34~39.大蒜素联合长春瑞滨促进胃癌细胞株p21和p27的表达[J].马 锐,董 武,何红梅,柳 星,袁 媛.中国肿瘤生物治疗杂志,2009,16(1)

大蒜素联合长春瑞滨促进胃癌细胞株p21和p27的表达

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基金项目：

DOI：10.3872/j.issn.1007-385X.2009.1.008

摘要：

目的:通过检测大蒜素与细胞周期特异性化疗药联合应用对胃癌细胞周期抑制蛋白（cyclin dependent kinase inhibitors， CKI）p21、p27表达的影响，探讨大蒜素对肿瘤细胞周期阻滞及与化疗药协同抗肿瘤作用的可能机制。方法： MTT法测定化疗药长春瑞滨（vinorelbine,NVB)、氟尿嘧啶(fluorouracil,5 Fu)、丝裂霉素（mitomycin, MMC)对两种胃癌细胞株BGC 823和SGC 7901的增殖抑制率，并计算这些药物的半数抑制浓度（IC 50 ），以此作为检测p21、p27蛋白表达时的给药剂量；流式细胞仪检测单独或联合用药时细胞周期的改变；S P免疫组化法检测胃癌细胞p21、p27蛋白的表达。结果：大蒜素作用24、48 h后两种细胞均出现G 0/G 1期细胞减少、G 2/M期细胞增多。大蒜素作用于两种细胞后p21和p27蛋白的阳性表达率随大蒜素质量浓度（5、10、15、20 μg/ml）的增加而依次升高。大蒜素与细胞周期特异化疗药NVB联合作用后，与单一作用相比，两种细胞的p21、p27蛋白的表达均显著增加（ P <0.01）；大蒜素分别与5 FU或MMC联合作用后，两种细胞中p21、p27蛋白的表达并没有进一步增加。结论：大蒜素与细胞周期特异化疗药NVB联合应用后通过上调p21、p27蛋白的表达使胃癌细胞阻滞于G 2/M期。

关键词：大蒜素 长春瑞滨 胃癌细胞 p21 p27 细胞周期

Allicin combined with vinorelbine increases both p21 and p27 expression in human gastric cancer cell lines BGC 823 and SGC 7901

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Abstract:

Objective: To study whether allicin combined with cell cycle specific chemotherapeutic drugs can influence p21, p27 expression in human gastric cancer cell line, so as to discuss the synergistic effect between allicin and cell cycle specific chemotherapeutic drugs and the possible mechanism. Methods: MTT was used to observe the inhibition of gastric cancer cell lines BGC 823 and SGC 7901 after treatment with vinorelbine(NVB), fluorouracil(5 FU) and mitomycin(MMC), and the IC 50 was calculated. The change of cell cycle was examined by flow cytometry; S P immunohistochemistry was used to detect the expression of p21 and p27 in BGC 823 and SGC 7901 cells. Results: Allicin decreased cells in G 0/G 1 phase and increased cells in G 2/M phase in both BGC 823 and SGC 7901 cells after 24 h. Allicin dose dependently increased expression of p21 and p27 at a serial concentration of 5, 10, 15 and 20 μg/ml. Combination of allicin with NVB increased the expression of both p21 and p27 in both cell lines compared with either allicin or NVB alone (P <0 01). Combination of allicin with 5 FU or MMC did not further increase the expression of p21 and p27. Conclusion: Combination of allicin with NVB greatly increases expression of p21 and p27 in gastric BGC 823 and SGC 7901 cells, and subsequently induces cell cycle arrest in G 2/M phase.

Keywords:Allicin vinorelbine gastric neoplams p21 p27 cell cycle

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