

论文

NFATc1在氟中毒大鼠破骨细胞中表达意义

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摘要:

目的 探讨活化T细胞核因子(NFAT)在慢性氟中毒大鼠氟骨症破骨细胞中的作用。方法 将36只SD大鼠按体重随机分为3组(每组12只,雌雄各半):对照组(饮水含氟<0.5 mg/L)、低氟组(5.0 mg/L)、高氟组(50.0 mg/L),实验8个月后将大鼠处死,取大鼠股骨下端,抗酒石酸酸性磷酸酶染色(TRAP)法进行破骨细胞分化鉴定;免疫组织化学法和原位杂交检测各组大鼠股骨组织中NFATc1蛋白及其mRNA表达。结果NFATc1在破骨细胞中表达阳性,与对照组[(135.90±1.03),(110.45±1.55)]比较,低氟组大鼠破骨细胞中NFATc1蛋白及mRNA[(156.81±1.26),(132.50±1.58)]表达均升高($P<0.05$),高氟组大鼠破骨细胞中NFATc1蛋白及mRNA[(135.46±1.19),(110.26±1.37)]均呈下降趋势,但差异无统计学意义($P>0.05$)。结论NFATc1可能是氟中毒大鼠氟骨症破骨细胞分化调节的重要环节。

关键词: 氟骨症 破骨细胞 活化T细胞核因子(NFAU)

Expression of NFAT mRNA and protein in osteoclasts of rats with chronic fluorosis

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Abstract:

Objective To study the role of nuclear factor of activated T cell 1(NFATc1) in the osteoclasts of rats with skeletal fluorosis caused by chronic fluorosis. Methods Thirty-six Sprague-Dawley rats were randomly divided into three groups according to their body weight(12 in each group, half male and half female): control group(sodium fluoride[NaF]<0.5 mg/L), low-dose fluoride group(5.0 mg/L NaF), high-dose fluoride group(50.0 mg/L NaF). The rats were sacrificed after 8 months of fluoride treatment. The number of osteoclast inside the distal femur of the rats was counted by tartrate-resistant acid phosphatase staining(TRAP), and the protein and mRNA levels of NFATc1 inside the distal femur of the rats were detected by immunohistochemistry and in-situ hybridization. Results NFATc1 positive osteoclasts were observed. Compared to the control group(135.90±1.03, 110.45±1.55), the protein and mRNA expressions of NFATc1 were higher(156.81±1.26, 132.50±1.58) in the low-dose fluoride group(135.46±1.19, 110.26±1.37) ($P<0.05$), but decreased in the high-dose fluoride groups($P>0.05$). Conclusion NFATc1 may play an important role in osteoclasts differentiation and regulation in the skeletal fluorosis caused by chronic fluorosis.

Keywords: skeletal fluorosis osteoclasts NFATc1

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