

CHANGES IN BLADDER SENSATIONS DURING SACRAL NEUROMODULATION FOR OVERACTIVE BLADDER SYNDROME: EVALUATING THE UTILITY OF SENSATION-RELATED VOIDING DIARIES.

Hypothesis / aims of study

Sacral neuromodulation (SNM) is an effective treatment for overactive bladder syndrome (OAB) when conservative treatment fails. If patients show a successful response to test stimulation, a permanent device is implanted. Success is defined as more than 50% improvement in voiding diary parameters. Currently, the frequency, voided volume per void and number of leakages are the parameters used for evaluation of treatment effect. However, bladder sensations such as urgency and bladder fullness can also be documented by the use of sensation-related bladder diaries (SR-BDs). It has been previously shown that bladder sensations differ between OAB patients and healthy volunteers. Furthermore, SR-BDs could be used to evaluate treatment effect. The aim of this study is to evaluate the influence of SNM on bladder sensations in patients with OAB.

Study design, materials and methods

In a prospective longitudinal cohort we included patients, diagnosed with OAB using the ICS criteria. All patients had failed conservative treatment including physical therapy and anticholinergic drugs. Test stimulation was conducted using the tined lead procedure. All procedures were performed under local anaesthesia.

Patients filled in a SR-BD for 3 consecutive days, one at baseline and the second during test stimulation. The sensation-related bladder diaries include, besides the conventional parameters, a 4-points urgency scale (0=no bladder sensation, 1=voiding can be delayed for more than 30 minutes, 2=voiding can be delayed for at least 10 minutes, 3=voiding cannot be Delayed), and a bladder fullness Visual Analogue Scale ranging from 0 to 10.

Sample size calculation showed that 29 patients are needed at a 95% confidence interval.

After testing for normality using a Shapiro-Wilk test, histogram and boxplot, either a paired samples test or a Wilcoxon signed rank test was used to examine differences in parameters before and during test stimulation.

Results

We included 31 patients with OAB who were eligible to undergo SNM test stimulation. The results of the SR-BD showed that patients void less frequently (12.5 vs. 9.1 /24h; $p<0.001$) with a higher mean voided volume (160 vs. 188 ml/micturition; $p=0.003$). The mean degree of urge was significantly lower with SNM (2.4 vs. 1.9 /micturition; $p=0.002$). In addition, the mean voided volumes were higher for each degree of urge during SNM (figure 1). The mean perception of bladder fullness was similar (figure 2). When looking at the distribution of daily voids per degree of urge, SNM reduced the number of voids with higher degree of urge (figure 3).

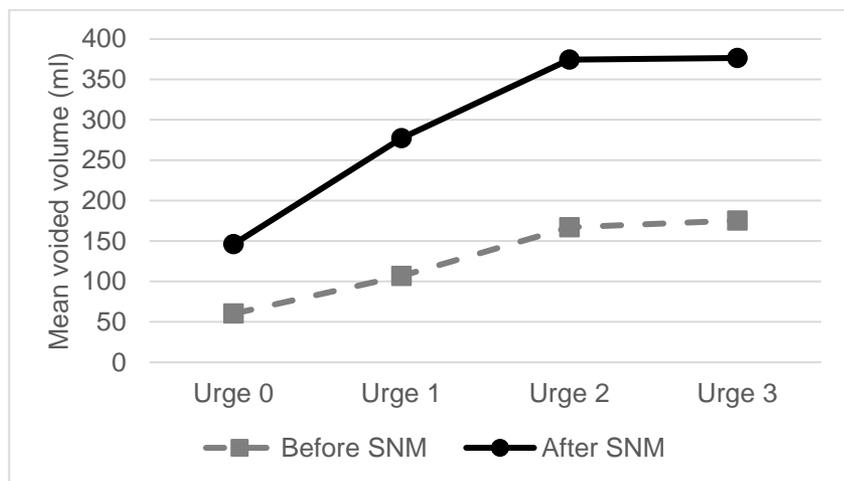


Figure 1: Mean voided volume per degree of urgency
 Urge 0: $p=0.139$; Urge 1: $p=0.031$; Urge 2: $p=0.017$; Urge 3: $p=0.061$

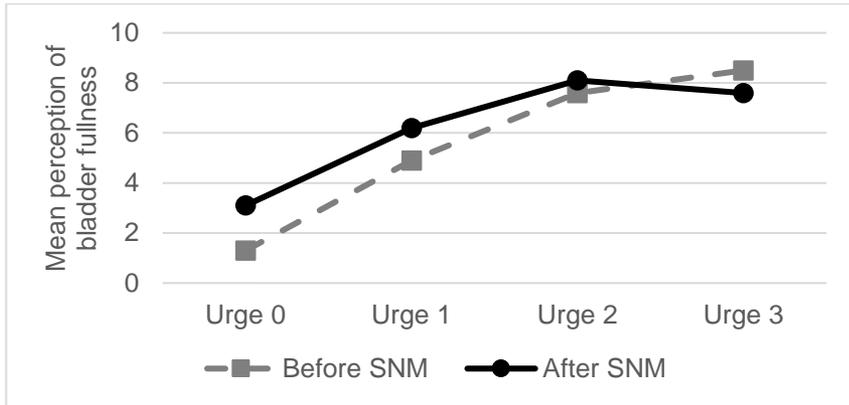


Figure 2: Mean perception of bladder fullness per degree of urge.
Urge 0: p=0.139; Urge 1: p=0.424; Urge 2: p=0.213; Urge 3: p=0.077

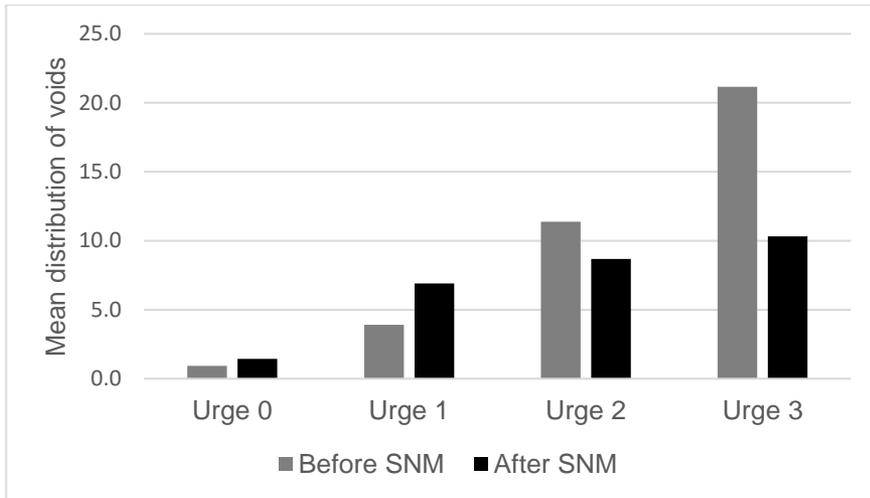


Figure 3: Distribution of daily voids for each degree of urge (0-3).

Interpretation of results

Besides frequency and voided volume, SNM reduces the degree of urge experienced by OAB patients. Perception of bladder fullness shows no change during SNM.

Concluding message

SNM has a direct influence on bladder sensations. SR-BDs can provide additional information compared to the standard voiding diaries, which may be useful in clinical practice.

Disclosures

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