中国病理生理杂志 2005 21 (5): 980-984 ISSN: 1000-4718 CN: 44-1187/R

论著

天花粉蛋白对HepA-H细胞和HeLa细胞抑癌活性研究

豆长明,李继承△

浙江大学细胞生物学研究所， 浙江 杭州 310031

收稿日期 2003-10-14 修回日期 2003-12-16 网络版发布日期 2009-9-24 接受日期 2003-12-16

摘要 目的：比较分析商品天花粉蛋白(TCS1) 和从鲜药材中提取分离出的天花粉蛋白粗品（TCS2），对HepA-H细胞（腹水型肝癌高转移株细胞）和HeLa细胞（人宫颈癌肿瘤细胞）的杀伤作用，并进一步探讨其抑癌作用机理。方法： MTT法检测药物的细胞毒作用，电镜观察细胞超微结构改变，电泳检测细胞DNA生物化学特征改变。结果： TCS1和TCS2对HepA-H细胞作用不明显（P>0.05），而对HeLa细胞具有显著性作用，呈明显时效、量效关系（r>0.864, P<0.05或P<0.01）。在相同作用时间内，TCS2作用组对细胞生长抑制率均高于TCS1组（P<0.01）。进一步研究发现，HeLa细胞经TCS2作用后，细胞表面微绒毛消失，胞膜发泡，核染色质浓缩边集，并出现凋亡小体，细胞DNA经琼脂糖凝胶电泳呈典型的梯形带。结论： HepA-H细胞对天花粉蛋白不敏感，而HeLa细胞对TCS1和TCS2敏感，其中TCS2抑癌活性明显强于TCS1，细胞生长受抑制作用显著，作用机制与诱导细胞凋亡相关。

关键词 天花粉素； Hep A-H细胞； Hela细胞； 细胞凋亡

分类号 R363

The anti-tumor effect of trichosanthin on HepA-H cells and HeLa cells

DOU Chang-ming, LI Ji-cheng

Institute of Cell Biology, Zhejiang University, Hangzhou 310031, China

Abstract

<FONT face=Verdana>AIM: To analyze and compare the cytotoxic activity of commercial TCS (TCS1) on HepA-H cells and HeLa cells with coarse product of TCS (TCS2) extracted from fresh root tubers of Trichosanthes kirlowii Maxim, and further explore its possible mechanism of anti-tumor activity. METHODS: Microculture tetrzoalium assay (MTT) was applied to investigate cytotoxicity of the drug, and electron microscopy was used to observe ultrastructural changes of cells. The techniques of electrophoresis were performed to detect biochemical changes of intercellular DNA. RESULTS: TCS1 and TCS2 had no obvious effects on HepA-H cells (P>0.05), but marked effects on HeLa cells were observed in a time-and dose-dependent manner (r>0.864, P<0.05 or P<0.01) and the inhibitory rate of TCS2 was higher than that of TCS1 in the same time point (P<0.01). Furthermore, marked morphologic changes were observed including microvilli disappearance, cell membrane bledding, condensation of chromosomes and apoptotic bodies. Meanwhile, the apoptosis of HeLa cells was confirmed by DNA ladder formation on gel electrophoresis. CONCLUSIONS: TCS1 and TCS2 have no obvious effect on HepA-H cells, but have a significant inhibitory effect on HeLa cells, indicating that TCS2 is superior to TCS1 in anti-tumor activity by the way of inducing apoptosis.</FONT>

Key words Trichosanthin HepA-H cells；HeLa cells； Apoptosis

DOI: 1000-4718

通讯作者 李继承 Lijc@mail.hz.zj.cn