to 20.10 mg/ml, the cell mutation frequency was positively correlated to the concentration. When the concentration of THH rose up to 33.50 mg/ml, the experiment could not be continued because the cell plating efficiency was too low. This phenomenon might be related with the toxicity of the THH cells. Conclusion: THH can exert mutagenic effects on HPRT gene in HL-60 cells, but there is dose limit in dose-response relationship.

Key words THH; HPRT locus; mutagenesis; HL-60 cell

低压缺氧对大鼠学习记忆及海马 GABA含量的影响

Effects of altitude hypoxia on learning, memory and GABA content of hippocampus in rats

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在机体的所有器官中,中枢神经系统对低氧最敏感,低氧可引起脑功能障碍,如记忆、行为、情绪等高级功能障碍,但机制尚不清楚。为此,本实验利用低压缺氧模型,探讨大鼠学习记忆行为的改变以及与海马 GABA含量的关系。

1 材料和方法

1.1 动物及模型

Wistar大鼠 36只,雌雄不拘。实验分为低氧组(18只):将大鼠置于模拟海拔 6 000 m的低压舱内(4℃),每天 8 h,连续 15 d, 10只进行爬杆主动回避训练(常氧条件), 8只进行 GABA测定。对照组(18只):正常饲养(室温 24℃,常氧), 10只进行爬杆主动回避训练, 8只进行 GABA测定。

1.2 爬杆主动回避反应

按文献[1]进行大鼠自动爬杆主动回避反应(Active avoidance reaction, AAR)训练。以正确反应率连续 3 d都在 80%以上为习得标准。习得以后观察不同时间 AAR正确率的变化,为爬杆反应的保持率。

1.3 GABA的提取和测定

大鼠断头,迅速取出海马,精确称重。置样品于冰镇玻管中,加入 10%磺基水杨酸(1 ml),冰浴下以玻璃匀浆器手动匀浆并离心,取上清液 50μl,用高效氨基酸分析仪检测 GABA含量。

2 结果

2.1 低压缺氧对大鼠 AAR的影响

正常对照组大鼠在 AAR习得训练中,随着训练天数的增多, AAR习得率逐渐增高,训练的第 5天, AAR习得率已超过 80%,而低压缺氧大鼠不到 50%,且每天均低于对照组。在两组分别达到习得标准后,进行 AAR保持测试,结果,低压缺氧组的 AAR保持率明显低于对照组,见表 1

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Prognostic factors of human osteosarcoma A study in 96 cases

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Abstract Objective: To study the relation of the prognosis of osteosarcoma to its site, its size, histological subtypes, the sex and age of the patients. Methods: All the data were analyzed with χ^2 test and log-rank test. Results: ① Most of the patients died in 3 years, and the 3-year mortality was 48.96%. ② The patients younger than 30 had a poorer prognosis than those older ($P < 0.01$). ③ The patients with the tumor at the sites of distal femur, proximal tibia and proximal humerus had a poorer prognosis than those with the tumor at other sites ($P < 0.01$). ④ The patients with the tumor size larger than 10 cm had a poorer prognosis than those with the size smaller ($P < 0.05$). ⑤ The histological subtypes of the tumor was not significantly correlated to its prognosis. Conclusion: The site and size of osteosarcoma and the sex and age of the patients are significant prognostic factors of the tumor.

Key words osteosarcoma; prognosis

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表 1 低压缺氧对大鼠 AAR保持率(%)的影响($\bar{x} \pm s$)

分组	n	保持前	1 d	3 d	5 d
对照组	10	87.8± 17.6	83.1± 14.4	65.8± 10.1	23.6± 8.2
低氧组	10	84.5± 19.2	54.6± 15.7**	31.3± 9.2**	4.5± 1.2**

** : $P < 0.01$ 与对照组比较

2.2 低压缺氧对大鼠海马内 GABA含量的影响

大鼠间断低压缺氧 15 d后,海马内的 GABA含量明显增高,由对照组的(2.28± 0.15)μmol/g湿重增至(2.9± 0.27)μmol/g湿重($P < 0.05$)。

3 讨论

在机体的所有器官中,中枢神经系统对低氧最敏感,氧耗也最高。据报道低氧可使脑内氨基酸(谷氨酸,天门冬氨酸,GABA等)含量增加[2],说明低氧可导致中枢神经递质代谢的紊乱,甚至使中枢神经细胞形态发生病理性变化,脑的高级功能将受到损害。本实验观察了低压缺氧后大鼠学习记忆指标的变化,结果表明,低压缺氧大鼠 AAR的获得和保持均受到一定程度的影响。学习和记忆是大脑的最高级功能之一,海马是学习记忆的关键结构,已知海马的中间神经元主要是抑制性的,它们在锥体细胞周围形成局部神经元回路,其末梢释放 GABA[3]。而 GABA对动物学习记忆有负性影响[4]。结合本实验结果,可以得出:低压缺氧致海马 GABA含量增加及学习记忆功能减退,GABA对学习记忆的负性效应有可能加重在低氧情况下学习记忆功能的减退。当然,低压缺氧影响学习记忆功能降低的因素很多,本研究可能只是其中之一。

关键词 低压缺氧;学习;记忆;GABA

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