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论著

阿托伐他汀对大鼠自体移植静脉内膜增生的影响

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摘要 目的： 探讨新型降脂药阿托伐他汀对自体移植静脉内膜增生的影响。 方法： 将Wistar大鼠颈外静脉移植于腹主动脉，建立大鼠自体静脉移植模型，实验分为3组：假手术组、移植对照组和移植实验组。自术后第1 d起，对移植实验组大鼠经胃管灌注给予阿托伐他汀(5 mg·kg-1·d-1)处理。干预4周后取移植静脉组织标本，制备4 μm厚组织切片，行病理组织学观察分析移植静脉内膜增生情况，行免疫组化染色分析新生内膜细胞SMα-actin和PCNA的表达情况。 结果： 移植对照组和实验组移植静脉内皮下层SMα-actin染色阳性平滑肌细胞大量增生，导致静脉内膜显著增厚，血管管腔明显狭窄。新生内膜定量分析显示移植实验组移植静脉内膜增生受到明显抑制，其新生内膜面积及新生内膜/中膜面积比均显著低于对照组(P<0.01)；并且实验组移植静脉新生内膜细胞PCNA标记指数显著低于对照组(P<0.01)。 结论： 阿托伐他汀通过抑制新生内膜平滑肌细胞的增殖能有效抑制自体移植静脉内膜增生的发生发展，在防治血管重建术后再狭窄方面显示出良好的应用前景。

关键词 阿托伐他汀； 血管平滑肌细胞； 内膜增生； 自体静脉移植

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Effect of atorvastatin on neointimal hyperplasia of venous autografts in rats

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Abstract

<FONT face=Verdana>AIM: To investigate the effect of atorvastatin on neointimal hyperplasia of autogenous vein graft in rats. METHODS: The model of autogenous vein graft was prepared by transplanting the external jugular vein into aorta in Wistar rats. The rats were divided into three groups: sham operation group, graft control group and graft experimental group. From three days after transplantation, the rats of autograft experimental group were treated by atorvastatin at a dosage of 5 mg·kg-1·d-1. Four weeks after treatment, venous autografts were removed at autopsy and cut into 4 μm sections. Histopathological examination was carried out to analysis the neointimal hyperplasia of grafted veins. Immunohistochemical staining was conducted to evaluate SMα-actin and PCNA expression of neointimal cells in venous autografts. RESULTS: In venous autograft control and experimental groups, SMα-actin-positive smooth muscle cells were proliferated and accumulated excessively in venous autografts, which resulted in significant neointimal formation and vascular lumen narrowing. Neointima quantitative assay revealed that the neointimal hyperplasia of venous autografts was suppressed obviously in graft experimental group, and its neointimal area and NIA/MA ratio of venous autografts were significantly lower than those in graft control group (P<0.01). Immunohistochemical assay indicated that the PCNA labeling index of neointimal cells was significantly lower in graft experimental group than that in graft control group (P<0.01). CONCLUSION: Atorvastatin significantly inhibits the proliferation of neointimal smooth muscle cells and the development of neointimal hyperplasia of venous autografts in rats. Atorvastatin is a powerful inhibitor of restenosis after vascular reconstructive operation with a potential for therapeutic use.</FONT>

Key words Atorvastatin Vascular smooth muscle cells Neointima hyperplasia Autogenic vein graft

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