



Influence of neural stem cell transplantation on angiogenesis in rats with spinal cord injury

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ABSTRACT. We examined the influence of neural stem cell transplantation on angiogenesis in rats with spinal cord injury. Sixty rats with spinal cord injury were divided into an experimental group and a control group and given neural stem cells or an equivalent amount of phosphate-buffered saline by intravenous transplantation, respectively. Basso, Beattie, and Bresnahan (BBB) motor function assessment was performed in rats at different times after transplantation, and von Willebrand factor (vWF) immunofluorescence and Western blot analysis of vascular endothelial growth factor (VEGF) protein were also performed. The BBB scores of rats in the 2 groups were both zero before transplantation. The BBB score gradually increased over time. The BBB score of the experimental group showed no significant difference compared with that of the control group ($P > 0.05$) 7 days after transplantation. The BBB score of the experimental group was significantly improved compared with that of the control group 14 days after transplantation ($P < 0.05$). vWF-positive cells and VEGF protein expression in the experimental group were significantly increased compared with those in the control group 7 and 14 days after transplantation, respectively ($P < 0.05$). Neural stem cell transplantation

may promote angiogenesis by inducing VEGF expression as well as improve functional recovery of limb movements.

Key words: Neural stem cells; Spinal cord injury; Angiogenesis