

刘 杨, 苗宇船, 郭继龙. 大鼠脊髓损伤模型的改良及伤后再生基因-2蛋白的表达变化[J]. 中国康复医学杂志, 2012, (12): 1102-1105

大鼠脊髓损伤模型的改良及伤后再生基因-2蛋白的表达变化 [点此下载全文](#)

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基金项目:

DOI:

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摘要:

**摘要目的:** 制备改良的大鼠脊髓损伤(SCI)动物模型, 并探讨再生基因(Reg)-2蛋白在SCI后的表达规律。方法: 采用36只SD大鼠。参考Allen法, 使用自制打击装置致大鼠T13段脊髓中度损伤。以行为联合评分法(CBS)评定模型的可靠性。免疫印迹法和免疫组织化学(SABC)法对正常对照组、伤后第1天、第2天、第3天、第5天和第7天的大鼠脊髓组织中的Reg-2蛋白进行检测。结果: SCI后大鼠一般情况符合临床损伤特点, 且稳定性强; 各损伤组大鼠神经功能联合评分均呈明显下降趋势, 与正常对照组比较差异具有显著性意义( $P < 0.05$ ); 在正常对照组大鼠脊髓神经节内有微量的Reg-2蛋白表达(阳性细胞数为 $17.3 \pm 2.6$ , Reg-2相对表达量为 $0.038 \pm 0.007$ )。SCI后1天, 大鼠脊髓内Reg-2表达的免疫阳性细胞随着损伤时间的推移逐渐增多, 至伤后第7天仍呈高水平表达(阳性细胞数为 $90.0 \pm 3.6$ , 相对表达量为 $0.694 \pm 0.018$ ), 各组间比较差异具有显著性意义( $P < 0.05$ )。伤后3天内, Reg-2免疫阳性细胞以后角神经元为主, 而伤后7天以前角神经元和胶质细胞为主。结论: 本实验装置制作的大鼠SCI模型稳定、可靠; SCI后Reg-2蛋白表达开始升高, 对受损神经起保护和修复作用。

**关键词:** [脊髓损伤](#) [再生基因-2蛋白](#) [免疫印迹](#) [免疫组化](#)

Modification of the rats model of spinal cord injury and expression of regenerating gene-2 protein after spinal cord injury in rats [Download Fulltext](#)

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Abstract:

**Abstract Objective:** To design and produce a kind of modified rat model of spinal cord injury(SCI), and explore the expression pattern and effects of regenerating gene (Reg) -2 protein after SCI in rats. Method: Thirty-six SD rats were subjected to moderate SCI by modified Allen's crush method with a self-designed experimental device at T13 level of spinal cord. Combined behavioral score(CBS) was used to assess the reliability of model. Western-blot and immunohistochemical techniques (SABC) were used to detect the expression of Reg-2 in rats of different groups (normal control, 1, 2, 3, 5 and 7d post-injury). Result: After operation the general health status of rat model was accorded with the clinical characteristics of SCI in human, and was with high-stability. The CBS in model groups declined with the time of injury, and compared with the normal control the difference was statistically significant ( $P < 0.05$ ). In normal control group, the number of Reg-2-positive cells and relative expression of Reg-2 in spinal cord were  $17.3 \pm 2.6$  and  $0.038 \pm 0.007$ . At 1d post-injury the level of Reg-2 elevated and reached a high level at 7d post-injury (the number of Reg-2-positive cells and relative expression of Reg-2 were  $90.0 \pm 3.6$  and  $0.694 \pm 0.018$ ), the difference compared with model groups were statistically significant ( $P < 0.05$ ). In the early phase of injury (in 3d post-injury), neurons in dorsal horn of spinal cord were accounted for the most part of Reg-2-positive cells. But the main Reg-2-positive cells were neurons of spinal anterior horn and gliocytes in the later phase of injury. Conclusion: The modified rat model prepared with our self-designed experimental device was with high-stability and higher reliability, and the experimental results suggested that SCI could stimulate the Reg-2 expression, which might contribute to maintenance of nerve cell survival and repair of damaged neural tissues after SCI.

**Keywords:** [spinal cord injury](#) [regenerating gene-2 protein](#) [Western-blot](#) [immunohistochemistry](#)

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