

Olfactory ensheathing cells transplantation for chronic spinal cord injury: A long-term following-up study

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Abstract:

Objective: The aim of this article is to study the long-term(7 years) result of OECs for patients (SCI).**Methods:** Randomly selected 40 with chronic spinal cord injury who received transplantation of Olfactory ensheathing cell ,male 29,female11, 20 to 50 years old, course of disease 1 to 14 years, etiology including accidents, falls, iatrogenic injury, [spinitis](#), It is a case-control analysis of SCI patients received transplantation in different periods, They were divided into three groups based on time of operation. (A:pre-operation,B: 3 months after the operation, C:7 years after the operation) ,All patients were assessed by using the American Spinal Injury Association (ASIA) standard , Autonomic nervous function was assessed by international standards to document remaining autonomic function after spinal cord injury (ISAFSCI) and sympathetic skin response(SSR).and the tests of magnetic resonance imaging (MRI). **Result:** We found the following: (1) According to ASIA assessment for all 40 patients, we compared group A with group B, the increased scores in terms of motor, light touch and pin prick ,autonomic nerve function were remarkably different (all $p < 0.01$). (2) Comparing group A with group C, the increased scores in terms of motor, light touch and pin prick , autonomic nerve function were remarkably different (all $p < 0.01$). (3) Comparing group B with group C, the increased scores in terms of motor were remarkably different (all $p < 0.01$) but not light touch or pin prick or autonomic nerve function ($p > 0.05$). (4) autonomic function (general autonomic function, lower urinary tract, bowel and sexual function) was improved after operation 3 months and 7 years. But there is no statistical difference between 3 months and 7 years postoperation. (5) Among 15 cases with complete spinal cord injury, 4 cases showed a sympathetic skin response before transplantation and 7 cases showed a response post-treatment. Among the 24 subjects with incomplete spinal cord injury, all the cases can record SSR both before and after transplantation. There were significant differences between SCI and normal in terms of SSR , significant

prolonged SSR latencies and decreased amplitude. After transplantation, the sympathetic skin response amplitude significantly increased, while the latency period significantly decreased (Only the latency between preoperative and 3 months after transplantation was no statistical difference, $P=0.148$). (6) MRI examinations were taken for 40 patients; there were no neoplasm, bleeding, swelling, cysts, neural tissue destruction or infection (abscess) or any other pathological changes in or around OEC transplant sites in 7 years. **Conclusion:** Long-term outcome of olfactory ensheathing cell therapy is Safe and effective.

Key words: chronic spinal cord injury; OECs transplantation ;Safety ; efficacy