

# Does sacral nerve modulation work on simultaneous bladder and rectal dysfunctions?

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**Abstract:** *Introduction:* Our target was to retrospectively examine the results of Sacral Nerve Modulation (SNM) in patients complaining of simultaneous bladder and the rectum dysfunctions, here called double pelvic dysfunction (DPD). *Methods:* In 2009, in six Italian centres, patients treated with SNM were asked to complete a self-assessment questionnaire for DPD. The questionnaire investigated the changes in micturition and rectal symptoms after SNM using specific questions for each dysfunction and symptom - overactive bladder (OAB), urinary retention (UR), faecal incontinence (FI) and constipation (Co). *Results:* Data obtained from forty-four patients with a mean follow-up period of 56.9 months were retrospectively analysed. 73% of patients treated with SNM for DPD reported a significant clinical improvement, and in particular we observed an improvement of 68% for UR+Co, 78% for OAB+Co and 75% for OAB+FI. Among the OAB+Co and UR+Co cases a higher percentage showed a clinical improvement in the vesical alterations (100% and 95% respectively) than in the anorectal ones (79% and 68%). In the OAB+FI group, on the other hand, a higher percentage of cases showed improvements in the anorectal alterations (100%) than in the vesical ones (75%). The improvement was confirmed by a reduction in use of devices and incontinence protection products (pads, self-catheterization and laxatives/enemas). Neurogenic patients had a better outcome than the non-neurogenic ones especially in the OAB+FI group ( $p=0.021$ ). *Conclusions:* In our survey SNM has been more effective in DPD with FI and OAB, especially in a picture of neurological DPD. Therefore, considering also the economic aspect, SNM seems a viable option in highly selected cases of neurogenic DPD including FI. Retrospectively analysed through a patient self-assessment questionnaire, SNM is effective in simultaneous bladder and rectum dysfunction especially with neurogenic faecal incontinence.

**Key words:** Sacral nerve modulation; Urinary retention; Overactive bladder; Urinary incontinence; Faecal incontinence; Constipation.

## INTRODUCTION

Sacral Nerve Modulation (SNM) is a known treatment for both bladder and rectum dysfunctions. A wide literature supports the use of SNM in unresponsive overactive bladder (OAB), urinary retention (UR), faecal incontinence (FI) and chronic constipation (Co)<sup>1-4</sup>. Only few papers<sup>5,6,7,8,9,10,11,12</sup>, though, considered the effects of SNM on simultaneous bladder and rectal dysfunctions, and most of them either have a short-term follow-up or focus only on double incontinence. The aim of this study was to analyze the results of SNM on a population of cases with double pelvic dysfunction (DPD), presenting simultaneous urinary and faecal disorders.

## MATERIALS AND METHODS

In 2009 a retrospective survey about the effectiveness of SNM in DPD was proposed to the Clinical Departments performing SNM in north-eastern Italy. A total of 6 centres accepted and were included in the analysis. The retrospective analysis was conducted on all patients affected with DPD treated with SNM. A self-assessment questionnaire for DPD was used to analyse the patient's opinion and satisfaction after the SNM therapy. The questionnaire investigated the general data as well as the perceived changes in micturition and rectal symptoms using specific questions for each disorder and symptom - dry and wet OAB, UR, FI and Co (see attachment).

The score for each question ranged from 0 (unchanged) to 5 or 6 (complete resolution). Each score defined no changes, partial or complete resolution from the pre-SNM status. The answers had then been converted into a total score ranging from 40 to 200 (40=unchanged after SNM, 200=complete resolution of DPD after SNM).

In order to assess the improvement of Quality-of-Life (QoL) a visual analogical scale ranging from 0 (not improved) to 5 (extremely improved) was used.

## STATISTICAL ANALYSIS

Statistical analyses were performed using SPSS 12.0 software for Windows (SPSS Inc., Chicago, IL, USA).

Continuous data were showed as average  $\pm$  standard deviation (SD) and range, while the categorical ones were shown as absolute and relative frequencies.

Differences between categorical variables were evaluated using the  $\chi^2$  test or Fisher's exact test when appropriate. Statistical comparisons of continuous variables between two groups were performed by the Student's t-test or the Mann-Whitney non-parametric test respectively for normal and non-normal distributions.

A one-way analysis of variance (ANOVA) was used to statistically compare the differences between the groups.

Comparisons between the baseline and the last follow-up clinical outcome were performed through the McNemar-Bowker test for categorical data.

The relationship between double disorders improvements were evaluated through the Cramer's V test.

All 2-tailed p value <0.05 results were considered statistically significant.

## RESULTS

The six centres involved in the survey were five Departments of Urology and one of General Surgery. Forty-four patients completed the questionnaire. They were 42 females and 2 males, with a mean age of  $60 \pm 12$  years (range 37-84). The patients' baseline characteristics are shown on Table 1. Mean duration of follow-up was 56.9 months (range 24-108). The evaluation included only those patients who did not interrupt the stimulation during the follow-up period.

The SNM main indication was urological in 40 patients (22 UR, 18 OAB) and proctological in 4 (3 FI, 1 Co). The aetiology was neurogenic in 12 cases (27%), due to multiple sclerosis in 5 patients.

TABLE 1. Baseline characteristics of patients.

	Total (n=44)	OAB+Co (n=14)	OAB+FI (n=8)	UR+Co (n=22)	p value
Age	61 (12)	64 (13)	64 (9)	58 (12)	0.256†
Neurogenic etiology	12 (27%)	3 (21%)	2 (25%)	7 (32%)	0.782°
Multiple sclerosis	5 (11%)	2 (14%)	1 (13%)	2 (9%)	0.108°
Previous surgery	3 (7%)*	2 (14%)	0	1 (5%)	0.369°

† One-way Analysis of Variance (ANOVA); ° Chi-square test.

\* 5 operations.

Mean and standard deviation in parenthesis.

A total of 22 patients suffered from UR, 22 from OAB, 36 were Co and 8 had FI.

The DPD were: Co and UR in 22 patients (50%), OAB and Co in 14 cases (32%) and OAB and FI in 8 cases (18%). These 3 groups of DPD patients were similar in age and neurological or other etiology distribution ( $p>0.1$ ).

### Questionnaire results

To the question "After SNM did you detect any significant and lasting change in the anorectal and urinary dysfunction?" 32 patients out of 44 (73%) replied positively on both diseases, 41/44 (93%) answered yes considering only the bladder dysfunction, and 34/44 (77%) replied yes only for the rectal one (table 2).

Patients were divided into three groups (OAB+Co, UR+Co, OAB+FI), and no statistically significant differences were found in the clinical improvement of the urinary and rectal functions ( $P>0.05$ ). The improvement of the urinary alterations seemed to have a more positive trend ( $p=0.068$ ). In the OAB+Co and UR+Co groups a higher percentage of cases showed a clinical improvement on vesical dysfunction (100% and 95% respectively) than in Co (79% and 68% respectively). On the other hand, in the OAB+FI group a higher percentage of cases showed improvements on anorectal (100%) than on vesical alterations (75%).

Considering the single dysfunction, Figure 1 shows the questionnaire scores after SNM. There was not a significant difference in each disease score values in particular regarding urological and faecal disturbances ( $p>0.05$ ). Single dysfunction did not reveal any statistically significant difference for the DPD scores (Figure 2).

Considering the aetiology, patients were divided between neurogenic and non-neurogenic ones. A statistically significant difference between the two groups was observed in the OAB+FI group score ( $p=0.021$ ). Neurogenic patients seemed to have a better outcome than the non-neurogenic ones (score  $190.0 \pm 8.5$  vs.  $136.0 \pm 22.9$ ). A difference between neurogenic versus "non-neurogenic" in the OAB+Co group was detected (score  $182.7 \pm 8.3$  vs.  $157.5 \pm 24.3$ ), but it was not statistically relevant ( $p=0.110$ ) (Table 3).

Regarding the Quality of Life (QoL), no statistically significant differences were observed among all groups after the SNM implant ( $p>0.10$ ) (Table 4). The evaluation was conducted considering both the single and the double dysfunction. Each group of patients was subdivided according to the type of the single dysfunction. The relevance of improvements in QoL was ranged from 3.1 to 4.1 without any statistically important difference ( $p>0.10$ ). A similar considerable improvement in QoL was found among the 3 groups of DPD, with a mean score ranging from 3.5 to 3.7.

### Pads results

After the SNM patients with OAB significantly reduced the use of pads or panty-liners (McNemar-BowkerTest,

TABLE 2. Clinical improvements after SNM acquired through the question: "After SNM did you detect any significant and lasting change in the anorectal and urinary dysfunctions?".

Improvement	OAB+Co (n=14)	OAB+FI (n=8)	UR+Co (n=22)	p-value
Vesical alteration	14 (100%)	6 (75%)	21 (95%)	0.068°
Ano-rectal	11 (79%)	8 (100%)	15 (68%)	0.183°
Both	11 (79%)	6 (75%)	15 (68%)	0.782°

° Chi-square Test.

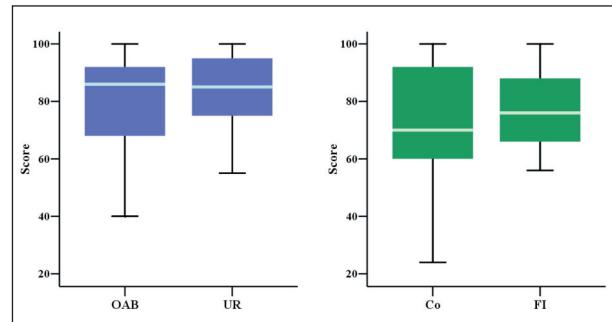


Figure 1. – Questionnaire scores for each disease (average and standard deviation). Differences were not statistically significant ( $p>0.05$ ).

Values range from 20 to 100 (20=unchanged after SNM, 100=complete resolution of DPD after SNM).

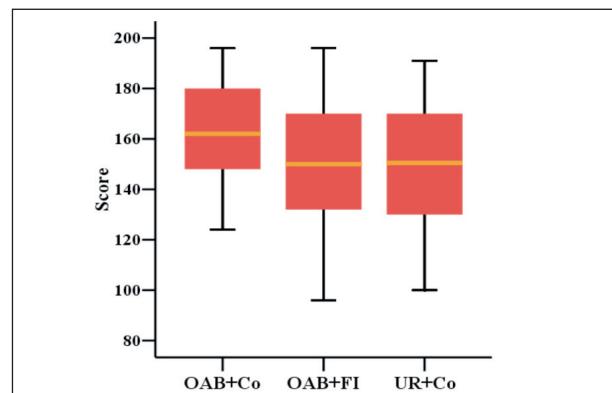


Figure 2. – Questionnaire scores for each DPD group: the differences observed were not statistically significant ( $p>0.05$ ). Values range from 40 to 200 (40=unchanged after SNM, 200=complete resolution of DPD after SNM).

$p=0.002$ ). Only 1 patient (5%) used as many pads as before the implant, 25% reduced the numbers of pads, and 70% of patients were free from any kind of protection (Figure 3). Statistically significant results were also observed among patients with FI (McNemar-Bowker Test,  $p=0.030$ ). 50% of incontinent patients stopped using pads after SNM, 38% reduced their number and only for one patient (12%) the number of pads remained the same (Figure 4).

Considering the use of pads in patients with OAB and FI, we detected that 63% of patients did not use or have dramatically reduced the number pads in both disturbances, while 37% have reduced their use for one problem but still wear them for the other.

### Self-catheterization results

After SNM, 89% of patients with UR didn't need self-catheterization anymore, while 11% significantly reduced them to 1-2 per day. The improvement compared with the preoperative situation was statistically significant (McNemar-Bowker Test,  $p<0.001$ ) (Figure 5).

TABLE 3. Questionnaire scores on the basis of neurogenic or non-neurogenic etiology.

DD	Neurogenic (n=12)	Not Neurogenic (n=32)	p-value
OAB + Co	182.7 (8.3)	157.5 (24.3)	0.110
OAB + FI	190.0 (8.5)	136.0 (22.9)	0.021
UR + Co	139.4 (23.5)	154.7 (24.5)	0.183

TABLE 4. Quality of life scores for single dysfunction and for DPD using a visual analogical scale ranging from 0 (not improved) to 5 (extremely improved).

Single Dysfunction	Score Mean (SD)	p-value
OAB	3,6 (1.2)	0.147#
Urinary Retention	4,1 (0.8)	
Fecal Incontinence	3,9 (0.8)	0.200#
Constipation	3,1 (1.2)	
Double Dysfunction		
OAB + Constipation	3,7 (0.8)	
OAB + Fecal incontinence	3,6 (1.12)	0.742†
UR + Constipation	3,5 (0.7)	

# Mann-Whitney nonparametric Test;

† One-way Analysis of variance (ANOVA)

The post-void residual disappeared in 48% of patients, it was reduced by at least 50% in 48% of patients and only in one case (4%) it remained unchanged.

### Laxatives and Enemas results

The use of laxatives and enemas decreased during the follow-up period after SNM, and the difference compared to the baseline evaluation was statistically significant (McNemar-Bowker Test, p<0.001) (Figure 6).

In the DPD group with OAB + Co, considering the use of both laxatives/enemas and pads, we observed that 55% of patients did use neither ones nor the others. 18% stopped using aids and reduced the pad use. 27% of patients still used the same amount of laxatives/enemas but had reduced/eliminated pads.

A statistically significant correlation was found between the reduction of self-catheterizations and the reduction of laxatives/enemas used in the DPD group UR+Co (V Cramer test p=0.570, p=0.05). In particular 67% of patients eliminated all aids, 28% reduced both, and 5% was unchanged for laxatives/enemas but reduced self-catheterization.

### Other specific symptoms: changes after SNM

**Urinary urgency:** 82% of patients reported it decreased by at least of 50% and in 27% of patients the symptom completely disappeared.

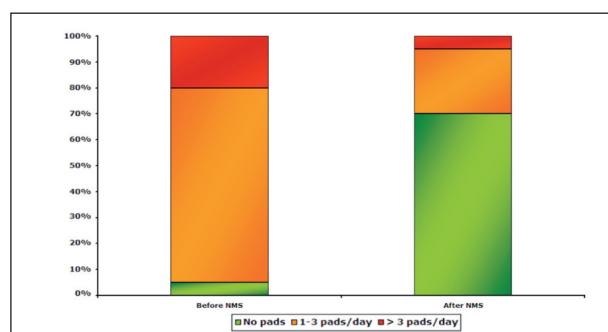


Figure 3. – Change in pad usage in OAB patients before and after SNM (McNemar-Bowker Test, p=0.002).

**Faecal urgency:** 63% of patients did not complain of it after the implant, and in 13% it rarely happened.

**Difficult evacuation:** 72% had at least a 50% improvement; in particular 61% of patients declare that the evacuation was always/almost always easy. The feeling of bowel emptying occurred after every evacuation in 39% of cases, and in 38% it improved to 50% or more.

**Abdominal pain:** 83% of patients rarely complained of pain, and 22% stated that this symptom completely disappeared.

### DISCUSSION

Only few papers<sup>5,6,7,8,9,10,11,12</sup> considered the SNM effects with simultaneous bladder and rectal dysfunctions. Furthermore, the most of these articles mainly focus on the double incontinence and include only few patients. The relevance of the present study is the analysis of the SNM re-

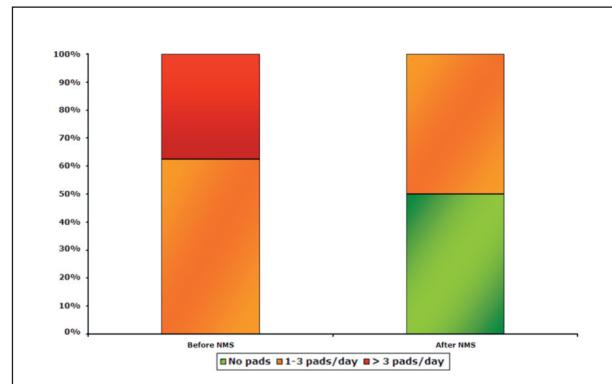


Figure 4. – Change in pad usage in FI patients before and after SNM (McNemar-Bowker Test, p=0.030).

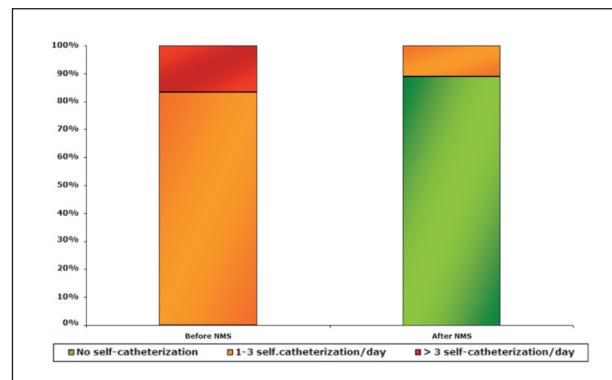


Figure 5. – Changes in self-catheterization per day in UR patients before and after SNM (McNemar-Bowker Test, p<0.001).

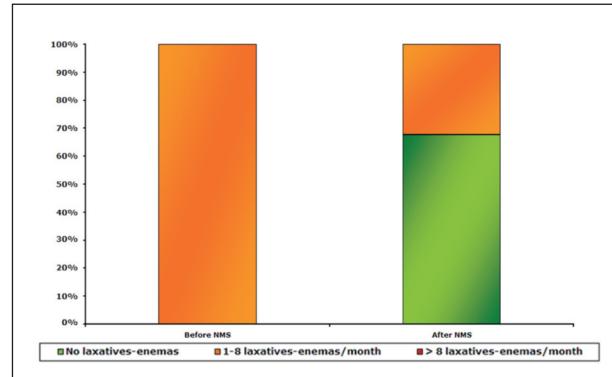


Figure 6. – Changes in laxatives /enemas usage in Co patients before and after SNM (McNemar-Bowker Test, p<0.001).

sults in a heterogeneous population of cases with DPD, presenting simultaneous urinary and faecal disorders.

Rectal and bladder dysfunctions are debilitating conditions, sometimes associated, and that often share the same pathophysiological factors<sup>13,14</sup>. Few epidemiological data are available in the literature and, in the few articles analysing DPD, symptoms of OAB, FI or Co overlap significantly with utero-vaginal prolapse as the main risk factor for women.

Prevalence of double incontinence, which affects mainly women, ranges from 9% to 26%, and the Odd Ratio to develop FI in patients with urinary dysfunction was calculated as 4.6<sup>15-16</sup>.

Epidemiologic data about the correlation between Co and urological dysfunctions are particularly rare. Gordon et al<sup>17</sup> reported Co in 46% of 283 women with double incontinence, and in 38% of patients with one urinary disturb. In a survey Cameron et al<sup>18</sup> found that women experiencing difficult defecation have an increased rate of OAB. Coyne observed the same correlation among men and in his survey OAB resulted to be a very strong predictor of Co in both genders<sup>19</sup>.

The influence of SNM on the nervous system cannot yet be explained<sup>20</sup>, but when conservatory measures fail, SNM is a known option to treat patients with urinary and rectal dysfunctions. In 2009 a Cochrane Collaboration review<sup>4</sup> concluded that SNM offers benefits for carefully selected people with OAB and UR. Similarly Mowatt et al<sup>2</sup>, in a review analysing 3 cross-over studies, concluded that SNM leads to a significant improvement of defecation disorders only in carefully selected patients.

Therefore, in theory, SNM should have a dual benefit on simultaneous bladder and rectal dysfunctions in DPD, considering the positive results of SNM on both areas and the common origin of the bladder and rectum innervation.

The data available in literature about SNM on DPD are mainly related to the colorectal cases and the details about the bladder functioning are sometimes not accurate.

In the first report from the SNM Italian Group, 10 out of 16 patients with FI also complained of urinary symptoms (4 stress incontinence, 4 urge incontinence and 2 UR). All patients improved FI to more than 50%. Patients with UR and urge incontinence resolved completely the urinary disturbance and those complaining of stress urinary incontinence improved as well<sup>3</sup>.

In another paper observing 6 patients implanted for FI with simultaneous urinary symptoms, the SNM was effective on all the FI cases but ineffective on the urinary disturbances except for one OAB<sup>5</sup>.

In the article by Altomare he observed 14 patients with FI, mainly cause by neurological factors, who fully did benefit from SNM. After a mean 14-months follow-up, 4 out of 6 patients with associated urinary symptoms report an improvement (1 out of 2 urge-incontinence, 1 out of 2 UR and again 2 out of 2 stress incontinences)<sup>7</sup>.

El-Gazzaz et al<sup>8</sup> reported his experience with 22 patients implanted for double incontinence (the type of urinary incontinence was not defined). In 31.8% of cases both symptoms improved, in 13.6% only FI did, in 18.2% only urinary incontinence did, and in 4 cases nothing changes.

Faucheron et al used a questionnaire to evaluate 57 patients complaining of FI and urinary dysfunctions, treated with SNM and with a mean follow-up period of 62.8 months. Specific scores improved significantly for FI and, to a lower degree, for urge urinary incontinence, but not in stress urinary incontinence and UR. Overall 73% of patients were satisfied with the results obtained on their double incontinence, 17.6% were unchanged and 8.7% were disappointed with SNM. Besides, a revision surgery was necessary in 16 cases (28%), and 4 device explantations were performed. The best

results were observed in FI due to a neurological cause and, secondarily, in urge urinary incontinence<sup>9</sup>.

In a multicenter, open label, randomized crossover study of 33 children complaining of incontinence (mixed in 19 cases, urinary in 9 and faecal in 5), mainly caused by neurological factors, it was observed an overall positive response rate of respectively 81% for urinary function and 78% for bowel function<sup>10</sup>.

In brief, between 30% and 100% of patients with double incontinence experienced improvements in both dysfunctions<sup>11</sup>, while there are no data available in literature about the other types of DPD.

Our research suffers from two limitations. Firstly, it is a retrospective study, as it commonly happens when evaluating SNM effects. Secondly, the questionnaire we used to show the different course of sintomatology after the SNM was not validated. However we specifically focused our analysis on DPD cases treated with SNM and many patients, in addition to the good clinical results, reported a major decrease in the use of pads and the medical supplies for DPD. Overall 73% of implanted patients answered yes to the question "have you had a significant and lasting change in bladder and rectal function?" A higher rate of improvement was reported for urinary symptoms than for anorectal ones (93% vs. 77%), maybe because most patients were selected by urologists. Considering the score obtained from the self-administered questionnaire, no statistically significant differences were observed among the different dysfunctions and the positive results were equally distributed.

Three groups of DPD were detected: OAB and FI, UR and Co, and OAB + Co. There were no cases of UR and FI. In the three groups of DPD the percentages of clinical improvement after SNM ranged from 68% to 100%. The questionnaire scores, ranging from  $149.5 \pm 31.8$  to  $162.9 \pm 24.1$ , suggested a considerable improvement in comparison with the baseline with no statistically significant differences among the groups. In general, FI seems to respond more and with better results than Co to SNM. On the other hand Co, especially when examined by an urologist instead of a proctologist, might be caused by incorrect lifestyle habits instead of a real dysfunction. Inadequate water intake, for example, is a common habit in patients complaining of OAB who willingly avoid drinking since they are scared of urinary incontinence.

It is important to assess risk of bias in studies about the response to SNM with questionnaires, for example the effects of the "taking care of a chronic patient" as well as the placebo-like effect. For these reasons we investigated objective data too, such as the change in pads usage, self-catheterizations, laxatives/enemas and post-voiding residuals. We observed that after SNM there was a significant improvement in all of them. This also means that both social and personal costs were reduced especially with FI where there is no other therapy available.

We analysed the data dividing the patients according to their etiology, neurogenic vs. non-neurogenic ones. The neurogenic group was reported to have a better outcome after SNM, particularly in the OAB+FI and OAB+Co groups. These results are similar to those of other authors and confirm that SNM can be effective in both single and DPD due to incomplete neurogenic lesion<sup>7,9,10,21,22</sup>.

It is now appropriate to make a brief costs analysis too. Watanabe estimated that SNM is the most expensive therapy for idiopathic OAB at a base rate of \$26,269 for a 3 years therapy considering initial implantation plus revisions and management of adverse events<sup>23</sup>. On the other hand, others authors estimated that SNM in FI could be economically advantageous or represents a relatively low additional cost for the national health system<sup>24,25</sup>.

## CONCLUSION

In our analysis 68% of cases with retentive DPD (UR and Co) had an improvement in both dysfunctions after SNM, while 27% of patients were unchanged for Co and 5% for both alterations.

Moreover, 79% of OAB and Co cases improved their urinary and faecal dysfunctions while 21% remained constipated.

In the group OAB+FI 75% of patients resolved both problems, and 25% still complained of urinary symptoms. Regarding the total score, a statistically relevant difference among the groups was found in this particular group ( $p=0.021$ ).

Neurogenic patients seem to have a better outcome than the non-neurogenic ones (score  $190.0 \pm 8.5$  vs.  $136.0 \pm 22.9$ ).

This analysis reports two main limits: the retrospective evaluation performed with a non-validated patient self-assessment questionnaire and the small sample observed. However, we reported a significant clinical improvement specifically expressed by the reduction in use of all the devices and protections related to DPD and these clinical data were correlated to the improvement reported by the self-administered questionnaire.

In our survey – like in literature – the best outcome of SNM in DPD was observed with neurogenic FI and OAB. But while there is a wide range of support tools to treat OAB which are recognized to be effective and cheaper – such as antimuscarinic drugs and Beta3-adrenergic agonists, intra-vesical botulinum toxin, tibial nerve stimulation - for FI there is no other therapy but SNM.

## DISCLOSURES

In Italy this kind of studies does not require the IRB approval. Conflict of Interest for all authors – None.

## CONTRIBUTORS

Andretta Elena: study concept, manuscript draft and design, data acquisition; Masin Alessandra: data analysis and interpretation, and data acquisition; Zuliani Cristina: supervision; Mariotti Gianna: statistical analysis; Sciarra Alessandro: critical revision.

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## QUESTIONNAIRE

This questionnaire investigates the perceived changes in micturition and rectal symptoms post-SNM. As physiological functions are commonly susceptible to variations, we ask you please to answer the following questions reporting your average vesical and faecal functions.

Patient's initials ..... Age ..... Centre ..... Procedure date .....

You have undergone implantation of SNM for:

- Constipation
- Faecal incontinence
- Urinary retention
- Overactive bladder

Not-neurogenic  Neurogenic (indicate the condition) .....

Have you observed significant and persistent changes in the anorectal function after SNM? Yes  No

If yes, to what degree has your Quality-of-Life improved?

Not at all ..... Extremely  
0      1      2      3      4      5

Have you observed significant and persistent changes in the vesical function after SNM? Yes  No

If yes, to what degree has your Quality-of-Life improved?

Not at all ..... Extremely  
0      1      2      3      4      5

### OVERACTIVE BLADDER

Has the urinary urgency improved?

- 1 YES, it has disappeared
- 2 YES, it has decreased by at least 2/3
- 3 YES, it has decreased by 50%
- 4 YES, it has decreased by 1/3
- 5 NO, it has not improved

To what degree has your urinary frequency decreased?

- 1 Extremely
- 2 Quite a bit
- 3 Moderately
- 4 A very little bit
- 5 Not at all

What is your present urinary frequency?

- 1 4-6 times per day
- 2 7-8 times per day
- 3 9-10 times per day
- 4 10-15 times per day
- 5 > 15 times per day

Has the urge incontinence improved?

- 1 YES, it has disappeared
- 2 YES, it rarely happens
- 3 YES, but it happens at least once a day
- 4 YES, but it happens many times a day
- 5 NO, it has not improved

Did you use incontinence protection products before SNM?

- 1 NO
- 2 YES, 1-2 liners per day
- 3 YES, more than 3 liners per day
- 4 YES, 1-2 pads per day
- 5 YES, more than 3 pads per day
- 6 YES, Incontinence diapers

Are you using incontinence protection products after SNM?

- 1 NO
- 2 YES, 1-2 liners per day
- 3 YES, more than 3 liners per day
- 4 YES, 1-2 pads per day
- 5 YES, more than 3 pads per day
- 6 YES, Incontinence diapers

### URINARY RETENTION

Has SNM made urination easier?

- 1 YES always
- 2 YES almost every time
- 3 YES in 50% of cases
- 4 YES, but only sometimes
- 5 NO, it has not improved

To what degree has the urinary stream force increased?

- 1 Extremely
- 2 Quite a lot
- 3 Moderately
- 4 Yes but a little bit
- 5 Not at all

Did you catheterize yourself before SNM?

- 1 NO
- 2 YES once a day
- 3 YES twice a day
- 4 YES 3-4 times a day
- 5 I necessarily required catheterizations to void

How many catheterizations a day do you need after SNM?

- 1 None
- 2 1
- 3 2
- 4 3-4
- 5 I need catheterisations to void

If you catheterize yourself, has the post-void residual decreased after SNM?

- 1 YES it disappeared
- 2 YES, it decreased by at least 2/3
- 3 YES, it decreased by 50%
- 4 YES, it decreased by 1/3
- 5 NO, it has not decreased

### FAECAL INCONTINENCE

Has your faecal incontinence improved?

- 1 YES, it disappeared
- 2 YES, it happens once a month
- 3 YES, it happens once a week
- 4 YES, it happens once a day
- 5 NO, it has not improved

Has the form of leakage changed?

- 1 YES, I have no more leakage
- 2 YES, I loose gas only
- 3 YES, I soil only
- 4 YES, I loose liquid stools only
- 5 NO, I loose faeces as before

Is the faecal leakage preceded by urgency?

- 1 NO
- 2 Rarely
- 3 Sometimes
- 4 Often
- 5 Always

Does the faeces leakage happen without your awareness?

- 1 NO
- 2 Rarely
- 3 Sometimes
- 4 Often
- 5 Always

Did you use faecal incontinence protection products before SNM?

- 1 NO
- 2 YES, one liner per day
- 3 YES, more than 3 liners per day
- 4 YES, 1-2 pads per day
- 5 YES, more than 3 pads per day
- 6 YES, incontinence diapers

Are you using faecal incontinence protection products after SNM?

- 1 NO
- 2 YES, one liner per day
- 3 YES, more than 3 liners per day
- 4 YES, 1-2 pads per day
- 5 YES, more than 3 pads per day
- 6 YES, incontinence diapers

### CONSTIPATION

Have the spontaneous defecations increased?

- 1 YES, I defecate 1- more times a day
- 2 YES, I defecate 4-6 times a week
- 3 YES, I defecate 2-3 times a week
- 4 YES, I defecate once a week
- 5 NO, they have not

Is it easier to evacuate?

1. YES, always
2. YES, almost every time
3. YES, in 50% of cases
4. YES, but only sometimes
5. NO it is not easier

Has the abdominal pain/bloating improved?

1. YES, it disappeared
2. YES, I rarely experience it
3. YES, I sometimes experience it
4. YES, but I experience it quite often
5. NO it has not improved

Has the feeling of bowel emptying improved?

6. YES, always
7. YES, almost every time

8. YES, in 50% of cases

9. YES, but only sometimes
10. NO it has not improved

Did you use laxatives/enemas before SNM?

1. Never
2. YES, 1-3 times a month
3. YES, 1-2 times a week
4. YES, more than 3 times a week
5. I could not evacuate without them

Are you using laxatives/enemas after SNM?

1. Never
2. YES, 1-3 times a month
3. YES, 1-2 times a week
4. YES, more than 3 times a week
5. I cannot evacuate without them

### Multidisciplinary UroGyneProcto Editorial Comment

To improve the integration among the three segments of the pelvic floor, some of the articles published in *Pelviperineology* are commented on by **Urologists, Gynecologists, Proctologists/Colo Rectal Surgeons or other Specialists**, with their critical opinion and a teaching purpose. Differences, similarities and possible relationships between the data presented and what is known in the three fields of competence are stressed, or the absence of any analogy is indicated. The discussion is not a peer review, it concerns concepts, ideas, theories, not the methodology of the presentation.

**Uro...** Sacral Nerve Stimulation (SNM) has become a well-established therapy for refractory non-neurogenic lower urinary tract dysfunction (LUTD), and it has been used extensively in the management of fecal incontinence (FI) over the past 20 years. SNM represents also a promising option for the managing of refractory neurogenic LUTD (NLUTD). It remains to be seen which types of NLUTD and which underlying neurological disorders best respond to SNM. There is evidence indicating that SNM may be effective and safe for the treatment of patients with NLUTD. However, the number of investigated patients is low with high between-study heterogeneity, and there is a lack of randomized, controlled trials 1.

Despite the poor quality of studies published, SNM appears to be clinically efficacious in treating FI with up to 42% achieving full fecal continence and the majority experiencing improvement in symptoms. Another common indication for SNM is constipation. Beneficial outcomes occur in approximately half the patients 2, with poor results at a medium-term follow-up and high rates of adverse effects mostly related to electrode displacement 3. Optimizing patient selection is critical to the use of SNM in treating constipation, although there is evidence of efficacy in both slow transit and rectal evacuation difficulty.

#### REFERENCES

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**Procto...** This work highlights the two dysfunctions of the posterior compartment of the pelvic floor, i.e. incontinence and constipation that the gastroenterologist, the proctologist and the colorectal surgeon have often to face with considerable difficulty. In clinical practice, anal and especially fecal incontinence is not an everyday problem, while constipation, whose best definition is unsatisfactory defecation in a retentive sense, is observed with great frequency. It has been estimated that worldwide around 14% of adults suffer from constipation<sup>1</sup>. Dissatisfaction may be due to straining at stool, passing hard stools, sensation of incomplete emptying, sensation of anorectal obstruction, self-digititation and a defaecation frequency of less than three times per week. In order to make the diagnosis two of the above six symptoms must be present for at least 6 months along with abdominal pain, bloating, and frequent laxative and enema use. When significantly impacting on quality of life, constipation imposes controversial therapeutic choices. Conservative current treatment includes diet, laxatives, enemas, suppositories and biofeedback or behavioural treatments. Surgery (colectomy) has been considered having a role in patients with slow-transit constipation, but revealed a high complication rate, reoperation for adhesions in a fourth of the cases and failure in half of the cases. Evacuatory dysfunction may be related to rectal hypotonicity or sphincters dyssynergia, where rehabilitation is a simple, inexpensive and often short and medium term successful therapy. The so called mechanical outlet obstruction has been in the last decade a popular indication for 'hitching' procedures (such as posterior or ventral rectopexy) or 'excisional' procedures, like stapled transanal rectal resection (STARR). Rectal intussusception and rectocele however are often observed in subjects with normal evacuation, and the relevance of such findings on defecography is uncertain. The reported complication rate of STARR is unacceptably high. There is a close association between severe constipation and emotional disorders, including a past history of physical or sexual abuse. Evaluating these problems is absolutely necessary before indicating any form of surgery or expensive treatment. The role of the uterosacral ligaments in abnormal bowel emptying is stressed by the Integral Theory with the proposal of restoring by TFS its form and function<sup>2,3</sup>. Sacral nerve stimulation (SNM) appears to have a great potential in treating patients with slow-transit constipation, but its use in routine clinical practice is still uncommon, mainly due to the cost of the equipment. Healthcare providers are reluctant to invest into these treatments without a better support from the literature. The emerging data however suggest that SNM has autonomic and central neurological effects that 'normalize' visceral awareness, rectal compliance and colonic motility – features equally beneficial in the treatment of both constipation and incontinence. In conclusion the place of neuromodulation in the management of severe constipation remains to be defined, and the challenge is how to identify those most likely to benefit<sup>1</sup>.

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