

DOES THE TIBIAL NERVE ELECTRICAL STIMULATION INTERFERE IN THE URINARY INCONTINENCE IN WOMEN WITH MULTIPLE ESCLEROSIS?

Hypothesis / aims of study

To analyze the effective of transcutaneous electrical stimulation of the tibial nerve as therapeutic proposal of urgency urinary incontinence in women with multiple sclerosis.

Study design, materials and methods

The study was composed by six women with multiple sclerosis and urgency urinary incontinence symptoms (UUI). For UUI assessment, women clinical complaints were taken, realized pelvic floor digital palpation, applied questionnaires about quality of life and specific for overactive bladder. The intervention program was composed by 30 sessions of 20 minutes of tibial nerve electrical stimulation, three times a week, parameters F=10Hz and T=200 μ s. Each ten sessions the participants were reevaluates with specifics questions about urinary urgency and UUI, OAB-V8, King's Health Questionnaire (KHQ) and voiding diary data were registered. In the final 30 sessions, women repeat all initial assessment process. The statistical analyzes and comparison tests choices between variables were executed in agree with the presupposes determinates by results, characteristics and variables behavior of the study.

Results

The voiding diary presented decreased daily urinary frequency. It was significant the difference between initial and final moments of the OAB-V8 questionnaire. The pelvic floor digital palpation, evaluated with PERFECT scheme, demonstrated significant difference in Power and the other items presented better change but not significant. In the quality of life assessment, evaluated by the KHQ, there were significant differences between initial and final moments in the questions 2 - How much your bladder problem disrupts in your life?, 5 - social limitation and 8 - Sleep/Energy.

Interpretation of results

Analyzing the Voiding Diary (TABLE 1), there is a tendency to significance ($p = 0.058$) in symptoms of urinary frequency. On average, women started to go to the bathroom 8.05 times a day. Despite improvement, this result does not compare to the study of Stoller¹ whose patients improved 66% in this symptomatology. This difference might be explained by the small number of participants in this study.

In OAB - V8 questionnaire (TABLE 1), there was a significant difference between the beginning and end of treatment, with improvement in overactive bladder. This study corroborates with Surwit², which also found improvement in the scores of the OAB-V8 questionnaire after tibial nerve stimulation, with scores below eight, while in this study the average score was 8.05.

In subjective functional evaluation of the pelvic floor (digital palpation), according to the PERFECT scheme (TABLE 2) there was significant difference in muscle performance (Power), even without functional training or guidance during treatment. Was not found in similar observations or literature that might explain this change, however it can be inferred that the improvement in sensitivity and body awareness gained by patients could justify the improvement. This may also explain the item R (Repetitions - Recovery of held contractions) that also showed significant improvement trend, not to mention the overall averages, which also showed improvement.

When compared the quality of life - King's Health Questionnaire - before and after the intervention (TABLE 3), it was found that only areas 2, 5 and 8 showed improvement. This fact can be explained by the limitations that multiple sclerosis can manifest in the patient, such as fatigue, changes in gait and balance, among others. Among many limitations, not always the urinary symptoms are what most bother the patient. If the items noted for improvement, we have that electro stimulation was effective to decrease the discomfort generated by bladder problems, with improved social limitations, since the patient can control more urgency and urine leakage, with the possibility of better socializing. Moreover, it was a significant improvement in sleep / energy, because the patients now have better night's sleep since decreased nocturia. This study corroborates with the items 2 and 8 of the series of cases studied by Blosfeld³, however in the series, significant improvement was found in four items, whereas in this study the improvement was significant in another item: social limitations.

Concluding message

Transcutaneous electrical stimulation of the tibial nerve was effective to decrease urgency urinary incontinence in women with multiple sclerosis. With the presented data in this study and the paucity of treatment articles of urinary incontinence in women with multiple sclerosis, opens up new and important line of research that links these two areas.

Tables

Table 1- Voiding Diary and OAB-V8 questionarie results, initial and final.

VARIABLES	Initial			Final			P value
	Mean	SD	Median	Mean	SD	Median	
Voiding Diary P/P	8.9	11.52	8.5	8.05	6.10	7.83	0.058
OAB-V8 P/UP	18.6	76.26	20	9.6	108.26	6.5	0.030*

Paired Student's T test (Voiding Diary); Wilcoxon test (OAB-V8). $p < 0.05$: significant result*
P: Aceppts normality; UP: Rejects normality (initial analysis/final analysis)

Table 2 - PERFECT scheme results for pelvic floor functional assessment, initial and final.

VARIABLES	Initial			Final			P value
	Mean	SD	Median	Mean	SD	Median	
P ^{UP/UP}	2.0	1.54	1	2.8	0.98	2.5	0.021*
E ^{UP/P}	3.3	3.61	1.5	5.5	3.83	4.5	0.168
R ^{UP/P}	1.5	2.34	0	2.6	3.32	1.5	0.054
F ^{P/P}	3.8	2.78	4	4.6	3.55	4	0.330

Paired Student's T test (Voiding Diary); Wilcoxon test (OAB-V8). p<0.05: significant result*
P: Accepts normality; UP: Rejects normality (initial analysis/final analysis)

PERFECT Scheme: **P-Power - Muscle performance/ **E**-Endurance - contraction maintenance/ **R**-Repetitions - Repeated sustained contractions/ **F**-Fast - Number of fast contractions

Table 3 - King's Health Questionnaire results, initial and final.

VARIABLES	Initial			Final			P value
	Mean	SD	Median	Mean	SD	Median	
1.Current health assessment ^{UP/P}	37.5	20.91	25	25.0	15.81	25	0.101
2.How much the bladder problem disrupts ^{P/UP}	55.5	27.22	49.95	27.7	38.96	16.65	0.002*
3. Performance tasks limitation ^{P/UP}	33.3	23.56	33.3	27.7	37.52	16.6	0.265
4.Physical limitation ^{P/P}	19.4	12.54	16.6	44.4	44.32	24.95	0.412
5. Social limitation ^{P/UP}	14.8	13.44	16.65	3.7	9.06	0	0.020*
6.Personal relationship ^{UP/UP}	13.8	22.14	0	8.3	13.92	0	0.287
7.Emotions ^{P/UP}	29.6	26.88	27.75	23.1	38.23	11.1	0.201
8.Sleep/Energy ^{P/UP}	33.3	14.93	33.3	24.5	9.14	24.95	0.037*
9.Situations ^{P/P}	59.9	30.41	50	53.3	28.91	46.6	0.165

Wilcoxon test (variables 1,2,3,5,6,7,8); Paired T test (variables 4 and 9). p<0.05: significant result*
P: Accepts normality; UP: Rejects normality (initial analysis/final analysis)

References

1. Stöller M. Afferent nerve stimulation for pelvic floor dysfunction. Eur Urol 1999; 35 (suppl 2): 16
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Disclosures

Funding: FAPESP- Process number 2012/25428-0 **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Comitê de Ética em Pesquisa da Faculdade de Filosofia e Ciências da Unesp-Marília sob o parecer 0626/2012 **Helsinki:** Yes **Informed Consent:** Yes