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论著

双酚A和敌匹硫磷对MCF-7细胞增殖的影响及其联合作用研究

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摘要 背景与目的: 研究双酚A(BPA)和敌匹硫磷单独和联合作用对MCF-7细胞增殖的影响。 材料与方法: 设BPA、敌匹硫磷1.0×10-12～1.0×10-5 mol/L 的不同浓度组(组间10倍浓度差),分别作用雌激素敏感型与不敏感型MCF-7细胞,观察其对细胞增殖的影响,及分别加入雌激素受体抑制剂ICI182780后,对细胞增殖影响的变化。实验并设立溶剂对照组。BPA和敌匹硫磷在1.0×10-8、5.0×10-9和2.5×10-9 mol/L 浓度时,两者联合作用MCF-7细胞,采用2×2析因设计分析对其增殖的影响。 结果: BPA和敌匹硫磷在1.0×10-8 mol/L时促增殖效应均达到最大,相对增殖率分别为2.473和2.167,与溶剂对照组比较差异均具有统计学意义(P<0.05);加入ICI182780后,二者对MCF-7的促增殖作用均减弱;二者在各浓度组对雌激素不敏感型MCF-7细胞均无明显促增殖效应;BPA和敌匹硫磷在1.0×10-8、5.0×10-9和2.5×10-9 mol/L各浓度组均表现出明显拮抗作用。 结论: BPA和敌匹硫磷具有明显的拟雌激素活性,并且通过雌激素受体途径对细胞发挥促增殖效应,二者的联合作用为拮抗作用。

关键词 双酚A 敌匹硫磷 MCF-7细胞

Effects of Bisphenol A and Diazinon on Proliferation of MCF-7 Cells

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Abstract BACKGROUND AND AIM: To study the effects of Bisphenol A (BPA) and/or diazinon on proliferation of MCF-7 cells. MATERIALS AND METHODS: Estrogen-sensitive and insensitive MCF-7 cells were used to evaluate proliferating effects of BPA and diazinon with concentrations of 1.0×10-12～1.0×10-5mol/L (10 times difference between two consecutive groups). Then the change of proliferating effects after using estrogen receptor inhibitor ICI182780 in each group was assessed. solrent control was establishect in the experiments Combined effects of BPA and diazinon on proliferation of MCF-7 at concentrations of 1.0×10-8, 5.0×10-9 and 2.5×10-9mol/L were evaluated by 2×2 factorial analysis. RESULTS: The highest relative proliferation rate of BPA (2.473) and diazinon (2.167) (compared with solvent control,P<0.05) were all at 1.0×10-8mol/L. After adding ICI182780, the proliferating effects of the drugs on MCF-7 declined. The drugs had no obvious proliferating effects on estrogen-insensitive MCF-7 cells. The combined effects of BPA and diazinon at 1.0×10-8, 5.0×10-9 and 2.5×10-9 mol/L were all antagonistic. CONCLUSION: Bisphenon A and diazinon had obvious estrogen-like activity. They exerted proliferating effects by stimulating the estrogen receptor. The combined effect of BPA and diazinon was antagonistic.

Keywords Bisphenol A diazinon MCF-7 cells

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