Experiment Study of the Promotion of Nerve Growth Factor to Sciatic Nerve Regeneration
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In this paper, nerve growth factor (NGF) was introduced to promote rabbit sciatic nerve regeneration after injury. Rat 2.5s NGF was chosen as neurotrophic factor and silicon tube as nerve regeneration chamber. In the chamber the two cut ends of nerve were 6mm apart. Sciatic nerve of rabbits were cut bilaterally and bridged with silicon tube. One side of the tube was infused with 30μl 2.5s NGF solution (each ml of NS contained 1mg NGF), on the other side equivalent amount of normal saline (NS) was infused as control. 1-5 weeks after operation, sample was collected and examined grossly, or under light microscope and electron microscope, some were examined using an axon image analyzer. Results showed that one week after operation, the matrix formed on the experimental side was thick and bulky, in the matrix there was large amount of striated cord-like nerve cells. In 3 weeks after operation, on the NGF side there were many regenerated axons growing into the distal end of the nerve. In 5 weeks after operation, the diameter of the regenerated nerve trunk on NGF side was two times that of the NS side. The number of regenerated axons at distal end of nerve was 2.5 times of the control side. This result indicated that external source of NGF could obviously promote regeneration of the rabbits sciatic nerve after injury. This provided reliable experimental basis for clinical application. In this paper, the problems of how to employ NGF and its mechanism of action had also been explored.