

PELVIC FLOOR MUSCLE TRAINING IN THE TREATMENT OF LOWER URINARY TRACT SYMPTOMS IN WOMEN WITH MULTIPLE SCLEROSIS

Hypothesis / aims of study

Lower urinary tract symptoms (LUTS) occur in up to 90% of the patients with multiple sclerosis at some time in the course of their disease, due to the autoimmune attack to the myelin. Urgency, with or without urge incontinence, usually with frequency and nocturia are the most common symptoms. Pelvic floor muscle Training (PFMT), developed by Kegel, primarily used for treatment of stress urinary incontinence (1), have been effective in the treatment of these symptoms. This blind, randomised and prospective trial aimed at investigating the comparison of PFMT and a sham treatment in women with multiple sclerosis (MS) with relapsing remitting form.

Study design, materials and methods

Twenty seven patients with symptoms of urgency, with or without urge incontinence, frequency and nocturia were recruited and randomized, by the envelope method, into two groups: Treatment (G-I) (N=13) and Sham (G-II) (N=14). Evaluation consisted of 24-hour Pad testing; 3 day bladder diary; and post void residual volume, maximum cystometric capacity, detrusor overactivity and maximum flow rate were recorded by urodynamic study and all patients were assessed before and after treatment. The intervention was performed by a physiotherapist for a period of 12 weeks in both groups with participants attending twice a week. The G-I intervention consisted of PFMT in lying supine position with assistance of a Perina (Quark, São Paulo, Brazil) perineometer and was instructed to practice the exercises daily at home, without the assistance of any device, in other positions such as sitting and/or standing. They were also advised to integrate the exercises into their daily lives activities and the regimen was reviewed weekly according to the initial vaginal assessment using the PERFECT system. The G-II received a sham treatment which consisted of the introduction of a perineometer inside the vagina with no contraction required.

Results

Data analysis was to compare the beginning and the end of each intervention and the Repeated-measures ANOVA was used. A P-value of 0.05 was considered significant. Demographic data were calculated by the Mann-Whitney test and there were no significant differences between the groups.

After the treatment, in 24-hour Pad testing results G-I showed a significant reduction in the weight of pads (p-value <0.0001) no differences were observed in the G-II (Figure 1).

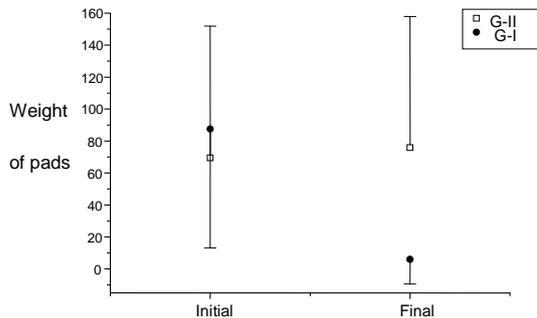


Figure 1 - Mean and standard deviation of Weight of pads before and after intervention in G-I and G-II.

In G-I a significant decrease of daytime frequency (p-value= 0.0348) (Figure 2) and nocturia (p-value<0.0001) (Figure 3) was observed in the 3 day bladder diary, on the other hand no changes were observed in G-II.

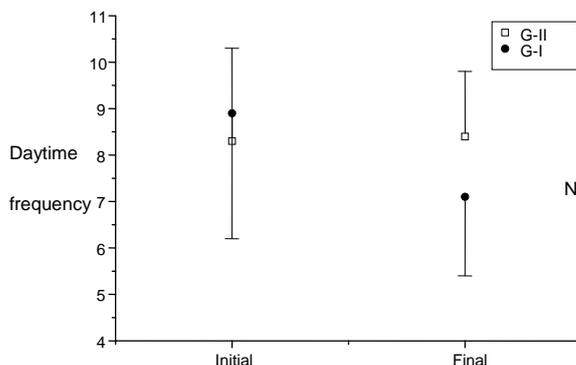


Figure 2 – Mean and standard deviation of daytime frequency before and after intervention in G-I and G-II

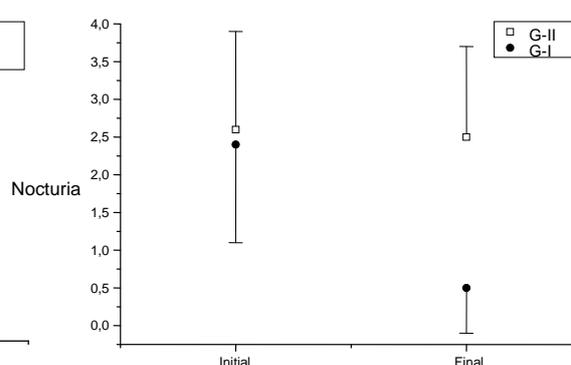


Figure 3 – Mean and standard deviation of nocturia before and after intervention in G-I and G-II

No difference was observed in maximum voided volumes, in detrusor overactivity and maximum cystometric capacity in both groups, but a significant decrease in post void residual volume (p-value= 0.0014) (Figure 4) and a significant increase in maximum flow rate was observed in G-I (p-value= 0.0024) (Figure 5), while G-II remained the same.

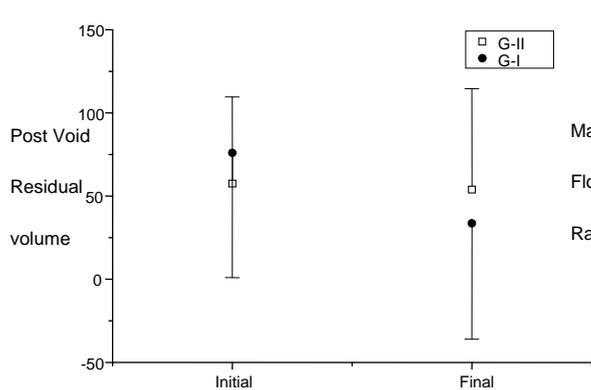


Figure 4 - Mean and standard deviation of post void residual volumes before and after intervention in G-I and G-II.

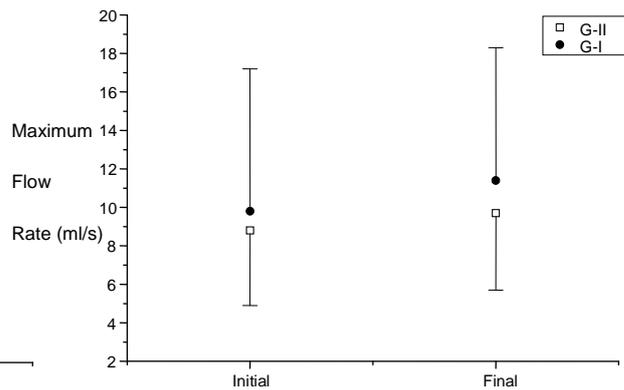


Figure 5 - Mean and standard deviation of Maximum Flow Rate before and after intervention In G-I and G-II.

Interpretation of results

The PFMT has been used as a treatment modality in the LUTS in MS, alleviating urinary symptoms. This symptoms reduction was verified in quantitative evaluations as pad testing with the reduction of urge urinary incontinence and bladder diary with the reduction of frequency and nocturia in G-I. In contrast with the findings, the urodynamic study showed few changes: there were significant differences only in post void residual volumes and maximum flow rate. G-II had none differences in any aspect. In concordance with previous studies, this improvement of G-I is due to the fact that PFMT helps to postpone voiding and manages urinary urgency, and to aid bladder emptying by relaxation of muscles (2). After inhibition of the urge to void, patients may gain enough time to reach the toilet and thereby prevent urge incontinence. Although good results were found on the signs above, no changes were found in detrusor overactivity and maximum cystometric capacity in the urodynamic study in G-I. According to previous studies, changes in symptoms are not necessarily correlated with changes in bladder and urethral function, furthermore, pelvic floor rehabilitation promotes good changes in symptoms but not significative improvement in the urodynamic finding (3).

Concluding message

Findings from the current study suggest that pelvic floor muscle training is effective in the reduction of signs of urinary urge-incontinence, frequency and nocturia also enhancing Maximum flow rate and reducing post void residual volume, caused by Lower urinary tract dysfunction in MS.

References

1. Kegel A. Progressive resistance exercise in the functional restoration of the perineal muscles. Am. J. Obstet Gynecol. 1948 vol.: 56, 238-349
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3. De Ridder D., Vermeulen C., Ketelaer P., Van Poppel H., Baert L. Pelvic floor rehabilitation in multiple sclerosis. Acta Neurol. Belg., 1999, 99, 61-64

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Is this a clinical trial?	Yes
Is this study registered in a public clinical trials registry?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Ethical Committee of Medical Sciences School, UNICAMP (N°242/2006)
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes