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PELVIC FLOOR MUSCLE TRAINING ARE EFFECTIVE IN WOMEN WITH URINARY INCONTINENCE AFTER STROKE

Hypothesis / aims of study

The prevalence of urinary incontinence after stroke is very high:
32-79 % at admission to hospital, 25-28 % at discharge from hospital and 12-19 % six months after the stroke. The incidence of stroke in Denmark is 2 per 1 000 inhabitants corresponding to 10 000 new patients with stroke per year.
The aim of this study was to evaluate the effect of Pelvic Floor Muscle Treatment (PFMT) in women with urinary incontinence after ischemic stroke.

Study design, materials and methods

Design: A prospective, single-blinded, parallel group design, where subjects were randomised to either Treatment Group (TG) or Control Group (CG).
The subjects received written and verbal information and signed an informed consent. The ethical committee for The Copenhagen County had approved the study.
Materials: A total of 339 medical records of women with stroke were screened and 26 subjects were included. The inclusion criteria were: women, with first ever ischemic stroke (WHO-definition) and verified by a CT-scan, age between 40-85 years, stroke symptoms at least in one month, urinary incontinence (ICS-definition) started in close relationship to the stroke, normal cognitive functions, independent walking abilities indoors >100 meters with/without aids and independence in toilet visits. The outcome was measured by a pre-test and a post-test using four variables of pelvic floor muscle by vaginal palpation: function, strength, static endurance and dynamic endurance. Furthermore, a diary, a 24-hours pad test and two quality of life questionnaires were used.

Methods:
The PFMT programme consisted of:
Introduction: 1 hour
Group treatment: 6-8 patients in one hour/week for a 12 week period
Home exercises: 1-2 times per day
Vaginal palpation: 2-3 times
The subjects in CG followed the normal, standard programme of general rehabilitation without any specific treatment of urinary incontinence.

Statistics: Median and quartile ranges were used. The null-hypothesis was tested by Mann Whitney U-test between groups and by Wilcoxon test within groups. The level for statistical significance was $p < 0.05$.

Results

Twenty-four subjects completed the study, twelve in TG and twelve in CG. The median age was 60 years (interquartile range 56-74) and median duration since stroke 12 months (interquartile range 2-30). The attendance rate to treatment sessions was 90 % (66-100). A significant improvement in dynamic endurance of pelvic floor muscle ($p=0.028$) was demonstrated in the TG compared to the CG. A significant improvement of pelvic floor muscle function ($p=0.034$), strength ($p=0.046$), static endurance ($p=0.028$) and dynamic endurance ($p=0.020$) was also demonstrated within the TG. In CG only strength improved significantly ($p=0.034$), whereas there were no significant changes at function, static endurance or dynamic endurance.

Interpretation of results

To our knowledge the present study is the first investigation of PFMT effect performed in a random sample of women with urinary incontinence after stroke. The pelvic floor muscle improved in function, strength, static endurance and dynamic endurance in TG. In the CG the muscle strength improved over time whereas the remaining parameters were unchanged, indicating a spontaneous improvement and emphasizing the need for a control group. The improvement may be caused by improved muscle awareness and learning effect to the PFM introduced at pre-test where vaginal palpation was used as measurement.

Concluding message

Pelvic Floor Muscle Training had a significant effect in a controlled study of women with urinary incontinence after stroke.

FUNDING: The Foundation of Danish Physiotherapists Research