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CAN A PELVIC FLOOR MUSCLE TRAINING PROGRAM IMPROVE THE SEVERITY OF PELVIC ORGAN PROLAPSE IN POST MENOPAUSAL WOMEN? A RANDOMIZED CONTROLLED TRIAL

Hypothesis / Study goals

Pelvic organ prolapse (POP) can be defined as the descent of one or more of the anterior vaginal wall, posterior vaginal wall, the uterus (cervix), or the apex of the vagina (vaginal vault or cuff scar after hysterectomy)[1].
Among the several factors that predispose to the development of POP, menopause and aging process play an important role in these disorders due to changes in the quality of collagen and muscular system. In addition to negatively affect women's quality of life, the presence of POP is one of the most common indications for gynecological surgery in older women.
Efficient support of the pelvic organs depends on the integrity of the pelvic-floor muscles, the supportive connective tissue (the endopelvic fascia and the uterosacral and cardinal ligaments), and adequate innervation.
Thus, the pelvic floor muscle training (PFMT) is a means of non-invasive treatment and with few complications that could provide better support to the pelvic organs. It is recommended by the International Continence Society (ICS) to reduce the symptoms of urogenital prolapse (Grade B) and prevent or slow deterioration of anterior urogenital prolapse (Grade B). However, there is scant evidence on the benefits of PFMT for the management of pelvic organ prolapse, especially among older women.
The aim of this study was to evaluate the effects of PFMT in presence of POP and in the pelvic floor muscle contractility and urinary and sexual symptoms in postmenopausal women.

Study design, materials and methods

This is a clinical, randomized, blind and controlled study conducted at a Public Health Service Program in Brazil that included postmenopausal women suffering from urogynecological symptoms. The 72 volunteers included in the study were randomized in two groups: PFMT in treatment group (TG) (n =48) and control group (CG) (n = 24). From the 72 women, included in the study, nine from the TG did not complete the treatment and nine from the GC did not perform the final evaluation, thus were excluded from the sample. Hence, 54 women with mean age of 64,83 (±8.52) years completed the study, 39 in the TG and 15 in the CG. The exclusion criteria were: women with vaginal or urinary infections; pelvic cancer; uncontrolled metabolic disorders (hypertension and diabetes); cognitive, psychiatric or neurological disorder; chronic vaginal pain; inability to contract the PFM; POP stage IV according to the Pelvic Organ Prolapse Quantification System (POP-Q) and severe heart disease, who added up to four volunteers (n=4).
The evaluations were performed by a physiotherapist who was unaware of the treatment protocol and consisted of: (a) functional assessment of the pelvic floor by vaginal palpation and grading muscle contractility by digital palpation which was graded according to the Modified Oxford Grading Scale (zero to five points) and (b) assessment of pelvic organ prolapse by Pelvic Organ Prolapse Quantification System (POP-Q). Validated versions of questionnaires were used to evaluate the presence of urinary symptoms: the *International Consultation on Incontinence Questionnaire – Urinary Incontinence Short Form* (ICIQ UI-SF) and *the International Consultation on Incontinence Overactive Bladder Questionnaire* (ICIQ-OAB) and sexual function: *Female Sexual Function Index* (FSFI).
The PFMT was supervised by the principal investigator and consisted of 12 sessions, with two sessions per week with 30 minutes and total of 6 weeks of treatment. The subjects of the group were divided into groups of 8–10 people for treatment.
The exercises began in the supine position, progressing to sitting and standing and were based on PFMT using the Swiss Ball (fast-twitch and slow) associated with breathing exercises and postural care according Marques's Protocol [2].
The data was then subjected to statistical analysis – Kolmogorov-Smirnov test to verify the accuracy of the data. Due to the abnormal distribution, Wilcoxon test was used. The significance level was 5%.

Results

Improvement of anterior and posterior POP severity only in Treated group ($p<0.0001$ and $p=0.03$ respectively) was observed. We also observed at the same time that there was improvement of muscular contractility by vaginal palpation only in Treated group ($p<0.0001$). Decreases in the scores ICIQ-OAB ($p<0.0001$; power=1.0), ICIQUI- SF ($p<0.0001$; power=0.99) and FSFI (0.0002; power=0,49) were also found after training.

Interpretation of the results

Our study showed improvement on both anterior and posterior prolapses. Similar results were found by other researchers whom showed that a greater number of women belonging to the group that underwent PFMT had improvement of the POP stage with significant muscle strength when compared to the control group.
The improvement of the pelvic support through muscle strengthening may have caused the reduced prolapsed degree and consequent reduction of the urinary symptoms and sexual function improvement. Through Magnetic Resonance Image Maddil et al [3] found the reduction in the anorectal angle and the urethrovesical junction was higher at rest, while straining and during

contraction, showing that PFMT in older women can promote improvement to the pelvic organ support. As our study, they also showed improvement on the pelvic floor muscles and urinary symptoms.
We believe that the PFMT under the supervision of a trained professional should be emphasized to POP management for women at this age group.

Concluding message

The pelvic floor muscle training using the Swiss ball is an effective way to decrease the pelvic organ prolapse, urinary symptoms and increase the pelvic floor muscle contractility and sexual function in postmenopausal women.

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