Electrical stimulation is a useful adjunct in the management of urinary incontinence in people with multiple sclerosis

Synopsis


Question: Does neuromuscular electrical stimulation improve lower urinary tract dysfunction in people with multiple sclerosis (MS), when given in addition to pelvic floor exercises and electromyographic biofeedback?

Design: Randomised, controlled trial with concealed allocation and blinded assessment of some outcomes.

Setting: Twelve health-care facilities in Northern Ireland.

Participants: Adults with MS with no hospital admissions in the preceding 3 months. They were required to have lower urinary tract dysfunction (involuntary leakage, > 8 voids per day, nocturia, or voiding dysfunction) but not to score more than 7.5 on the Expanded Disability Status Scale (EDSS) from 0 (normal) to 10 (death due to MS). Symptomatic prolapse, prostatic hyperplasia, infection and contraindications to electrical stimulation were exclusion criteria. Randomisation of 74 participants allotted 37 to each of two groups. Interventions: Both groups were taught skills and strategies to prevent incontinence and trained in pelvic floor muscle exercises. Both groups were taught to perform the exercises with electrical stimulation via a hand-held unit with a vaginal or anal probe. The treatment group received active stimulation while the control group received sham stimulation. Both groups performed the exercises daily for 9 weeks. The exercises were reviewed with electromyographic biofeedback at a weekly clinic visit. Outcome measures: The primary outcome was the number of leakage episodes per day as monitored by diary. Secondary outcome measures included gain in pad weight after use, voiding measures, symptom questionnaires, and assessment of pelvic floor muscle function using the Oxford classification and EMG. All outcomes were measured at 9, 16, and 24 weeks. Results: In each group, 36 participants completed the study. At 9 weeks, the treatment group had significantly less incontinence, with 0.8 fewer episodes per day (95% CI 0.1 to 1.4) and 89 g lighter pads (95% CI 8 to 171) than the control group. The treatment group also had significantly larger voids, by 47 ml (95% CI 1 to 93), and significantly smaller post-void residual volumes. Symptoms were also rated as significantly less bothersome. At 24 weeks, however, pad weight was the only objective outcome that remained statistically significant. Nevertheless, patients in the treatment group still rated their symptoms as significantly less bothersome on two questionnaires. Conclusion: For people with MS, the addition of electrical stimulation to a program of pelvic floor muscle training and EMG biofeedback induces several improvements in lower urinary tract dysfunction. Although some improvements were temporary, symptoms remained less bothersome for 24 weeks.

[95% CIs calculated by the CAP Co-ordinator using data in the tables or graphs.]

Commentary

Bladder dysfunction is common among people with MS (Hennessey 1999), increasing in prevalence with increasing severity of MS (Nortvedt 2001). Bladder dysfunction has widespread adverse impacts on quality of life in these patients, regardless of the severity of MS (Nortvedt 2001). Although there are methods to manage bladder dysfunction, such as absorbent pads or catheterisation, the ideal goal of treatment is to reduce or eliminate it.

This trial is well designed and reported, satisfying the external validity criterion and nine of the ten internal validity criteria on the PEDro scale. These nine include two of the three blinding criteria – criteria that are rarely met in physiotherapy trials (Maher 2008).

The magnitude of the benefits immediately after treatment appears to be clinically worthwhile, given that quality of life improved. Not all of the benefits seen at the end of the therapy period persisted at follow-up. However, the beneficial treatment effect on ‘pad weight after use’ was still significant at that time. This was sufficient to also maintain a clear benefit in quality of life at this time point. This highlights the importance of advising patients about the correct continence products, so that the control of fluid is maximised and the impact on quality of life is minimised.

The parameters of the electrical stimulation described have been shown to be effective in other populations. In patients with MS, however, fatigue may limit the duration of treatment that can be tolerated. Although the authors state that treatment duration was increased ‘up to 30 minutes’, it is not clear how many patients achieved this target. Therapists should be aware that some patients with MS may only tolerate a shorter treatment.

MS is characterised by periods of relapse and remission. It is unclear whether the treatment benefits of the 9-week intervention used in this study would persist across these periods. Future research could investigate whether this intervention should be applied as an ongoing or repeated strategy along with pelvic floor muscle training.

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References