

“TWO-STAGE-IMPLANTATION” VS. “CONVENTIONAL” PERIPHERAL NERVE EVALUATION (CPNE): RESULTS OF ACUTE SACRAL NERVE STIMULATION

Hypothesis / aims of study

Prior to implantation of a chronical sacral neurostimulator, it is important to establish which patients might profit from this kind of therapy in order to ensure, by means of a PNE (peripheral nerve evaluation) test, that the implantation of a permanent stimulating device is effective. In a retrospective study we compared the two different techniques used in our department (implantation of the permanent neurostimulation electrodes so-called “two-stage-implantation” vs. conventional PNE).

Study design, materials and methods

We performed a sacral nerve stimulation in 53 patients (mean age: 49.7 yrs (14-75 yrs); 31 with neurogenic or ideopathic urinary retention, 13 with a hyperactive detrusor and 9 with sensory urge or pelvic pain) over a minimum of 5 days. In 42 patients we performed a conventional PNE, 11 patients received “two-stage-implantation” with implantation of the permanent electrodes.

Results

52 of 53 patients received bilateral test stimulation (9% at S2, 91% at S3). One patient underwent unilateral PNE (S3) because of anatomical deformity of the os sacrum. In 20 cases the conventional PNE-test (cPNE) was successful according to standard criteria (47.6% of all cPNE). 12 of these patients suffered from a neurogenic bladder dysfunction, in 8 cases the causes were idiopathic; 9 patients suffered from retention, 7 from overactive bladder symptoms and 4 patients from sensory urge or pelvic pain. The response rate of “two-stage-implantation” with implantation of the permanent electrodes was 81.8% (9 of 11 patients). 7 patients with neurogenic and 2 with idiopathic bladder dysfunction; 3 patients suffered from retention, 4 from overactive bladder symptoms and 2 patients from sensory urge.

Interpretation of results

There is a significant difference in our institution between success rates of “two-stage-implantation” versus the conventional PNE-test (81.8% vs. 47.6%). Reasons might be based on the fact of a better nerve contact on a larger distance. A large amount of “effective” nerve fibres are stimulated including the ones for the not measured urethral sphincter response which seems to be an important parameter for optimal electrode positioning within the PNE-Test in previously animal studies.

Concluding message

Success rate of implantation of permanent neurostimulation electrodes in selecting patients for the permanent implant is significantly higher than the conventional PNE. In this group patients with neurogenic and overactive bladder dysfunctions showed the highest response rates to sacral nerve stimulation and are the most likely to benefit from sacral neuromodulation.

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