

SACRAL NERVE STIMULATION FOR OVERACTIVE BLADDER SYMPTOMS IN PATIENTS WITH BRAIN DAMAGE: A PILOT STUDY

Hypothesis / aims of study

Intention to treat analysis of the effect of sacral nerve stimulation (SNS) for overactive bladder (OAB) symptoms in patients with brain damage: a pilot study

Study design, materials and methods

We reviewed retrospectively our database of sacral nerve stimulation and we selected 10 patients with brain damage due to brain injury (n = 7) and surgery for a brain tumor (n = 1) or cerebral aneurysm (n = 1). Only patients with 12 months follow-up were included in the study. Patients had a median age of 38 years with a range of 27-71 years. There were 8 women and 2 men. Rigidity or spasticity was seen in 6 patients. Initial prolonged coma was registered in 4 patients and brain damage was objectively seen in 8 patients on imaging. We distinguished patients with symptoms of wet OAB (n = 8) or dry OAB (n = 2). Non-obstructive voiding dysfunction (n = 8) was diagnosed if free flow and urodynamics were abnormal but only 3 were symptomatic.

Micturition diaries (3 days) and visual analogue scales for well being related to bladder symptoms (VAS) were used to analyse the data. All patient were selected for implantation by a 4-7 days percutaneous nerve evaluation (PNE) and were accepted for implantation if a more then 50% increase in functional bladder capacity or decrease in frequency or leakage episodes was registered compared to baseline assessment. Success was defined as a more then 50%, failure as 50% or less increase in functional bladder capacity or decrease in frequency or leakage episodes were registered compared to baseline assessment. Follow-up was performed 3 and 12 months after implantation.

Data are presented as median and range and statistical analysis was performed with a paired Wilcoxon test.

Results

Percutaneous test stimulations were successful in 8/10 patients. Failure of implants was seen in 3/8 implanted patients and happened in between 3 and 12 months of the follow-up. Voiding dysfunction was seen as well in failures (n = 1) or success (n = 1). We performed 2 revisions. Results of micturition diaries and VAS are shown in Table 1. No pain complaints, stimulation related problems or device related complications were registered.

Table 1

	Frequency (n)	Voided volume (ml)	Leakage (n)	VAS
Baseline	9 (6-4)	200 (27-1270)	3 (0-6)	25 (10-55)
PNE	8 (7-21)	217 (62-320)	0 (0-6)	81 (18-100)**
3 months	6 (4-10)**	267 (58-309)**	0 (0-3)*	80 (38-100)**
12 months	5 (4-10)**	244 (79-399)**	0 (0-3)**	61 (25-100)*

* p < 0.05, ** p < 0.01, Wilcoxon test

Interpretation of results

Sacral nerve stimulation is a worth to try in patients with brain damage but in this pilot study it was not possible to identify factors of success or failure. Compared to our results in non-neurogenic patients (1/3 to 1/2 patients implantation rate) we implanted 8/10 patients. The 12 months results (5/8 successful) are lower compared to the non-neurogenic indications in our centre.

Concluding message

Sacral nerve stimulation is a worth to try in patients with brain damage suffering from overactive bladder symptoms.