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论文

四环素-哌嗪雌酚酮上调骨中c-Myc蛋白表达水平

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摘要:

目的研究四环素-哌嗪雌酚酮(XW630)对长骨原癌基因c-myc蛋白表达的影响,探讨其对骨的作用机制。方法取16 d孕龄的雌性胚胎小鼠,剥取前肢尺骨,在特制的培养装置上于BGbJ培养基中培养48 h,培养基中XW630终浓度分别为1×10^{-7},1×10^{-8}和1×10^{-9} mol·L^{-1}。用免疫组织化学方法测定长骨骺板c-Myc蛋白的表达。图象分析系统下测定静止区、增殖区、肥大区c-Myc蛋白免疫反应阳性细胞面积。结果当培养基中XW630浓度为1×10^{-9} mol·L^{-1}时,增殖区阳性细胞面积与同浓度雌酚酮组相比增加,静止区阳性细胞面积与对照组相比也增加,此浓度的雌酚酮组静止区阳性细胞面积与对照组无差异。XW630浓度为1×10^{-8}和1×10^{-7} mol·L^{-1}时,各区阳性细胞面积均比对照组及同浓度雌酚酮组增加。结论XW630对骨的雌激素活性强于雌酚酮。XW630可能通过促进骺板软骨细胞表达c-Myc蛋白而促进了软骨细胞的增殖和分化,从而促进了软骨内成骨。

关键词: 长骨 四环素-哌嗪雌酚酮(XW630) 原癌基因c-myc 免疫组织化学

C-MYC PROTEIN EXPRESSION UPREGULATED BY 2-(3-ESTRONE-*n*-ETHYL PIPERAZINE-METHYL) TETRACYCLINE IN BONE

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Abstract:

AIMTo study the effect of XW630 on expression of pro-oncogene c-myc in the long bones of fetal mice *in vitro* for postulating the mechanism by which XW630 exerts its effect on bone. METHODSThe fetuses of pregnant mice were removed on day 16 of gestation, the long bones of the forelimbs of female fetal mice were freed of muscle and soft tissue and cultured in a specific device for 48 h in BGJb medium treated with 1×10^{-7}, 1×10^{-8} and 1×10^{-9} mol·L^{-1} XW630 in the final medium. After cultured for 48 h, the long bones were harvested and immunohistochemical analysis was performed for determination of c-Myc protein expression in epiphyseal plates. The areas of positive cells in the resting zone, proliferative zone and hypertrophic zone in epiphyseal plate were determined under image analytic system. RESULTS When the concentration of XW630 in the medium was 1×10^{-9} mol·L^{-1}, the area of c-Myc positive cells increased in the proliferative zone compared with 1×10^{-9} mol·L^{-1} in the estrone group, significant increase was also observed in the resting zone compared with the control group. When the concentration of XW630 in medium was 1×10^{-8} or 1×10^{-7} mol·L^{-1}, stronger expression than that in the control group and the estrone group at the same concentration was observed in each of the three zones. CONCLUSIONThe estrogenic effect of XW630 on bone was stronger than that of estrone. XW630 may promote proliferation and differentiation of chondroncytes by promoting c-Myc protein expression in chondroncytes. Thus, endochondral bone formation was enhanced.

Keywords: 2-(3-estrone-*n*-ethyl piperazine-methyl) tetracycline (XW630) pro-oncogene c-myc immunohistochemistry long bone

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