

论著

小檗碱对人高转移肺癌细胞与脐静脉内皮细胞黏附的影响

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收稿日期 2008-6-17 修回日期 2008-11-12 网络版发布日期 2009-8-16 接受日期 2008-11-12

摘要 目的: 探讨小檗碱对人高转移肺癌细胞株PG细胞与人脐静脉内皮细胞(HUVECs)黏附的影响及其机制。方法: 用MTT法检测不同浓度(2.5-40 mg/L)的小檗碱对HUVECs增殖的影响, 用2.5、5和10 mg/L小檗碱分别处理人高转移肺癌细胞株PG细胞6、12和24 h, 用虎红染色法测定小檗碱对PG细胞与HUVECs黏附能力的影响, 用荧光抗体染色法测定小檗碱对PG细胞表面黏附分子CD44s表达的影响, 用双光子各向异性度成像系统观察小檗碱对PG细胞膜流动性的影响。结果: (1) 2.5、5和10 mg/L小檗碱作用HUVECs 6、12和24 h后对其生长无影响。(2) 用不同浓度小檗碱处理PG细胞6、12和24 h后, 与TNF- α 刺激后的HUVECs相互作用后, 能够显著抑制其黏附率, 且呈浓度依赖性($P < 0.05$, $P < 0.01$)。(3) 各剂量组的小檗碱均能使PG细胞表面的CD44s分子表达增高($P < 0.05$ 或 $P < 0.01$)。(4) 小檗碱作用PG细胞24 h后能够抑制PG细胞膜的流动性, 且随药物浓度的升高这种抑制作用增强。结论: 小檗碱对PG细胞与HUVECs的黏附具有抑制作用, 可能与小檗碱增加PG细胞表面黏附分子表达、降低其细胞膜流动性有关。

关键词 [小檗碱](#); [PG细胞](#); [血管内皮细胞](#); [黏附](#); [细胞膜流动性](#)

分类号 [R285](#) [R73](#)

Effect of berberine on the adhesion between human umbilical vein endothelial cells and human pulmonary carcinoma cells

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Abstract

AIM: To study the mechanism of berberine on the adhesion between human pulmonary carcinoma cells (PG cells) and HUVECs. METHODS: The effect of berberine (2.5-40 mg/L) on the proliferation of HUVECs was detected by MTT method. Further, PG cells were treated with berberine at doses of 2.5, 5, 10 mg/L for 6, 12, 24 h. The adhesion between PG cells and HUVECs was determined by rose bengal staining. The expression of CD44s on PG cells were determined by fluorescence antibody staining. Fluorescence anisotropy imaging system was used to assay the fluidity of PG cell membrane. RESULTS: Berberine at concentrations of 2.5, 5, 10 mg/L were the safety doses to the proliferation of HUVECs treated for 6, 12, 24 h. Berberine inhibited the adhesion between PG cells and HUVECs significantly in a dose-dependent manner ($P < 0.05$ or $P < 0.01$). Meanwhile, berberine increased the expression of CD44s on PG cells ($P < 0.05$ or $P < 0.01$). Berberine decreased the fluidity of PG cell membrane in a dose-dependent manner after 24 h incubation. CONCLUSION: Berberine inhibits the adhesion between PG cells and HUVECs by regulating the expression of adhesion molecules and the fluidity of cell membrane on PG cells.

Key words [Berberine](#) [PG cells](#) [Vascular endothelial cells](#) [Adhesion](#) [Cell membrane fluidity](#)

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