

基础研究

兔下腔静脉球囊损伤后血管重塑相关因子的变化及G-CSF的干预作用

党晓卫|姚振涛|乔师师|王兆阳|李林|王亚飞|许培钦

(郑州大学第一附属医院 普通外科|河南 郑州 450052)

摘要:

目的: 探讨下腔静脉损伤后基质金属蛋白酶(MMP-2, MMP-9)及转化生长因子 β 1(TGF- β 1)的变化规律及粒细胞集落刺激因子(G-CSF)干预的影响。方法: 48只家兔制作下腔静脉球囊损伤模型后随机分为实验组(术后应用G-CSF)和模型组(术后应用生理盐水), 两组分别于术后3, 7, 14, 28 d取血管损伤段(n=6), 应用免疫组化染色检测MMP-2, MMP-9, TGF- β 1的表达。结果: 在未损伤的家兔下腔静脉中仅有少量的MMP-2和MMP-9表达, 而TGF- β 1几乎无表达。下腔静脉损伤后3种因子表达均明显升高, 并于第7天达高峰, 随后回落; G-CSF对3种因子表达的升高过程(3, 7 d)无明显干预作用(与对照组比较, 均 $P>0.05$), 但能明显加速各因子水平的降低过程(14, 28 d)(与对照组比较, 均 $P<0.05$)。结论: 下腔静脉内膜损伤后存在重塑相关因子表达的短期升高, G-CSF对其升高过程无干预作用, 但能加速其恢复, 该作用有利于抑制血管平滑肌的过度增生与加速再内皮化进程。

关键词: 狭窄 病理性; 腔静脉 下; 巨噬细胞集落刺激因子; 基质金属蛋白酶类; 转化生长因子 β 1

Alterations of remodeling-associated factors in inferior vena cava after balloon injury in rabbits and the intervention effects of G-CSF

DANG Xiaowei, YAO Zhentao, QIAO Shishi, WANG Zhaoyang, LI Lin, WANG Yafei, XU Peiqin

(Department of General Surgery, the First Affiliated Hospital, Zhengzhou University, Zhengzhou 450052, China)

Abstract:

Objective: To investigate the alteration patterns of matrix metalloproteinases (MMP-2, MMP-9) and transforming growth factor β 1 (TGF- β 1) in inferior vena cava (IVC) after injury and the effects exerted by granulocyte colony-stimulating factor (G-CSF). Methods: Forty-eight rabbits were randomly divided into experimental group (treated with G-CSF after operation) and control group (treated with normal saline) after IVC balloon injury was performed. The injured vascular segments (n=6) in both groups of rabbits were excised on postoperative day (POD) 3, 7, 14, and 28 respectively, for immunochemical staining of MMP-2, MMP-9 and TGF- β 1. Results: In uninjured rabbit IVC, there was a small amount of MMP-2 and MMP-9 expression, and nearly no TGF- β 1 expression. After injury, the expressions of all the three factors in IVC were significantly increased, and all of them reached their maximal degrees on POD 7 and then declined. G-CSF treatment showed no effect on the expression of the three factors during the course of their increase (3 and 7 d) (both $P>0.05$ vs. control group), but markedly accelerated the decreasing tendency of their levels (14 and 28 d) (both $P<0.05$ vs. control group). Conclusion: There are short-term increased expressions of remodeling-associated factors in IVC after intimal injury. G-CSF cannot inhibit the increase of these factors but can accelerate their decrease, and may be favorable for the inhibition of excessive proliferation of the vascular smooth muscle cells and acceleration of the reendothelialization process.

Keywords: Constriction, Pathologic Vena Cava, Inferior Macrophage Colony-Stimulating Factor Matrix Metalloproteinases Transforming Growth Factor β 1

收稿日期 2013-02-10 修回日期 2013-05-16 网络版发布日期 2013-06-15

DOI: 10.7659/j.issn.1005-6947.2013.06.012

基金项目:

河南省教育厅科技攻关计划资助项目(2011A320025)。

通讯作者: 党晓卫, Email: dangxw1001@163.com

作者简介: 党晓卫|郑州大学第一附属医院主任医师|主要从事肝脏血管疾病方面的研究。

本刊中的类似文章

1. 李超|张弛|孙跃明. 损伤性胆总管狭窄胆管胶原含量变化的实验研究[J]. 中国普通外科杂志, 2012,21(2): 216-218

扩展功能

本文信息

Supporting info

[PDF 779KB](#)

[\[HTML全文\]](#)

[参考文献\[PDF\]](#)

[参考文献](#)

服务与反馈

[把本文推荐给朋友](#)

[加入我的书架](#)

[加入引用管理器](#)

[引用本文](#)

[Email Alert](#)

[文章反馈](#)

[浏览反馈信息](#)

本文关键词相关文章

▾ [狭窄](#)

▾ [病理性; 腔静脉](#)

▾ [下; 巨噬细胞集落刺激因子;](#)

▾ [属蛋白酶类; 转化生长因子 \$\beta\$ 1](#)

本文作者相关文章

[PubMed](#)