P060 Functional improvement on erectile and ejaculatory in a spinal cord injury after mesenchymal stem cell implantations

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INTRODUCTION. Decompression of involved cord and stabilization of adjacent vertebrae has been the mainstay of spinal cord injury treatment. However, this strategy alone does not address the neurologic sequel that lead to poorer patient's quality of life, one of which is erectile and ejaculatory dysfunction. Mesenchymal stem cells has been known to have regenerative ability in a wide variety of tissues, including nerve tissue. Clinical studies on human have also been conducted in small basis, and so far has shown equivocal results. This paper will report the evaluation of erectile and ejaculatory function of patient with spinal cord injury, and before and after the implantation of mesenchymal stem cell.

METHODS. Thirty seven-years-old male with paraplegia as well as erectile and ejaculatory dysfunction for six years due to spinal cord injury (SCI), and since then has undergone two surgery without any improvement on his clinical symptoms. He got stem cell treatment with RSCM protocol. Every cycle contained three consecutive injections with interval of 2 weeks. The first injection administered 10×10⁶ cells via intravenous route, 16×10⁶ cells via intrathecal route, and 16×10⁶ cells by intrasional route. The second and third injections administered 16×10⁶ cells by intrasional route. The evaluations of sensory and motoric function was done by clinical and physical examination using ASIA Scoring System, Somatosensory Evoked Potential examination (SSEP), Motoric Evoked Potential examination (MEP). The patient was also evaluated his erectile and ejaculation function by Rigiscan examination.

RESULT: At baseline, the patient had no sensory or motor function at the level of Th7 and below. The patient was also examined for SSEP, which found a total functional lesion of dorsal horn of spinal cord at both sides of C7-Th12 vertebrae. At one month follow-up, the patient reported an improvement on his erectile and ejaculatory function, he can erect better and ejaculate normally. There were also sensory and motor improvement. Normal sensory function was found at dermatome of the level of Th7-8 and hypoesthesia was found at dermatome of the level of Th9 and below. The patient also reported more rigid erection and normal ejaculation. The patient will be scheduled for rigiscan at 6-month follow up.

DISCUSSION AND CONCLUSION: It has been known that sexual function in different stages after SCI and the types of ections depend mainly on the completeness of the injury and the level of neurological damage. For complete SCI, both erectile and ejaculatory problems was mainly associated with neurologic injury that causes autonomic control dysfunction as well as inadequate brain stimulus toward effector side. Furthermore, most of the SCI men demonstrate defects concerning the entrance of semen into the posterior urethra and the expulsion of the semen through the penile urethra and the urethral orifice, rendered the patient susceptible to retrograde ejaculation. An array of new and promising strategies is being developed to improve function after SCI. At present, two main therapeutic strategies, cell-based and gene-based therapies are being investigated. In this present case, the patient was treated with a regime of mesenchymal stem cell implantations, and uniquely resulted in immediate improvement on both erectile and ejaculatory manifestations. Normally, erection was mediated via sacral pathways in the sacral spinal cord and involve the parasympathetic nervous system. In our knowledge, there was still no published article describing the recovery of sexual function of SCI patients. We hypothesized that the prompt recovery of erectile and ejaculatory functions in our patients was due to central healing of spinal cord that involves sacral parasympathetic pathway.

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