

LONG-TERM RESULTS DEMONSTRATE EFFICACY OF EARLY BILATERAL SACRAL NEUROMODULATION FOR THE PREVENTION OF NDO AFTER SCI

Hypothesis / aims of study

Neurogenic Detrusor Overactivity (nDO) will occur in almost all patients with upper motor neuron disease after complete SCI. Implantation of SNM could prevent urinary incontinence due to nDO successfully in patients with good compliance demonstrated after mean 2 years, but long-term efficacy of this approach is still missing. To our knowledge this is the only study investigating this promising therapeutic possibility for SCI patients to date. In 2010 we reported the initial outcome of early sacral neuromodulation (SNM) to prevent urinary incontinence after complete spinal cord injury (SCI). This study presents the long-term results of our prospective follow-up.

Study design, materials and methods

Ten patients received bilateral SNM implantation during the acute phase of complete spinal cord injury with upper motor neuron disease. One additional patient received bilateral SNM as an individual treatment attempt. Two patients were dropouts in the initial report. Follow-up is available in all of the nine patients, but one refused long-term follow-up by diagnostic evaluation.

Results

Mean follow-up of the remaining patients is 77.7 months; current urodynamics are available in 4 patients. Mean time between trauma and implantation was 85 days (+/- 30 days). Early bilateral SNM is clinically considered effective in six out of nine patients with normal bladder capacity, absence of both urinary incontinence and nDO. In one patient without efficacy reoccurred electrode dislocation has been detected by X-ray, but the patient denied further surgical revision with the possibility to regain a positive SNM outcome. The other two patients demonstrated electrode dislocation with surgical intervention during the first study phase but long-term success could not be reached. Patients with nDO received antimuscarinics (one patient) or injections with onabotulinumtoxin (two patients).

Interpretation of results

Bilateral implantation of sacral neuromodulators facilitates the prevention of nDO after complete spinal cord injury with upper motor neuron disease. Electrode dislocation and non-compliance of the patient are the major risk factors identified for reduced efficacy.

Concluding message

Adaption of the electrode's composition and a strict and close patient care may increase the promising long-term results of this therapeutic approach. Furthermore implantation immediately after the spinal cord injury might enhance the outcome.

Disclosures

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