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大鼠脊髓损伤后自噬相关蛋白LC3和BNIP3的

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Title: Expression of autophagy related proteins LC3 and BNIP3 after acute spinal cord injury in rats

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关键词: 脊髓损伤; 自噬; LC3; BNIP3

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摘要: 目的 检测大鼠脊髓损伤后神经元自噬以及相关蛋白的表达。 方法 24只雄性SD大鼠，按随机数字表法分为假手术组，损伤后6、12、24、48、72 h组，每组4只。假手术组仅作T10椎板切除，Allen，s法建立损伤模型。透射电镜观测损伤组织的超微结构，Western blot检测LC3、BNIP3的表达变化，免疫荧光检测LC3、BNIP3的表达及定位。 结果 透射电镜下脊髓损伤48 h后观测到自噬小体；Western blot检测显示LC3-Ⅱ表达量48 h后明显升高(P<0.01)，BNIP3损伤后12 h明显升高（P<0.05）；免疫荧光显示LC3、BNIP3在损伤区域的神经元中高表达。 结论 大鼠脊髓损伤后激活神经元自噬以及相关蛋白表达。

Abstract: Objective To determine the activity of autophagy in neurons and the expression of autophagy related proteins in rats after spinal cord injury (SCI). Methods Twenty-four

male SD rats were randomly divided into 6 groups, that is, sham-operation, and 6, 12, 24, 48, and 72 h after injury groups (n=4 for each group). The rats from the first group were given resection of T10 vertebral plate , while those of other groups were subjected to spinal contusion using an Allen，s injury process. Transmission electron microscopy (TEM) was employed to observe the ultrastructure of the injured region and the formation of autophagic vacuoles. Immunofluorescence staining and Western blotting were used to detect the location and expression of LC3 and BNIP3 after SCI at different time points. Results Neuron autophagy was activated in injured spinal cord in 48 h after injury. Western blotting demonstrated that the expression of LC3-Ⅱ was significantly increased in 48 h after injury (P<0.01), and that of BNIP3 was up-regulated in 12 h (P<0.05). LC3 and BNIP3 positive neurons were accumulated in the lesions. Conclusion SCI activates neuron autophagy and autophagy markers LC3 and BNIP3 in the damaged neural tissue.

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