Introduction

The aim of the study was to assess the utility of sacral nerve stimulation’s reprogramming during the initial test phase (stage 1) in refractory urinary urgency and urge incontinence. During stage 1, stimulation parameters are adjusted to provide the best improvement in voiding dysfunction. We evaluated stage 1 results with different parameters of reprogramming to better select candidates for neuromodulation.

Methods

We prospectively evaluated 30 consecutive patients (26 women, 4 men) (mean age 61±11.1 years) impaired by a single episode between June 2008 and November 2010. Eligibility were 30 UF idiopathic (26), radiation cystitis (2), interstitial cystitis (2). Pre-operative assessment included clinical examination, urodynamic, cystoscopy, MHU score, and kidney ultrasound. During stage 1, the device was systematically programmed at 5Hz, 15Hz, 40Hz and a Test-Off. With a bipolar lead configuration, pulse width 210μs and evaluated at the election. Effectiveness was based on voiding diaries and the permanent implantation was decided if improvement >50. Mean follow-up was 19.67 ± 0.87 months.

Results

The overall implantation rate was 70% (21/30). Mean test period was 25.67 ± 8.9 days with an average of 5.8±2.7 medical visitations. Among the UF permanent implanted patients, 15% developed a vaginal cystitis, and rectal migration decreased respectively by 36.1% and 63.6%, mean voiding volume increased by 21.2%, number of leakage episodes decreased by 76.8%, pads per day decreased by 80% and MHU-score decreased by 65.4%. Of the 21 permanent implanted patients, stage 1 was successful for 13 (90.5%) at 15Hz, 10 (47.6%) at 5Hz, 8 (37.1%) at 40Hz at Test-Off was always positive. Optimal frequency was 15Hz, 5Hz, 40Hz for respectively 15 (71.4%), 4 (19%) and 2 (9.6%) patients. One patient (4.8%) was implanted with 40Hz and was permanently implanted at this frequency with stable results at 6 months. One patient (4.8%) was only improved with 5Hz and was permanently implanted at the follow-up stage 1 results. During stage 1, complications occurred in 3 patients (10%) acute urinary retention (1), regional pain (1) and infection, requiring electrode removal (1) with new implantation 3 months later. Long-term revision surgery was 4.8% (1/21 patients : infection with tissue removal).

Interpretation of results

Although 10-20Hz are the frequency usually used during stage 1 to evaluate the efficacy of sacral neuromodulation, only few data is available about frequencies programming. This study shows that even if stage 1 was successful for 90.5% of patients at 15Hz, 28.6% of patients were permanently implanted at frequencies different from the 10-20Hz usually used. The 76.8% of patients could benefit of sacral neuromodulation although the neuromodulation’s parameters were not successful at 15Hz during stage 1.

Conclusion

In 10-20Hz reprogramming during initial test phase, 5Hz and 40Hz should be tested. In our experience modifying frequencies during this phase improves neuromodulation outcomes in 28.6% of patients and better select 9.6% of patients but need high physicians availability.

REFERENCES