

基础医学

骨髓间充质干细胞移植对脊髓损伤大鼠Toll样受体4表达的影响

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摘要:

目的 研究骨髓间充质干细胞(BMSCs)移植对脊髓损伤大鼠Toll样受体4(TLR4)表达的影响,探讨BMSCs移植治疗脊髓损伤的机制。方法 取4周龄雄性Wistar大鼠骨髓分离培养BMSCs,对第3代BMSCs进行免疫细胞化学法鉴定,收集备用。取8周龄雄性Wistar大鼠90只,随机分为假手术对照组、脊髓损伤组和细胞移植组,每组30只,脊髓损伤组建立大鼠Allen's脊髓损伤模型,细胞移植组建立大鼠Allen's脊髓损伤模型后行BMSCs静脉移植。分别于术后24h、72h、7d处死大鼠,取损伤中心1cm脊髓,应用免疫组织化学法、实时荧光定量PCR(RT-qPCR)法分别检测TLR4的表达。结果 脊髓损伤处TLR4表达脊髓损伤组比假手术对照组增加(P<0.01),细胞移植组比脊髓损伤组降低(P<0.01)。结论 BMSCs可能通过降低TLR4的表达抑制脊髓炎症反应。

关键词: 骨髓间充质干细胞; 脊髓损伤; Toll样受体4; 细胞移植; 大鼠

Effects of bone marrow mesenchymal stem cells transplantation on the expression of Toll-like receptor 4 in injured spinal cord of rats

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Abstract:

Objective To investigate the effect of bone marrow mesenchymal stem cells (BMSCs) transplantation on the expression of Toll-like receptor 4 (TLR4) in injured spinal cord of rats, and to explore the mechanism by which BMSCs transplantation treats spinal cord injury. Methods A 4-week old mouse was utilized to separate BMSCs, which were cultured into third generation and then identified by immunohistochemical Methods . A total of 90 8-week old male Wistar rats were evenly divided into three groups: group of surgical control, group of spinal cord injury and group of cell transplantation. Rats in group of spinal cord injury was used to establish Allen's SCI model, rats in group of cell transplantation was injected with the BMSCs suspension after SCI. Then the rats were killed respectively at 24 hours, 72 hours, 7 days and 1 cm of the spinal cord blocks in the center of contusion site was removed. The expression of TLR4 in the injured area was detected with immunohistochemical method and real-time quantitative PCR (RT-qPCR). Results The expression of TLR4 in group of spinal cord injury increased compared with that of group of surgical control (P<0.01). The expression of TLR4 in group of cell transplantation decreased compared with that of group of spinal cord injury (P<0.01). Conclusion BMSCs transplantation may inhibit inflammation in spinal cord injury by decreasing the expression of TLR4.

Keywords: BMSCs; Spinal cord injury; Toll-like receptor 4; Cell transplantation; Rats

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