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论文

胱抑素C对人动脉平滑肌细胞中组织蛋白酶S和细胞外基质的影响

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摘要:

目的 研究胱抑素C(CysC)对人动脉平滑肌细胞(ASMC)中组织蛋白酶S (CatS)和细胞外基质的影响。方法 以正常ASMC为空白对照组, RT-PCR及Western-blot法测定CysC高表达质粒转染(CysC高表达组)及小干扰RNA(siRNA)分别干扰CysC (干扰组) 0、12、24、48、72h后CatS的表达; ELISA法测定空白对照组、CysC高表达24h组和48h组、干扰48h组和72h组中Ⅰ型胶原、层粘连蛋白(LN)和纤连蛋白(FN)的含量。结果 与空白对照组比较, CysC高表达组中CatS的表达较少, 差异无统计学意义(P>0.05); 随干扰时间延长, 干扰组中CatS的表达明显增强(P<0.01); Ⅰ型胶原含量在各组虽有轻微增加或减少, 但差异均无统计学意义(P>0.05); LN和FN含量在CysC高表达24h组和48h组均有不同程度增加, LN含量在干扰72h组明显减少, FN含量在干扰48h组和72h组明显减少(P均< 0.05)。 结论 正常ASMC中CatS表达极少; CysC和CatS在ASMC中的表达呈负相关; CysC和CatS的平衡关系对层粘连蛋白和纤连蛋白均有不同程度的影响, 但对Ⅰ型胶原的影响不明显。

关键词: 胱抑素C; 组织蛋白酶S; 细胞外基质; 人动脉平滑肌细胞

Effect of Cystatin C on Cathepsin S and extracellular matrix in human arterial smooth muscle cells

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Abstract:

Objective To study the effect of Cystatin C on Cathepsin S and extracellular matrix (ECM) in human arterial smooth muscle cells(ASMCs). Methods ASMCs were divided into the control group (normal cells), the Cystatin C highly expressed group, the Cystatin C silenced group and the independent interference group. Expression of Cathepsin S was detected by RT-PCR and Western blot at different time. Contents of collagen Ⅰ, laminin(LN) and fibronectin(FN) were detected by ELISA in ASMCs of the control group, the Cystatin C highly expressed group(24h and 48h) and the Cystatin C silenced group(48h and 72h). Results Expression of Cathepsin S in the Cystatin C highly expressed group was lower than in the control group, and the difference between the two groups was not statistically significant（P>0.05）. Expression of Cathepsin S in the Cystatin C silenced group was obviously strengthened with the increase of interference time(P<0.01). While at the same time, expression of Cystatin C was weakened. The result of ELISA showed that content of collagen Ⅰ in each group was increased or decreased, while the differences were not statistically significant（P>0.05）. Contents ofLN and FN increased in the Cystatin C highly expressed group (24h and 48h), and the differences were both statistically significant compared with the controls(P<0.05). Compared with the control group, content of LN in Cystatin C silenced group (48h) was insignificantly decreased（P>0.05）, while it was obviously decreased in Cystatin C silenced group (72h)（P<0.05）.Compared with the control group, contents of FN in Cystatin C silenced group (48h and 72h) decreased markedly, and the differences were both statistically significant（P<0.05）. Conclusion Expression of Cathepsin S is very low in normal ASMCs. Expressions of Cystatin C and Cathepsin S in ASMCs are inversely correlated. The balance of Cystatin C and Cathepsin S has a significant effect on LN and FN to different degrees, but no significant effect on collagen Ⅰ.

Keywords: Cystatin C; Cathepsin S; Extracellular matrix; Human arterial smooth muscle cells

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