

LONG-TERM RESULTS OF PELVIC FLOOR MUSCLE TRAINING FOR FEMALE STRESS INCONTINENCE AND ANALYSIS OF RELATED PARAMETERS

Hypothesis / aims of study

Pelvic Floor Muscle (PFM) training is reported to be of clinical effect in the treatment of stress urinary incontinence (SUI) in short-term follow up studies, but the long-term outcomes are scarcely presented. We aim to assess the long-term results of intensive PFM training an average of 7.8 years later and to look for any prognostic parameters which may predict the favourable outcomes.

Study design, materials and methods

A total of 150 women, diagnosed as having stress incontinence at the Urology Department of University Hospital, were invited to participate in an 8-week PFM training program between 1990 and 1996. Of the 150 patients, 118 were chosen because they satisfied the following criteria: (1) they had finished the training at least six years previously; (2) they had not undergone surgery for SUI; and (3) they had participated in an previous intermediate assessment a mean of 2.3 years later (1-4 years) which had been reported elsewhere. Postal questionnaires were sent to the 118 women a mean of 7.8 years later (6-10 years).

Data Analysis: Univariate analysis assessed severity of SUI at following 3 points, i.e., immediately after training, a mean of 2.3 years later, and an average of 7.8 years later. As a multivariate analysis, logistic regression analysis was then performed using incontinence-related factors as outcome variables in order to clarify prognostic factors at each point. A proportional odds model was used to identify incontinence-related factors at all 3 points.

Results

Clinical effects of PFM training: Of the 118 women, our questionnaires were recovered from 91 (recovery rate: 77.1%). Of the 91 women 12 were excluded because they were not ambulatory or had undergone surgery for SUI, leaving 79 women to be evaluated in the present assessment. Average age of patients at the long-term assessment was 60.2 ± 8.4 years, at which point PFM training had been performed an average 7.7±1.4 years previously. Treatment success (TS) was defined as absence of urinary leakage or its significant improvement, and treatment failure (TF) was defined as slight improvement of leakage or no improvement at all following the PFM training. Table depicts the number of women who subjectively assessed themselves as TS or TF. Of the present 79 women 17 patients (21.5%) claimed as TS at all 3 points and 29 (36.7%) as TF, while the remaining 33 (41.8%) drifted in between TS and TF. As for continuation of PFM training by themselves 15 women (19.0%) told they continued muscle contractions from time to time, while 64 (81.0%) did not.

	Immediate after	intermediate	long-term
TS	44 (37.3%)	45 (40.2%)	31 (39.2%)
TF	74 (62.7%)	67 (59.8%)	48 (60.8%)

Incontinence-related parameters:

(1) Determination of explanatory variables in the univariate analysis:

Based on the trend test where a p-value<0.2 was observed at least one of the three assessment points, the following were selected as explanatory variables: age (p=0.018), pad test loss following PFM training (p=0.002), vaginal pressure after training (p=0.017), vaginal pressure difference between before and after training (p=0.076), number of deliveries (p=0.083), past history of uterine surgery (p=0.115), frequency of intercourse (p=0.056), .

(2) Logistic regression analysis at each assessment point:

It was found that immediately after PFM training, the smaller the pad test loss, the greater the improvement in continence (odds ratio (OR): 0.50, 95% confidence interval (CI): 0.29-0.88). The intermediate assessment observed that the greater the age (OR: 3.40 and 95%CI: 1.36-8.47), the lower the pad test loss after training (OR: 0.51, 95%CI: 0.29-0.90) and that the greater the change in vaginal pressure difference between before and after training (OR: 2.34, 95%CI: 1.24-4.45), the greater the improvement in continence. At the long-term assessment, the greater the change in vaginal pressure difference between before and after training, the greater the improvement (OR: 1.78, 95%CI 1.01-3.13).

Interpretation of results

Of 44 women originally successful immediately after the initial PFM training, TS has been maintained in 19 (43.2%) for a mean of 7.8 years. On the contrary, of 74 women who originally evaluated themselves as TF immediately after the training 12 (16.2%) claimed that they were continent a mean of 7.8 years later. These data seem to suggest that about 40% of those who experienced TS immediately after the training will keep her continence for a mean of 7.8 years.

Concluding message

It is concluded that approximately 40% of women who participated in the intensive PFM training will maintain her continence even after 7.8 years later and that the large pressure difference of vagina between before and after training is one of prognostic parameters for great improvement in the long-term follow up. From a nurse's point of view it is important to repeatedly give a woman strong motivation and to train her to perceive fine movements of her PFM's at an early stage of training session, which in turn contribute to increasing power of muscle contraction. We believe that the so-called perineal lock [1] (active contraction before sudden intra-abdominal pressure increase) is extremely effective to prevent SUI by increasing muscle contraction power which can be remembered and performed even a mean of 7.8 years later.

References

[1] A 10-year follow-up after Kegel pelvic floor muscle exercises for genuine stress incontinence. BJU International 85:655-658 2000.

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