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ELECTRICAL STIMULATION AND PELVIC FLOOR MUSCLE TRAINING WITH BIOFEEDBACK IN PATIENTS WITH FECAL INCONTINENCE

Hypothesis / aims of study

Physiotherapy, pelvic floor muscle training (PFMT) combined with biofeedback (BF) and electrical stimulation (ES), is a commonly used therapy in patients with faecal incontinence (FI). Interpretation and comparison of reported results of relevant studies is difficult, as these studies vary in patient selection, sample size, methodology, biofeedback and electrical stimulation techniques used, as well as in outcome measures, criteria for success and length of follow-up period. We assessed the outcome of standardized physiotherapy treatment in a large population of consecutive patients with FI due to different aetiologies. In addition we wanted to compare the outcome across a number of clinical subgroups.

Study design, materials and methods

Prospective multicentre cohort study, performed in 16 medical centres in the Netherlands. In 281 consecutive patients with FI due to different aetiologies > 6 months and a Vaizey-score ≥ 12 (1), data on medical history and multiple diagnostic tests, i. e., anal manometry, rectal capacity measurement and endoanal sonography were collected. Severity of FI was assessed with the grading system of Vaizey, ranging from 0 (complete continence) to 24 (complete incontinence). Nature of FI was classified as either passive incontinence, urge incontinence, or a combination of passive and urge incontinence (2). Possible underlying causes for FI were divided in two main groups: anatomical disorders versus functional disorders.

Subsequently patients were referred for standardized physiotherapy, comprising nine sessions of ES and PFMT with BF. Main outcome measures were Vaizey score, anal manometry, and rectal capacity measurement findings 3 months after therapy. Subgroups of patients were defined by anal sphincter complex integrity, nature and possible underlying causes of FI, and Oxford score (3).

Results

Twohundred and fifty-two women and 29 men were included. Their mean age was 59 years (SD ± 13). The median duration of FI was five years (range 0.5 to 57 years). The mean baseline Vaizey score was 18 (SD ± 3.1). Vaizey scores at baseline and after therapy were available both in 239 (85%) patients. Vaizey score improved from baseline in 143 of 239 patients (60%), remained unchanged in 56 (23%) and deteriorated in 40 patients (17%). Mean Vaizey score was reduced with 3.2 points ($p<0.001$). A Vaizey score reduction of ≥ 50% was observed in 32 patients (13%). Mean squeeze pressure (+5.8 mmHg; $p=0.02$) and mean maximal tolerated volume (+11 ml; $p=0.01$) improved from baseline, without a change in resting pressure ($p=0.2$), sensory threshold ($p=0.52$) and urge sensation ($p=0.06$). Subgroup analysis did not identify patients who beforehand should be excluded for physiotherapy treatment.

Interpretation of results

Subgroup analysis did show that the change in Vaizey score, squeeze pressure and maximal tolerated volume was irrespective of anal sphincter complex integrity, nature and possible underlying causes of FI, and way of treatment planning. A significant difference in change of resting pressure was only found between patients with passive incontinence and those with combined incontinence. A significant difference in change of sensory threshold and urge sensation was only found between patients with unknown underlying cause for FI and patients with an anatomical and/or functional underlying cause(s) for FI. Changes in outcome measures after therapy in our study cannot exclusively be attributed to physiotherapy, as this study was not designed as a randomized clinical trial. We performed a prospective cohort study as we wanted to evaluate the effects of physiotherapy in a large patient group with FI due to mixed aetiologies, and to compare the results in clinical subgroups.

Concluding message

This study demonstrated that a protocol of nine sessions of physiotherapy provides a substantial improvement of the severity of FI in a minority and a slight or no improvement in a majority of patients. Mean improvement is modest and accompanied by a small average increase of squeeze pressure and maximal tolerated volume. As subgroup analysis did not gain clear insight in identifying patients who are most likely to benefit from physiotherapy, evaluating predictors of response to select those patients is a topic for future research.

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