Local expression and role of BMP-2/4 in injured spinal cord


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ABSTRACT. We investigated local changes in BMP-2/4 expression in rat spinal cords 1 week following injury to study the damage effects of BMP-2/4 in spinal cord injury (SCI). Sprague Dawley rats (45, 4 months old) were randomized into three groups comprising 15 rats each: a SHAM group, an SCI without noggin group (SCIO), and an SCI with noggin group (SCID). The SCIO and SCID groups were subjected to spinal cord hemisection, and motor activity was assessed using the BBB score. Expression of BMP-2/4 in each injured spinal cord section was examined by hematoxylin and eosin staining, immunohistochemistry, and western blot. There were no significant differences in BBB scores among the three groups (P > 0.05). Following hemisection, the BBB score in the SHAM group was significantly higher than in the other two groups on the 1st day after modeling (P < 0.05), and the BBB scores in the SCIO and SCID groups were not significantly different (P > 0.05). Seven days after modeling, the BBB score in the SHAM group was significantly higher than in the other two groups (P < 0.05), and the BBB score in the SCID group was obviously higher than in the SCIO group (P < 0.05). The expression of BMP-2/4 was highest in the SCIO group and lowest in the SHAM group (P < 0.05). SCI can cause severe...
impairment of motor activity in rats. Seven days after SCI, the local expression of BMP-2/4 had obviously increased; noggin can effectively inhibit the expression of BMP-2/4 and reduce impairment.

**Key words:** BMP-2/4; Noggin; Spinal cord injury