Effect of nimodipine on rat spinal cord injury

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ABSTRACT. We evaluated the potentially protective effect of nimodipine on rat spinal cord injury. Sprague-Dawley rats received spinal cord injury, and were separated into nimodipine (N = 12) and saline groups (N = 12). Within 1 h of the injury, rats were treated intraperitoneally with nimodipine (1.0 mg/kg) or an equal amount of saline. Treatment was performed 3 times a day for 1 week. Operation BBB score and track experiment were used to measure the physical function of the hind legs 1 and 2 weeks after injury. Two weeks after the injury, malondialdehyde (MDA) content and spinal cord myeloperoxidase (MPO) activity of the injured part were determined, and the glial scar and dead room were studied using the immune tissue chemical test. ED1 was used to observe active gitter cell and macrophages. The physical function of the nimodipine group improved significantly (P < 0.01). Two weeks after injury, spinal cord MDA content in the spinal cord in the nimodipine group (nmol/g, 25.6 ± 9.7 vs 68.5 ± 16.7) and MPO activity (U/g, 252.2 ± 63.9 vs 382.8 ± 108.2) decreased significantly (P < 0.01); nimodipine whole dead space (mm², 4.45 ± 1.28 vs 6.16 ± 2.65) and ED1 antibody immunity colored positive room (mm², 1.87 ± 0.42 vs 2.86 ± 1.01) reduced significantly
(P < 0.01). Nimodipine treatment could reduce oxidative injury after spinal cord injury, reduce the whole dead space and inflammation, and repair spinal cord injury.

**Key words:** Rats; Spinal cord injury; Nimodipine; Propylene glycol; Peroxidase; Free radical