



Sacral Neuromodulation: A Promising Treatment for Anorectal Functional Disorders. A Plead for Large Sized Studies

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Letter to the Editor

Since its introduction for the treatment of Fecal Incontinence (FI) Sacral Neuromodulation (SNM) has gained wide spread becoming the cornerstone in FI management. SNM was initially proposed to treat patients with a morphologically intact anal sphincter because it was deemed that effects were only local. There after this procedure was also offered to patients with sphincter disruption providing comparable results suggesting that SNM mechanisms are wider than expected effects on the anal sphincter. Subsequently, several studies showed that SNM exerted modifications in the central nervous system by means of afferent spinal and efferent vagal pathways. Altogether those considerations raise the possibility to extend the indication of SNS to other colorectal affections [1]. Alternative indications of SNM in the treatment of anorectal disorders are still under-evaluated: For instance, it has been suggested that SNM could be of interest in the treatment of bowel disorders refractory to medical treatment, but evidence are still scarce to validate indications:

1) Concerning constipation, contradictory results can be found in the literature but two randomized clinical trials failed to demonstrate SNM effectiveness [2,3]. However, we can notice that in those different series made of heterogenous and possibly underpowered patients groups, the number of bowel movements, time spent to evacuate and quality of life could be improved in some. As for FI management, we do not have any relevant predictive factors of response to SNM therapy in patients suffering from constipation. On the other hand, Irritable Bowel Syndrome (IBS) concerns about 3% to 22% of the general population and results of medical conservative treatments (painkillers, antispasmodic agents, probiotics, laxatives...) are often disappointing. Considering the potential effects of SNM observed on intestinal motility, this therapy was also proposed to patients with IBS, mainly with diarrhea or mixed symptoms [4]. An improvement of pain, bowel disorders and quality of life was observed in those different trials but needs to be confirmed in large randomized studies.

2) SNM is also evaluated in the treatment of functional consequences after rectal resection-associating fecal incontinence, soiling, stools clustering and urgencies bundled in the so-called Low Anterior Resection Syndrome (LARS) that affect about half of the patients. As fecal incontinence is a major concern, SNM was also applied to those patients suffering from LARS. A significant improvement of the symptoms is reported in the literature. Interestingly, not only fecal incontinence symptoms were improved but also stools frequency and urgencies [5] suggesting effects of SNM on anorectal sensibility and voiding. By the way, anorectal physiology measurements, including resting pressure, squeeze pressure and maximum tolerated volume, were enhanced by SNM therapy. Consequently, the quality of life of the patients was significantly improved. Current guidelines recommend considering SNM test in patients with LARS symptoms failing for conservative management despite the small number of reported patients in the study.

3) Finally, SNM could also be promising in the treatment of Inflammatory Bowel Disease (IBD) in the future. On the basis of our findings suggesting that SNM enhances intestinal epithelial barrier repair through a decrease of permeability and a regulation of inflammatory mediators, we hypothesized that SNM could be of interest in the treatment of IBD [6]. A single-patient study, performed in a patient with refractory proctitis, submitted to SNM, led to an improvement of clinical and endoscopic disease activity [7]. Since then, anti-inflammatory effects of SNM have been demonstrated in rodent models of colitis allowing reaching a decrease of disease activity and a decrease of pro-inflammatory cytokines. A vagal efferent pathway appeared to be involved in the physiological mechanisms of response. Bonaz et al. proposed to treat Crohn's disease patients

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using vagus nerve stimulation, also because a vagal tone disorder is suspected in this affection. A 6 month treatment was proposed to a cohort of 7 patients with active Crohn's disease. Promisingly 5/7 patients presented with clinical, biological and endoscopic remission.

Definitely, SNM is a safe and effective therapy in a number of anorectal disorders, and many patients could benefit from neuronal stimulation to improve debilitating functional disorders. More large studies are required to increase the patient's selection and the success rate of this innovative approach.

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