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论著

紫杉醇对p53缺失型肺癌细胞株H1299的生长抑制作用

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摘要 背景与目的： 评价紫杉醇对p53缺失型肺癌细胞株H1299的生长抑制作用。材料与方法： 分别以体外药物敏感试验(MTT法)、流式细胞术观察紫杉醇不同作用浓度、不同作用时间处理H1299细胞后，其生长抑制情况以及细胞周期、细胞凋亡等指标的变化，并以荧光显微镜观察细胞核形态的改变。 结果： 紫杉醇对H1299细胞毒性呈时间依赖性(P<0.05)；在紫杉醇1 nmol/L以上各浓度组，随着紫杉醇浓度的增加，H1299细胞的存活率降低，与对照组间差异具有统计学意义(P<0.05)；各实验组H1299细胞的生长被阻滞于 G2/M期，在0.1～1 000 nmol/L浓度范围内呈浓度依赖性(P<0.05)，其细胞凋亡比例在0.1～10 nmol/L浓度范围内随浓度的增加而增高(P<0.05)；在时间依赖性试验中，10 nmol/L作用时，G2/M期的阻滞于12 h达高峰；1 000 nmol/L作用时于24 h达高峰，延长1 000 nmol/L作用时间，H1299出现异常多倍体现象；凋亡发生呈时间依赖性，但高浓度诱导的凋亡较低浓度出现的时间晚。紫杉醇诱导的凋亡和G2/M期阻滞无相关性(P>0.05)。荧光显微镜下可见细胞凋亡与细胞死亡共存现象。 结论： 紫杉醇可以同时诱导H1299细胞凋亡和死亡，对其生长抑制作用呈时间和浓度依赖性。

关键词 肺癌； 紫杉醇； 细胞凋亡； 细胞周期

(2. Growth-inhibiting Effects of Paclitaxel on p53-deficientStrain of Human Lung Cancer H1299 Cells

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Abstract BACKGROUND AND AIM: To assess the growth-inhibiting effects of paclitaxel on p53-deficient human lung cancer H1299 cell line in vitro. MATERIALS AND METHODS: H1299 cells were exposed to paclitaxel at different concentrations or different treatment times, then the growth-inhibiting effects were determined by MTT assay, the change of the cell cycle and apoptosis were analyzed with flow cytometry. Fluorescence microscopy was used to observe the nucleolus change stained by Hoechst33342 and PI. RESULTS: The growth inhibition effect of paclitaxel on H1299 cells was time-dependent(P<0.05). With treatment concentration>1 nmol/L, the survival rate of H1299 cells in paclitaxel-treated groups decreased with increasing paclitaxel concentration, and showing significant difference with the survival rate in control group (P<0.05). The H1299 cells treated by 0.1－1 000 nmol/L paclitaxel were blocked at G2/M phase, and the percentage of G2/M phase increased in concentration-dependent manner. The proportion of apoptosis increased as concentration changed from 0 to 10 nmol/L(P<0.05). The induction of apoptosis was time dependent(P<0.05) and the percentage of G2/M phase was highest at 12 h with paclitaxel at 10 nmol/L. When treated with 1 000 nmol/L paclitaxel, H1299 showed the highest G2/M arrest at 24 h and some polyploidy cells appeared with prolonged treatment. Both concentrations could induce time-dependent apoptosis, but the higher concentration caused apoptosis later than the lower one. Apoptosis had no relationship with G2/M arrest(P>0.05). The coexistence of cell apoptosis and necrosis could be observed in paclitaxel-treated H1299 cells under fluorescence microscopy. CONCLUSION: Paclitaxel could induce apoptosis and necrosis

of H1299 at the same time. It inhibited the growth of H1299 cells in vitro in time-and concentration-dependent manners.

Keywords lung neoplasms paclitaxel apoptosis cell cycle

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