599

Salatzki J[1], Spanudakis E[1], Gonzales G[1], Vinas G[1], Baldwin J[1], Haslam C[1], Liechti M[1], Panicker J[1]
1. *UCL Institute of Neurology*

FACTORS INFLUENCING ADHERENCE TO TIBIAL NERVE STIMULATION FOR THE MANAGEMENT OF NEUROGENIC OVERACTIVE BLADDER

Hypothesis / aims of study
Bladder dysfunction is common following neurological disease and Percutaneous Tibial Nerve Stimulation (PTNS) is an established minimally-invasive outpatient treatment for managing neurogenic overactive bladder symptoms (OAB). Following a 10-12 week course of once-weekly treatment, responders return for top-up treatments (top-ups) when OAB recurs. The STEP study nicely demonstrated that PTNS is a safe, efficient and durable long-term treatment option to reduce significantly OAB symptoms (1). However, not all responders return however, and this study aims to identify factors influencing patients's decision to return for top-ups. In addition, this study aims to evaluate PTNS service in a clinical setting.

Study design, materials and methods
Participating patients were appointed to one of three groups: patients, who did not wish to return for top-ups and did not return; patients wished to return but did not return (group 1); patients wished to return and did return for top-ups (group 2). Patients were treated with using current standard NHS equipment (Urgent PC, Uroplasty).
To investigate satisfaction with the PTNS clinic service, patients completed a bespoke PTNS service evaluation questionnaire (PTNS-SEQ) after the initial PTNS treatment for 10-12 weeks. For parametric testing, ANOVA test were calculated, followed up by post-hoc pairwise group comparisons using independent-samples t-tests. Nominal data were compared using chi-squared tests.

Results
Out of 103 suitable patients, 73 patients could be included in the analysis. There were no differences between the groups in age or gender distribution. In all groups, the three main neurological diseases were Multiple Sclerosis, Parkinson Disease, and Idiopathic Overactive Bladder syndrome. The mean interval from last PTNS treatment until top-up was 61.2 days.
Group-1 and -2 patients experienced significant improvement in ICIQ-OAB Sum scores (Table 1a). Furthermore, group-2 patients experienced significant improvement in ICIQ-LUTSqol and BD parameter (Table 1a). Group-2 patients experienced a significant improvement compared to group-1 regarding how voids affect their sleep and their ability to socialise ($p<0.05$). Also, group-2 patients experienced a significant relative improvement regarding number and severity of leakages compared to group-1 patients ($p<0.05$) (Table 1a).
Group-2 patients were significantly more satisfied with the PTNS Service compared to non-responders and group-1 ($p<0.05$). Using the PTNS-SEQ, group 1 stated more often that the PTNS did not have any effect on their symptoms compared to group 2 (Table 1c). However, there were no other significant differences between the groups in the PTNS-SEQ (Table 1b).
Overall, patients in both groups wished for the following as improvements; stick-on patch instead of needle-based stimulation, flexible scheduling of treatment sessions and PTNS treatment for at-home use.

Interpretation of results
We showed that PTNS is an effective treatment option for OAB and LUTS. Importantly, results indicate that improvement in the timing of voids, number and severity of leakages, as recorded in the bladder diary, have a great impact on patient´s satisfaction with the PTNS service and their decision to return for top-ups. Objective improvements in ICIQ-OAB and ICIQ-LUTSqol scores seemed to play only a minor role in satisfaction with PTNS service. Also, patients wished for improvements of the PTNS service regarding application, scheduling, and availability.

Table 1a Treatment Response week 12 vs. 0 per group *p < 0.05 change within group.

	Group 1 (n=17)			**Group 2 (n=31)**			**ANOVA (Bonferroni-Posttest)**
	N	Mean	SD	N	Mean	SD	
ICIQ-OAB Sum Score	13	-1,54*	1,85*	27	-1,85*	2,28*	1,000
ICIQ-LUTSqol - "Does your urinary problem limit your ability to see/visit friends? – How much does this bother you?"	15	-0,60*	3,54*	27	-2,93*	2,63*	0,043
ICIQ-LUTSqol – "Does your urinary problem affect your sleep?"	15	0,13	0,52	27	-0,48*	0,94*	0,036
ICIQ-LUTSqol Sum Score	15	-4,27	10,98	26	-5,35	6,90	1,000
BD 3-day avg. nighttime voids	12	0,39	0,93	26	-0,40	0,70	0,046
Relative changes per group							
BD 3-day avg. leakage severity	12	27,03	100,03	26	-19,34	25,94	0,031
BD 3-day avg. number of leakage	12	28,39	73,29	26	-24,37	27,14	0,003

Table 1b Cluster comparison of PTNS-SEQ between group 1 and group 2.

	Group 1 (n=17)		Group 2 (n=31)		Pearson Chi-Square comparison
Number of Patients answered Questions in the following clusters	**No. of ticks**	**% group**	**No. of ticks**	**% group**	
"Lack-of-Treatment-Effect." (Qu3b,c,d/7a,c,d)	12	70,6	13	41,9	0,32
"Side Effects." (Qu3e-f/7e-f)	0	0,0	1	3,2	n.a.
"Discomfort in Clinics." (Qu4a-c/8a-c)	0	0,0	3	9,7	n.a.
"Scheduling Difficulties." (4d-e/8d-e)	2	11,8	4	12,9	0,49
"Lack of Reminder." (4f-g/8f-g)	1	5,9	0	0,0	0,16
"Travel Difficulties." (Qu5a-d/9a-d)	6	35,3	13	41,9	0,41
"Treatment-Regime." (Qu5e-f/9e-f)	2	11,8	3	9,7	0,44
"Health-Condition." (Qu6a-b/10a-b)	2	11,8	2	6,5	0,36

Table 1c PTNS-SEQ comparison between group 1 and group 2.

	Group 1 (n=17)		Group 2 (n=31)		Pearson Chi-Square comparison
Question	**No. of ticks**	**% group**	**No. of ticks**	**% group**	
“The treatment never had any effect on my symptoms.” (Total Qu3d/7d)	6	35,3	3	9,7	0,03

Concluding message

Improvements in timing of voids, 24-hour urinary frequency and severity of urinary incontinence impact patient´s satisfaction with the PTNS service and their decision to return for top-ups.

References

1. Peters, K.M., Carrico, D.J., MacDiarmid, S.A., Wooldridge, L.S., Khan, A.U., McCoy, C.E., Franco, N., and Bennett, J.B. (2013). Sustained therapeutic effects of percutaneous tibial nerve stimulation: 24-month results of the STEP study. Neurourology and urodynamics, 32(1), 24-29. doi: 10.1002/nau.22266

Disclosures

Funding: None **Clinical Trial:** Yes **Registration Number:** Registration Number: 77 **RCT:** No **Subjects:** HUMAN **Ethics Committee:** UCL Institute of Neurology **Helsinki:** Yes **Informed Consent:** Yes