

POSTERIOR TIBIAL NERVE STIMULATION (PTNS) IN THE TREATMENT OF OVERACTIVE BLADDER SYNDROME (OABS): SYSTEMATIC REVIEW

Hypothesis / aims of study Techniques of PTNS are easier to achieve and have low indices of morbidity, showing promise as a possible intermediary treatment between anticholinergics and sacral neuromodulation in terms of cost-effectiveness. The aim of this study was to review the forms of application and the effectiveness of this afferent nerve stimulation in the treatment of the symptoms of OABS.

Study design, materials and methods:

Search strategy: Medline, LiLACS, EMBASE, Cochrane Library were searched.

Selection criteria, data collection and analysis: All reports, which describe (or might describe) RCTs, quasi-randomised trials and clinical studies on treatment of OABS, which utilized PTNS, were obtained with no language restrictions (2000-2008). Two reviewers independently extracted data on the participant's characteristics, study quality, population, intervention, parameters used for stimulation, and complications. The main outcome measures were objective symptoms improvement and complications.

Results: The Table 1 describes the literature results according variation of the PTNS methodology. The disadvantages were: needs regular visits of the patients to the clinics and symptoms return on average after 3 months. The side effects were rares, referring principally to topical electrodes, which can cause discomfort to the patient. Only one RCT (37 patients) were included.

Interpretation of results: There was agreement about the parameters used for electrostimulation, with a pulse width of 200 microseconds, a frequency of 20 Hz and an intensity varying between 0 and 10 mA. A wider divergence is found in relation to the time and number of sessions, being applied 1 to 3 times a week, for 30 or 60 minutes and for a variable period between 4 and 12 weeks. The majority of the studies show improvement greater than 50% for symptoms of bladder overactivity (neurological and idiopathic), with a reduction of at least 25% in urinary frequency. Data obtained did not provide reliable estimates because of their sizes, and heterogeneity of designs, populations studied, and types of comparisons made, randomized, placebo controlled studies haven't been performed. Palma et al (1), with the only prospective, controlled and randomized trial, reports marked significant decrease in urgency and improve in quality of life, unfortunately the information about to the frequency and intensity of the sessions, was not described.

Concluding message: More substantial data, especially randomized double-blind studies with objective parameters, with longer follow-up and with greater numbers of patients; are necessary in order to define the role of electrostimulation in the OABS treatment. Although PTNS is minimally invasive, easily applicable and well tolerated, the main disadvantage seems to be necessary of chronic treatment.

Table 1- The literature results according variations of the electrostimulation to the PTNS methodology.

Author	Study Design/method	Intensity	Treatment Time	Results
Stoller ML, 1999	90 patients – SANS	0-10 mA 0,2 ms 20 Hz	1x by week 10 weeks	Reduction of the 50% symptoms in 81% of the patients.
Govier FE et al, 2001	53 patients – SANS	0-10 mA 0,2 ms 20 Hz	1x/week 12 weeks	Reduction of the 25% voids (day and night) in 71% of the patients after 12 weeks.
Van Balken MR et al, 2001	37 patients, 10 men and 27 women - SANS	0-10 mA 0,2 ms 20 Hz	1x/week 12 weeks	60% success in OAB or non-obstructive urinary retention.
Amarencio G et al, 2003	44 patients - TENS	10 Hz 0,2 ms	1X week	Increase of the bladder capacity and/or increase of bladder capacity in 81% of the patients.
Karademir D et al, 2005	n= 21: SANS n= 22: SANS + 5mg oxibutinine	0,5 – 10 mA 0,2 ms 20 Hz	60 minutes 1x/week 8 weeks	Symptoms improvement in both groups.
Finazzi AE et al, 2005	n=17: SANS on weekly	0-10 mA 0,2 ms	12 sessions in each	63% in group A and 67% in group B were considered

	n=18 SANS 3 times per week	20 Hz	group	"success"
Nuhoglu B et al, 2006	35 women with refractory OAB – SANS	0-10 mA 0,2 ms 20 Hz	30 minutes 1x/week 10 weeks	Symptoms and quality of life improvement. Grade D
Van der Pal F, et al, 2006	30 patients – SANS	0-10 mA 0,2 ms 20 Hz	30 minutes 3x/weeks 4 wweeks	Reduction of 2 pads/day and Increase QOL (SF-36 questionnaire). Grade D
Palma PC et al, 2008	37 patients. Group A (n=21): TENS Group B (n= 16): control	???	Twice week 4 weeks	Decrease urgency 62,5% X 42,8% QoL improved, OAB severity score and nocturia reduced.

References

1. Palma PC, Bellette PO, Herrmann V, Ricetto C. Posterior tibial nerve stimulation is superior than placebo for idiopathic overactive bladder. J Urol 2008; 179 (suppl.): 165

Specify source of funding or grant	None
Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Comite de Ética em Pesquisa do Hospital Universitário de Londrina
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	No