

Sacral Neuromodulation for the Treatment of Faecal Incontinence and Urinary Incontinence: First Moroccan Experience

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Abstract

Urinary and faecal incontinence are common conditions which are frequently associated and define double incontinence. When conservative treatments fail, sacral nerve modulation (SNM) is considered to be a first-line treatment for patients with urge urinary incontinence and for patients with faecal incontinence. We report the case of a 38 year old patient who suffers from double incontinence, benefiting from a sacral neuromodulation after failure of the usual treatment.

Keywords: Sacral Neuromodulation; Double Incontinence; Urinary Incontinence; Fecal Incontinence

Introduction

Combined urinary and faecal incontinence (double incontinence) is probably the most severe and debilitating manifestation of pelvic floor dysfunction. Women who suffer from both these symptoms have significantly greater impairment in their physical and psychosocial well-being than women suffering from isolated urinary or faecal incontinence [1]. The community prevalence is 9 - 19% for urinary [2] and 5 - 10% for faecal incontinence and increases with age [2]. Faecal incontinence (FI) is reported in 8-10% of female patients who also have urinary incontinence (UI) [3]. Sacral nerve modulation (SNM) has recently been shown to improve or even cure urinary and faecal incontinence in selected patients [4,5]. The invasive nature of sphincter surgery and its poor long-term outcome in many patients has focused attention on non-invasive or minimally invasive therapies with a low morbidity rate. SNM has been used safely and effectively since 1994.

Its role in treating patients with FI with an intact external anal sphincter [6,7] and non-intact sphincter [8] has now been established and includes patients who have persistent or recurrent incontinence after a sphincter repair [7,9,10]. The effect of SNM on urinary and FI has been explained by its action on the nerve fibers within the sacral plexus including somatic, automatic afferent and efferent fibers which are mediated by supraspinal centers [11]. It is speculated that this affects the muscles of the pelvic floor leading to continence control. Increased continence has been attributed to improved rectal sensitivity and compliance, decreased rectal motility [12]. SNM has been used safely and successfully to treat urinary coexisting with anal dysfunction [5,13].

Aim of the Study

The aim of this study was to evaluate improvement in symptoms of FI in a group of women who also had UI and were successfully implanted with the SNM device primarily for urinary incontinence.

Case Report

A 38-year-old woman was admitted to our unit to investigate a 5 years history of double incontinence. She also has depressive syndrome and sleep disturbance. Her medical history included a sexual abuse 8 years ago, three terminations of pregnancy and one delivery by caesarean section. She does not take any medications.

She reports a history of urinary symptoms over five years: episodes of daily UUI, mild urinary incontinence (SUI) and two episodes of nocturia per night. In addition to an episode of active faecal incontinence or the need for preventive bowel movements.

Clinical examination revealed a certain degree of pelvic pain, especially during vaginal examination. Proctologic examination did not show an abnormality of the anal sphincter. The urine gauge was negative and there was no PVR. No specific cause of symptoms such as a urinary tract infection has been identified. The patient also complained of mild dyspareunia.

The urine culture turned out to be sterile, with no blood in urine and the pelvic ultrasound scan and urine cytology were negative. The cystoscopy, which was performed because of the presence of storage symptoms and to rule out a bladder tumor, was normal. In addition, a medullary MRI was carried out in search of a lesion of the spinal cord, was normal. A urodynamic assessment carried out in search of detrusor hyperactivity returned to normal, also a sphincter manometry looking for a sphincter anomaly was also normal.

The patient was prescribed a $\beta 3$ agonist, a laxative and a pelvic floor muscle training (PFMT). She did not feel any clinical improvement after 6 months of treatment, hence the decision to perform a sacred neuromodulation.

The clinical course after sacred neuromodulation was favorable: for faecal incontinence, the safety time, which was, initially 3 to 5 minutes between faecal need and the time to have a bowel movement has become 4 minutes. Also, for urinary incontinence, decrease in Stress Urinary incontinence by 96%, decrease in nocturia 1 Night awakening.

After this improvement, which was obtained at 24 hours after setting up the test, and after 2 weeks, we decided to implant the definitive stimulator.

Long-term results (12 months) show an improvement in faecal incontinence with a delay of safety which has become 17 minutes, an improvement in urinary incontinence by urgency of 98%, also an improvement in sexual life with disappearance of dyspareunia.

Discussion

In most studies (4/7), the initial indication for NMS was FI. The first was published in 2001 by A.M. Leroi, *et al.* [14] and focused on the results of a cohort of six implanted patients with a six-month follow-up. This study reported a benefit of NMS in FI in 100% of patients, in IUI in 50% of patients and in EUI in 0% of patients. In this prospective study, the initial UI assessment was rigorous by specific symptom scores and by physiological explorations adapted to the type of incontinence (urodynamic assessment and anorectal manometry), even if the initial indication for NMS was 'IF, which allowed a precise definition of the type of UI. Although the efficacy of NMS in the treatment of IUI and its ineffectiveness in SUI has been widely demonstrated in urology [15], the other studies, reporting the results of NMS in UI in implanted patients for IF, found a lower efficiency on the IUI and a relative efficiency on the UIE [16,17]. Indeed, Altomare, *et al.* [16] found a benefit of NMS in respectively 50% and 100% of women with an IUI and a SUI while Ganio, *et al.* [17] found a benefit in 100% of women with SUI. One possible explanation is that few studies have characterized the type of UI. They do not include a specific UI score or urodynamic exploration. Therefore, the definition of IUI and IUE was based solely on the interrogation. IUM was most often not mentioned. It cannot therefore be ruled out that patients classified as having an IUI or a SUI have a UMI leading to a bias in the results. A study supports this hypothesis [18]. Indeed, it showed a benefit of NMS in the IUI in only 67% of patients (20 out of 30 patients with isolated IUI

and IUM). This result on the IUI increased to 80% (12 patients out of 15 presenting an isolated IUI and a UMI) when the initial indication for NMS was the UI and to 86% (12 patients out of 14 presenting an isolated IUI), regardless of the initial indication (UI or IF), but excluding patients with a UMI. Thus, these results confirmed that the group of patients with a UMI whose initial indication for NMS was IF tends to underestimate the results of NMS on the IUI.

Only one study reported the results of NMS on ID in 24 implanted women whose initial indication was UI [19]. Fifty-four percent of patients did not improve their FI with an average follow-up of 29.5 months, which is lower than the percentage of effectiveness reported in the literature. In this study, almost half of the patients (45.8%) had a lesion of the anal sphincter diagnosed by endo-anal ultrasound. The extent of the lesion was not specified. However, the NMS remains controversial in the FI with sphincter lesion, even if it does not constitute a contraindication to this technique if it remains small [20,21]. One of the physiological hypotheses to explain the effectiveness of NMS on FI was to restore normal sphincter function. It therefore seems logical that patients with a significant anatomical lesion of the external anal sphincter should be considered as less suitable candidates for this technique. However, studies [22-26] have shown that the results of NMS on FI with sphincter lesion are comparable to those observed in patients with an intact sphincter. On the other hand, it is important to mention that they concerned a small number of patients, with medium-term follow-up and that the sphincter lesions were limited to 30%.

The selection of patients during the temporary test is based on the predominant symptom (UI or IF) without taking into account the other incontinence and most often without having explored it, without knowing if there is a common cause for UI and the FI which can be improved by the NMS. It is therefore not surprising to see poorer results on the "secondary" symptom after implantation. A study [27] corroborates this hypothesis, since it shows that eight out of 15 patients (53%) were improved on FI when the initial indication for NMS was UI compared to 16 out of 22 patients (73%) when the initial indication was IF. The group of patients whose initial indication was UI therefore downplayed the overall results of NMS on FI.

The results of studies on NMS in the treatment of ID underscore the importance of a complete assessment of all perineal disorders (UI and IF) when patients are offered treatment with NMS and there is a DI. This should better predict the effectiveness of treatment on ID. In fact, when the reason for implantation was FI, most studies did not distinguish the type of UTI and did not include scores for specific urinary symptoms or urodynamic assessments to assess it. Their results on the UI would therefore vary depending on the proportion of the type of UI represented in their ID patient population since, by definition, these patients can suffer either from an isolated IUI, or from a pure UIE or either from " a UMI (IUE and IUI) and the quality of their initial assessment. Likewise, the results of NMS on FI in the ID patient population depend on the initial assessment of FI which is correlated with the initial indication of NMS.

Conclusion

SNM may be beneficial in selected patients with UI associated with FI. Its main advantage would be to treat two incontinence with a single treatment, Fundamental studies would also be useful to better understand the mechanisms of action of SNM and their therapeutic effects on UI, FI and DI.

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