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摘要:

摘要目的: 观察从大鼠脂肪组织中分离出的脂肪干细胞(ADSCs), 研究ADSCs移植对颅脑损伤大鼠神经功能及细胞凋亡的影响。方法: 采用Feeney法制成大鼠颅脑损伤模型, 健康雌性Wistar大鼠60只用随机数字法分成移植实验组、培养基对照组、假手术组, 每组20只。5-溴脱氧尿核苷(5-BrdU)标记ADSCs。对实验组大鼠进行损伤区域细胞移植, 培养基对照组移植等量氨基酸葡萄糖培养基(DMEM/F12), 假手术组仅开骨窗处理。在移植后第1、3、10、21天采用神经功能评分(NSS)方法分别对各组实验大鼠进行评分。取损伤部位脑组织用直接免疫荧光法检测标记细胞体内存活增殖情况, 原位末端凋亡法(Tunel)观察细胞凋亡。结果: 移植后ADSCs在大鼠体内存活良好分布于损伤区域。移植组在移植后第3、10、21天神经功能评分均低于对照组( $P < 0.05$ ), 在各时间点移植组细胞凋亡明显少于对照组( $P < 0.05$ )。结论: ADSCs移植后可以减少颅脑损伤大鼠神经细胞凋亡, 有助于神经功能恢复。

关键词: [创伤性颅脑损伤](#) [脂肪干细胞](#) [凋亡](#) [神经功能评分](#)

The influences of transplantation of adipose-derived stem cells on neurological severity score and neurocyte apoptosis of the rats with craniocerebral injury [Download Fulltext](#)

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Abstract:

Abstract Objective: To observe the influences of adipose-derived stem cells(ADSCs) transplantation on neurological severity score and neurocyte apoptosis of the rats with traumatic brain injury to provide the evidence at treating traumatic brain injury with ADSCs transplantation. Method: The model of rat with craniocerebral injury was made with Feeney's free falling body method. Sixty healthy female Wistar rats were divided by digital way at random into transplantation experimental group, cultivation control group and sham operation group, 20rats in each group. Brdu was used to mark the ADSCs. ADSCs were transplanted in injury areas of rats in transplantation experimental group; in cultivation control group DMEM/F12 culture medium of equal volume were transplanted; and in sham operation group only craniotomy was executed without transplantation. After transplantation the rats in each group were evaluated with NSS at the 1st, 3rd, 10th, 21st d respectively. Brain tissue of the injured area were taken off and survival and proliferation of cells in the injured area were examined and marked through direct immunofluorescence. TUNEL was employed to observe the cell apoptosis. Result: After transplantation, ADSCs distributed in injury area survived well. At the 3rd, 10th, 21st d the NSS scores in transplantation experimental group were less than that in cultivation control group( $P < 0.05$ ). At each time point, the cell apoptosis in transplantation experimental group was evidently less than that in cultivation control group( $P < 0.05$ ). Conclusion: After ADSCs transplantation, the cell apoptosis of rats with craniocerebral injury decrease, and it is helpful for the recovery of neurological function.

Keywords: [traumatic brain injury](#) [adipose-derived stem cells](#) [apoptosis](#) [neurological severity score](#)

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