

基础研究

胃癌细胞中 β 肾上腺能受体与NF- κ B通路及其下游侵袭相关因子的关系

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摘要:

目的: 探讨胃癌细胞中 β 肾上腺能受体(β -ARs)与NF- κ B通路及下游侵袭相关因子的关系。方法: 分别用不同浓度普萘洛尔(10, 30, 100 μ mol/L)和异丙肾上腺素(50, 100, 200 μ mol/L)作用胃癌BGC-823和SGC-7901细胞株24 h后, 用RT-PCR检测血管内皮生长因子(VEGF), 环氧化酶2(COX-2), 基质金属蛋白酶2(MMP-2), 基质金属蛋白酶9(MMP-9) mRNA表达; 用Western blot检测上述因子及NF- κ B p65蛋白表达。结果: 与对照细胞比较, 普萘洛尔呈浓度依赖性降低两种胃癌细胞VEGF, COX-2, MMP-2, MMP-9的mRNA表达, 而异丙肾上腺素则呈浓度依赖性升高上述因子的mRNA表达(均 $P < 0.05$); 与对照组细胞比较, 普萘洛尔作用后, 两种胃癌细胞上述因子及NF- κ B p65蛋白的表达明显下调, 而异丙肾上腺素作用后则呈反向变化, 且作用均呈浓度依赖性(均 $P < 0.05$)。结论: β -ARs与胃癌侵袭、转移密切相关, 且其作用机制可能与增加NF- κ B通路活性及其下游侵袭相关分子的表达有关。

关键词: 胃肿瘤; 受体 肾上腺素能 β ; 普萘洛尔; NF- κ B

Connections of β -adrenergic receptor to NF- κ B pathway and its downstream invasion-related factors in stomach cancer cells

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Abstract:

Objective: To investigate the relationship between β -adrenergic receptors (β -ARs) and NF- κ B pathway as well as its downstream invasion-related factors in gastric cancer cells. Methods: Gastric cancer BGC-823 and SGC-7901 cells were exposed to different concentrations of propranolol (10, 30 and 100 μ mol/L) and isoproterenol (50, 100 and 200 μ mol/L) for 24 h, respectively. Subsequently, the mRNA expressions of vascular endothelial growth factor (VEGF), cyclooxygenase 2 (COX-2), matrix metalloproteinase 2 (MMP-2) and matrix metalloproteinases 9 (MMP-9) were measured by RT-PCR method, and the protein expressions of above factors as well as NF- κ B p65 were determined by Western blot analysis. Results: Compared with untreated control cells, propranolol caused concentration-dependent decreases of the mRNA expressions of VEGF, COX-2, MMP-2 and MMP-9, while isoproterenol resulted in concentration-dependent increases of the mRNA expressions of the above factors in the two types of treated cells (all $P < 0.05$). Compared with control cells, in the two types of treated cells, the protein expressions of above factors along with NF- κ B p65 were significantly down-regulated after propranolol treatment, while opposite results were seen after isoproterenol treatment, and all the responses were concentration-dependent (all $P < 0.05$). Conclusion: β -ARs are closely related to invasion and metastasis of stomach cancer, and the mechanism may be probably associated with its action of increasing the activity or expressions of NF- κ B pathway and its downstream invasion-related factors.

Keywords: Stomach Neoplasms Receptors, Adrenergic, beta Propranolol NF-kappa B

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