

## PERCUTANEOUS TIBIAL NERVE STIMULATION (PTNS) IN THE TREATMENT OF LUTS SECONDARY TO PARKINSON'S DISEASE

### Hypothesis / aims of study

It is well known that lower urinary tract symptoms (LUTS) such as urgency, increased urinary frequency and urinary incontinence are present in as much as two thirds of parkinsonian patients (1). It is often difficult to treat PD patients with LUTS of both filling and voiding phase, because drugs as antimuscarinic could be contraindicated. Thus, alternative treatments must be found. Few data have been published on the role of percutaneous tibial nerve stimulation (PTNS) in the treatment of LUTS secondary to Parkinson's disease (PD). Amarengo showed an acute positive effect of PTNS on detrusor overactivity in a population of neurogenic patients, some affected by PD (2). Aim of this study was to investigate effects of PTNS on PD patients with LUTS of the filling phase, but presenting significant post-void residual urine.

### Study design, materials and methods

7 male PD patients were treated with PTNS at two different Centres. Mean age was 64± 7 years. All patients were affected by idiopathic PD with an Hohen and Yahr score lower than 2.5 and a mean disease duration of 3.8 ± 1.1 years. UPDRS (section III) mean score in off condition was 31±3. All subjects presented with filling phase LUTS, but showed as well a significant (>70 ml) post-void residual urine. All patients had been previously treated by means of conventional treatments (drugs, behavioural therapy, rehabilitation protocols) with unsatisfactory results. The PTNS protocol was constituted by 10-12 30 minute stimulation sessions, performed according to technique described by Vandoninck (3). Patients were evaluated before and after PTNS by means of bladder diaries, quality of life questionnaires (I-QoL) and urodynamics. Responders were considered patients with a >50% reduction of the micturitions episodes or (if incontinent) of the incontinence episodes.

### Results

3 out of 7 patient showed urinary incontinence, while the remaining 4 showed only urgency, increased daytime frequency and nocturia. 5 out of the 7 patients (2 incontinent and 3 non incontinent) were classified as "responders" (71%). 4 out of the 5 "responders" but none of the 3 "non responders" patients were diagnosed as having a urethral sphincter bradykinesia during bladder voiding phase (p=0,01). An improvement of flow max (Q max) and a reduction of post-void residual urine was observed as well. Results are reported in table.

Pats.=7	Mean (SD)		p
	Before	After	
N. of incontinence episodes/day*	5 (2)	1 (1)	0.01
N. of micturition episodes/day	10 (6)	7 (3)	0.02
I-QoL*	69 (7)	89 (5)	0.02
Q max (ml/s)	10 (4)	14 (5)	0.03
Residual urine (ml)	100 (30)	20 (20)	0.01
Cystometric bladder capacity (ml)	220 (100)	315 (80)	0.03

Legend: \*In 3 incontinent patients

### Interpretation of results

PTNS has shown to be effective in as much as 70% of PD patients with filling phase LUTS. A significant reduction of incontinence and/or micturition episodes was obtained; an improvement of I-QoL scores was observed in incontinent patients. Bladder capacity at urodynamics was increased as well. A role of this stimulation on concomitant voiding phase dysfunction is also shown, with a significant reduction of post-void residual urine and an increase of Qmax. These data suggest an important role of PTNS in the treatment of PD patients with filling phase symptoms and concomitant urinary retention. The finding of urethral sphincter bradykinesia could be a positive predictive factor, being frequently observed in "responders". From this finding it is also possible to hypothesize that the therapeutic effect of PTNS could be exerted through a better control on perineal floor.

### Concluding message

These data, coming from two Centres, confirm that PTNS is an effective treatment for PD patients with filling phase LUTS with concomitant voiding phase dysfunction. An improvement of symptoms and a reduction of post-void residual urine is present in as much as 70% of patients in our series. Urethral sphincter bradykinesia could be an indicator of success of the treatment.

### References

- 1) J Psychiatry Neurol 1992;46(1):181-6.
- 2) J Urol 2003; 169: 2210-2215
- 3) Neurourol Urodyn. 2004;23(3):246-51

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**HUMAN SUBJECTS: This study did not need ethical approval because Normal clinical treatment but followed the Declaration of Helsinki Informed consent was obtained from the patients.**