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Authors: H. H. Woo
Institution: Department of Urology, Ochsner Clinic

Title: TREATMENT OF CHRONIC PELVIC PAIN IN PATIENTS WITH REFRACTORY LOWER URINARY TRACT DISORDERS BY SACRAL NERVE STIMULATION: ITS EFFICACY AND FAVORABLE FINDINGS FOR SUCCESSFUL RESPONSE

Aims of Study:

To evaluate treatment of chronic pelvic pain in patients with refractory lower urinary tract disorders by InterStim Therapy, sacral nerve neuromodulation.

To compare between the responders and non-responders to sacral nerve stimulation and to determine the favorable findings to sacral nerve stimulation in regards to successful treatment of pelvic pain.

Materials and Methods:

7 patients (2 men and 5 women) with chronic pelvic pain with refractory lower urinary disorders were evaluated for InterStim Therapy. These patients have experienced pelvic pain more than 6 months of duration along with variety of lower urinary symptoms including frequency, urgency, urge incontinence and non-obstructive urinary retention refractory to standard therapy such as biofeedback, medication or even surgical procedures. These patients have failed to respond to medications such as anticholinergics, antihistamines, anti-depressants, muscle relaxants and required chronic usage of pain medications to control their pain symptoms. Most of patients underwent surgical procedures such as cystoscopy, hydrodistention, bladder instillations, trasurethral incision of prostate (patient CB) or even augmentation ileocystoplasty (patient LL).

All patients underwent complete history and physical examinations, urinalysis, voiding diary, and urodynamic studies prior to InterStim Therapy. InterStim Therapy consists of two-stage procedure beginning with test stimulation and later with permanent implant of an InterStim system if the test stimulation proves successful. An InterStim system consists of an implantable quadrapolar electrode and a neurostimulator with an extension.

For test stimulation, a temporary electrode was placed percutaneously into the sacral nerve foramen (S3). Desired responses of the S3 stimulation, such as bellows movement of the levator ani and great toe dorsiflexion, were noted. A confirmatory X-ray was obtained to document lead position. During a one-week trial of the temporary sacral nerve neuromodulation, all of the patients recorded voiding diary and assessed its effectiveness. After the test stimulation proved successful, i.e., resulted in 50% or greater decrease in the urinary symptoms and pelvic pain, an InterStim system was implanted as described for a long-term benefit. Neurostimulator was programmed and activated immediately after surgical implantation. Patients were followed one week, one month, three months, and thereafter as needed after surgery to evaluate their responses and symptom improvement.

Results:

Of 7 patients with chronic pelvic pain with refractory urinary symptoms, 2 patients failed to demonstrate significant improvement in their pelvic pain or urinary symptoms.

5 patients with successful test stimulation underwent permanent implant of an InterStim system.

All of 5 patients with the permanent implant experienced successful and satisfactory outcomes in treatment of their urinary symptoms as well as pelvic pain; refractory symptoms of urinary frequency and urgency were normalized; chronic pelvic pain was significantly decreased (greater than 50%) or completely resolved; urinary retention was spontaneously resolved, resulting in complete normal voiding.

In comparing the responders and non-responders to sacral nerve stimulation, the favorable findings for successful response to treatment were pelvic pains associated with pelvic floor dysfunction noted by tenderness of the pelvic floor muscles on palpation and impaired or incomplete relaxation of sphincter muscles demonstrated by urodynamic study.

Patients Summary

	LB	PD	LM	DG	WW	CB	LL
Age/Sex	59 F	29 F	26 F	43 F	30 M	81 M	45 F
Symptoms	F, U, I,	F, U,	R, PP	F, U, S,	F, U, S,	D, PP	F, U,
	IV, PP	UI, PP		IV, PP	I, PP		PP
Tender on palpation**	V, LA	V, LA	V, LA	V, LA	LA	prostate	None
Urodynamic study***	IR	SU, LC,	AC	IR	IR	high Pdet,	SU
		IR	IR			low flow	AC
Test Stim****	s	s	s	s	s	f	f
Implant (yes/no)	y	y	y	y	y	n	n
*Symptoms:	F(frequency), U (urgency), IV (incomplete voiding),						
	PP (pelvic pain), UI (urge incontinence), R (retention),						
	I (intermittency), S (straining)						
**Tender on palpation:	V (Vaginal exam), "LA (levator ani)						
*** Urodynamic study:	IR (impaired relaxation of sphicter), SU (sensory urgency),						
	LC (low compliance), AC (acontractility),						
****Test Stim:	s (successful response), f (failed response)						

Conclusions:

InterStim Therapy, sacral nerve neuromodulation therapy, is innovative, effective, and non-destructive treatment of chronic pelvic pain in patients with various lower urinary tract disorders including urinary frequency, urgency, and non-obstructive urinary retention refractory to conventional treatments. InterStim Therapy was a very effective treatment in management of chronic pelvic pain for selected patients. The favorable outcome of sacral nerve stimulation in treatment of pelvic pain was noted in patients with pelvic floor dysfunctions noted by simple physical examinations of pelvic floor muscles and urodynamic study. In the future, we would like to better define guidelines that will help evaluate patients suitable for InterStim Therapy with the aim of minimizing procedure failures and improving patient quality of life.