

论文

四环素-哌嗪雌酚酮上调骺板c-fos, c-jun 的mRNA及其表达产物水平

郑虎;李灵芝;翁玲玲

华西医科大学药学院, 成都 610041; \*武警医学院药学教研室, 天津 300162

摘要:

目的: 研究四环素-哌嗪雌酚酮(XW630)对软骨细胞c-fos和c-jun基因的mRNA及其表达产物水平的影响, 初步探讨其对骨的作用机制。方法: 用原位杂交法, 测定体外培养小鼠胚胎长骨骺板c-fos和c-jun mRNA的水平, 同时用免疫组织化学法, 测定了相应的表达产物。结果: 10<sup>-7</sup> mol.L<sup>-1</sup> XW630可显著上调骺板静止区、增殖区和肥大区c-fos和c-jun的mRNA及其表达产物水平, 且其作用比雌酚酮强。结论: XW630可能通过上调软骨细胞c-fos, c-jun的表达, 促进软骨细胞中含有AP-1位点的、与骨生长发育有关的基因表达, 从而促进软骨内骨形成。

关键词: 四环素-哌嗪雌酚酮 雌酚酮 原位杂交 免疫组织化学

EFFECTS OF 2-(3-ESTRONE-*n*-ETHYL-PIPERAZINE-METHYL) TETRACYCLINE ON THE LEVELS OF C-FOS AND C-JUN mRNAs AND THEIR PRODUCT PROTEINS IN EPIPHYSEAL PLATE

Zheng Hu Li Lingzhi Weng Lingling

Abstract:

AIM: 2-(3-Estrone-*N*-ethyl-piperazine-methyl) tetracycline(XW630) is a novel bone-targeted estrogen which shows stronger action in enhancing bone formation than estrone on ovariectomized rats while shows weaker estrogen-like activity on mouse uterus. Therefore, it may be a potential compound for prevention and treatment of postmenopausal osteoporosis. The effects of XW630 on the levels of c-fos and c-jun mRNAs and their product proteins in long bone were studied for insight into the mechanism by which XW630 acts on bone. METHODS: The long bones of fetal mice of 16 days old were cultured in BGJb medium and treated with 10<sup>-7</sup> mol.L<sup>-1</sup> XW630 or 10<sup>-7</sup> mol.L<sup>-1</sup> estrone. After cultured for 48 h, the levels of mRNAs of c-fos and c-jun were determined by approach of *in situ* hybridization. Immunohistochemical analysis of c-fos protein and c-jun protein were also performed. RESULTS: The levels of c-fos mRNA, c-jun mRNA and their proteins in resting zone, proliferative zone and hypertrophic zone were all upregulated. XW630 showed stronger effects on epiphyseal plate than estrone. CONCLUSION: The results suggest the possibility that XW630 enhanced endochondral bone development by upregulating the expression of c-fos and c-jun in epiphyseal plate. Their proteins may in turn rapidly regulate expressions of other genes that relate to bone growth and in which there are AP-1 sites.

Keywords: estrone *in situ* hybridization immunohistochemistry 2-(3-estrone-*N*-ethyl-piperazine-methyl) tetracycline(XW630)

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作者简介:

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