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PERCUTANEOUS TIBIAL NERVE STIMULATION (PTNS): RESULTS AT LONG TERM FOLLOW-UP

Hypothesis / aims of study

Percutaneous tibial nerve stimulation (PTNS) has showed to be effective in the treatment of overactive bladder syndrome (OAB) and non obstructive urinary retention (NOUR) (1,2). Results reported in literature are limited to data after 10 to 12 weeks of stimulation; few data have been published on further follow-up. Are results maintained after months or years of stimulation? Do all patients need to be stimulated "chronically"? The aim of this study was to answer these questions reporting the experience of two Centres on this technique.

Study design, materials and methods

A retrospective evaluation of the databases containing patients treated by means of PTNS in two different Centres was performed. Patients with neurological impairment or presenting with a pathology of the lower urinary tract were excluded. Patients with incomplete data were excluded. Data from 256 patients (145 f; 111 m) treated for OAB or NOUR from September 1999 to February 2006 were analysed. 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 (1). Responders were considered OAB patients with a >50% reduction of the micturitions episodes (OAB without incontinence or "dry") or of the incontinence episodes (OAB with incontinence or "wet"). A NOUR patient with a reduction >50% of the total catheterised volume per day (e.g. the sum of all the volumes voided by means of catheterization per day) was considered "responder" as well. Responders were treated by means of a tapering protocol of stimulation (every 2 weeks, then every 3 weeks and so on); in one Centre, a home based treatment, performed with transcutaneous tibial nerve stimulation, was also suggested. Results were evaluated by means of bladder diaries and quality of life questionnaires.

Results

178 out of the 256 patients considered had been treated for OAB, whilst the remaining 78 had been treated for NOUR. 145 on 256 (57%) patients were considered "responders". The percentage of responders was higher (significantly: $p<0,01$) in OAB patients: 107 of the 178 OAB patients (60%) and 38 of the 78 NOUR patients (49%) were considered responders. In particular, 71 out of 108 OAB dry patients (66%) and 36 out of 70 OAB wet patients (51,5%) were considered responders. This result was statistically significant ($p=0,02$). The responders were treated by means of a tapering protocol of stimulations (112) or home based treatment (33). Mean follow-up was 35 (2-72) months. Results are reported in table 1. 135/145 patients requested periodic stimulations sessions and showed a worsening of the clinical situation after the discontinuation of the treatment. 10 patients showed stability of obtained results some months after discontinuation of treatment. 15 patients (10 %) were not classifiable as responders at maximum follow-up. No significant differences was present comparing results of one Centre with those of the other.

		After PTNS		At maximum F-U	p
Mean catheterised volume/day (ml)*		120 ml		85 ml	ns
Number of catheterizations/day*		1,8		1,5	ns
N. of micturitions/day+		7		7	ns
N. of incontinence episodes/day°	1		0,8		ns
I-QoL° (86 patients)		95		95	ns
Responders (%)	100		90		ns

Legend: * in NOUR patients; + in OAB dry patients; ° in OAB wet patients.

Interpretation of results

PTNS has shown to be effective in as much as 57% of patients with OAB or NOUR, non responders to conventional treatments. The percentage of responders was higher in OAB dry than in OAB wet patients (66 vs. 51,5%) and in OAB (60%) than in NOUR patients (49%). These results are homogeneous between the two Centres and confirm previous data (2,3). Results of the stimulation seem to be stable during follow-up (mean 35 months), with only 10% of patients who showed a significant reduction of the obtained results. The main drawback of PTNS is the need, showed by the vast majority of patients (93%), of a "chronic" stimulation. From this finding, the need of alternative ways of stimulations (home based and transcutaneous or with a permanent implant) is present.

Concluding message

This retrospective analysis of data coming from two Centres confirm that PTNS is an effective treatment for OAB and NOUR, with stable results at 3-year mean follow up. OAB dry patients are the most prone to respond to treatment. Patients need a periodic stimulation to maintain the obtained results: alternative ways of stimulation are needed.

References

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