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论文

三氧化二砷对胃癌细胞SGC7901多药耐药的逆转作用及其机制

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摘要:

研究三氧化二砷(arsenic trioxide，As_2O_3)对胃癌细胞多药耐药的逆转作用及其机制。逐渐递增长春新碱(VCR)的浓度诱导胃癌细胞株SGC7901产生多药耐药性(SGC7901/VCR)。MTT法测定药物对肿瘤细胞的杀伤作用；Western blotting检测肿瘤细胞内P-糖蛋白(P-gp)、谷胱甘肽S-转移酶(GST-s)表达。结果表明，胃癌SGC7901/VCR细胞对长春新碱(VCR)、5-氟尿嘧啶(5-Fu)及表阿霉素的耐药倍数分别为16.56倍、2.69倍及13.05倍。经As_2O_3预处理24 h后，长春新碱、5-氟尿嘧啶及表阿霉素对SGC7901/VCR的耐药倍数显著下降($P<0.05$)。SGC7901/VCR在静息时细胞内P-gp、GST-s蛋白表达显著高于SGC7901。而As_2O_3可使SGC7901/VCR细胞内P-gp、GST-s蛋白表达显著下降，但是对SGC7901无明显作用。从而证实As_2O_3部分逆转SGC7901/VCR的耐药性，其机制可能与P-gp、GST-s蛋白表达降低有关。

关键词： 胃癌 多药耐药 三氧化二砷

Reversal effect and mechanism of arsenic trioxide on multidrug resistance of gastric carcinoma cells SGC7901

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Abstract:

The purpose of this study is to investigate the reversal effect and its mechanism of arsenic trioxide (As_2O_3) on multidrug resistance of gastric carcinoma cells. The concentration of vincristine (VCR) increased gradually to induce the drug resistance of gastric carcinoma cell SGC7901. MTT assay was used to determine the lethal effect of anticarcinogens on tumor cells and Western blotting assay was applied to determine the expression of P-glucoprotein (P-gp) and glutathione S-transferase (GST-s) in tumor cells. As a result, the resistance of SGC7901/VCR cells to VCR, fluorouracil and epirubicin was 16.56, 2.69 and 13.05 times, respectively, more than that of SGC7901 cells. After 24 h precondition with As_2O_3, RI of vincristine, fluorouracil and epirubicin decreased significantly ($P<0.05$). Expression of P-gp and GST-s in resting SGC7901/VCR cells was significantly higher than that in carcinogen-sensitive SGC7901 cells. As_2O_3 decreased the expression of P-gp and GST-s in SGC7901/VCR cells significantly, while it showed no significant effect on carcinogen-sensitive SGC7901 cells. The result suggested that As_2O_3 could partly reverse drug resistance of SGC7901/VCR cells by probably the mechanism of decreasing the expression of P-gp and GST-s.

Keywords: multidrug resistance arsenic trioxide gastric carcinoma

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