Original Article

Pelvic Floor Muscle Exercises As A Treatment For Urinary Incontinence In Postmenopausal Women: A Randomized Controlled Trial Conducted Among NCR Population

Richa Kashyap[1], Gurmeet Kaur[2], Megha Sharma[3]

[1]Professor and HOD, Prakash Institute of Physiotherapy Rehabilitation and Allied medical Sciences, Greater Noida.
[2]MBBS DGO Gynaecologist,
[3]M.S.C Statistics, Noida
Corresponding author: Richa Kashyap
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Abstract

Background: The present study was conducted for evaluating the efficacy of Pelvic Floor Muscle (PFM) Exercises as a Treatment for Urinary Incontinence in Postmenopausal Women.
Materials & methods: A total of 100 subjects were enrolled in the present study. Complete demographic and clinical details of all the patients was obtained. All the 100 subjects were of post-menopausal status and were of more than 55 years. Only those patients were enrolled which had history of UI (Urinary Incontinence). All the subjects received Pelvic Floor Muscle Exercises. The primary outcome measure was number of leakage episodes on the 7-day bladder diary, assessed at baseline and after treatment. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis.
Results: Mean age and mean BMI of the patients was 59.1 years and 23.7 Kg/m^2. Type of incontinence was mixed stress and urge in 72 percent of the patients. Mean time to primary response at baseline, 3 months postintervention and one-year postintervention was 8.1, 3.2 and 1.8 respectively. Significant improvement was seen at different successive time intervals.
Conclusion: PFM exercise is a highly recommended intervention to treat urinary incontinence in postmenopausal women

Keywords: Pelvic Floor muscle, Exercise, Postmenopausal Women.

INTRODUCTION

Menopause is a critical period in the life of every woman. The time of menopausal transition is often marked by metabolic changes that affect the health of a woman. Recent scientific reports indicate that already before the onset of menopause, referred to as the climacteric, it causes many unpleasant symptoms that worsen the quality of life of many women. These symptoms are very often the result of hormonal and metabolic changes and, as a consequence, increase the risk of chronic diseases. Recently, there have been reports that show the influence of menopause on the development of cardiovascular diseases.[1- 3] The prevalence of urinary incontinence and of other lower urinary tract symptoms increases after the menopause and affects between 38 % and 55 % of women aged over 60 years. While urinary incontinence has a profound impact on quality of life, few affected women seek care.[4, 5]

Women neither come forward seeking medical consultation nor do they discuss about their incontinence openly, and the condition remains underestimated in the society. There are many unreported cases in the population as per se veral hospital-based studies done in India before. [6, 7] Among the options based on non-invasive and non-pharmacological intervention are therapeutic targeted exercise such as PFM training, which focuses on improving the function, muscle tone, strength, coordination, and endurance of the pelvic-floor musculature.[8- 10] Hence; the

present study was conducted for evaluating the efficacy of Pelvic Floor Muscle Exercises as a Treatment for Urinary Incontinence in Postmenopausal Women.

MATERIALS & METHODS

The present study was conducted for evaluating the efficacy of Pelvic Floor Muscle Exercises as a Treatment for Urinary Incontinence in Postmenopausal Women among NCR population. A total of 100 subjects were enrolled in the present study. Complete demographic and clinical details of all the patients was obtained. All the 100 subjects were of post-menopausal status and were of more than 55 years. Only those patients were enrolled which had history of UI (Urinary Incontinence). All the subjects received Pelvic Floor Muscle Exercises 3 times a week During the study's intervention phase, the maximum number of PFM exercises prescribed was 60 repetitions (3 sets of 20 repetitions) of a 3-second PFM contraction and 30 repetitions (3 sets of 10 repetitions) of a 12-second contraction per exercise session.

The primary outcome measure was number of leakage episodes on the 7-day bladder diary, assessed at baseline and after treatment. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis.

RESULTS

Mean age and mean BMI of the patients was 59.1 years and 23.7 Kg/m^2. Type of incontinence was mixed stress and urge in 72 percent of the patients. Mean time to primary response at baseline, 3 months postintervention and one-year postintervention was 8.1, 3.2 and 1.8 respectively. Significant improvement was seen at different successive time intervals.

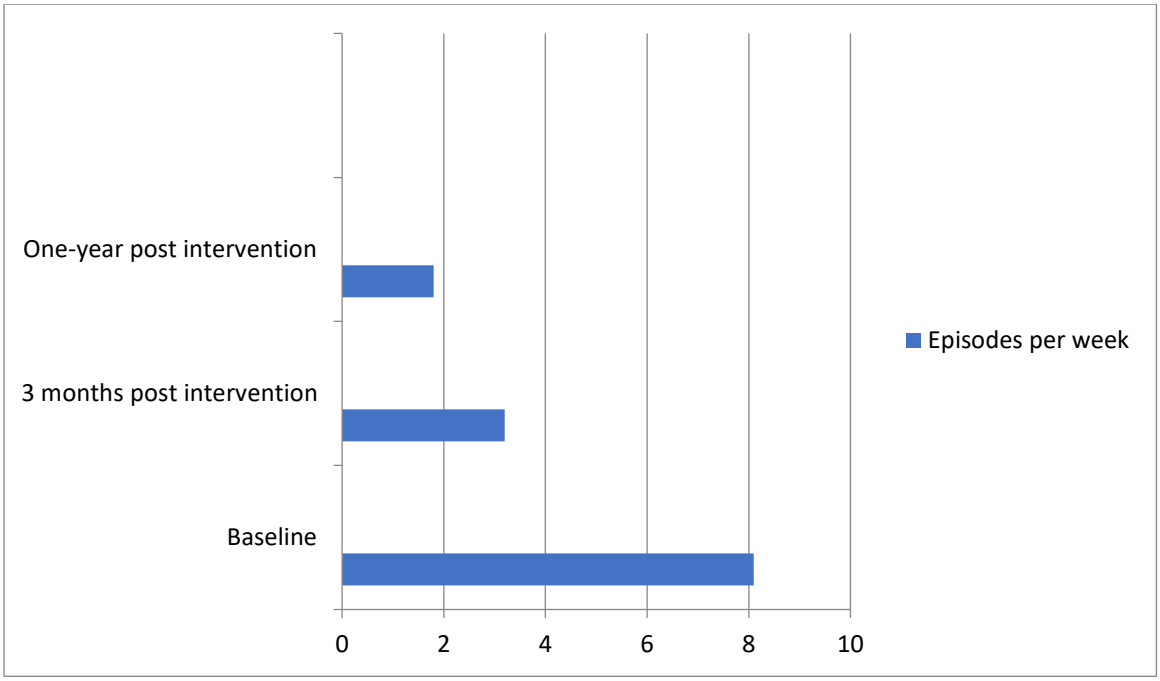
Table 1: Baseline variables

Variable		Number
Mean age (years)		59.1
BMI (Kg/m^2)		23.7
Type of incontinence (%)	Stress only	14
	Urge only	14
	Mixed stress and urge	72

Table 2: Primary response

Time duration	Episodes per week		p-value
	Mean	SD	
Baseline	8.1	1.6	0.000 (Significant)
3 months post intervention	3.2	1.2	
One-year post intervention	1.8	1.1	

Graph 1: Bar graph showing primary response



DISCUSSION

Urinary incontinence is the complaint of involuntary loss (leakage) of urine. The condition occurs in both sexes, but is much more frequent in women. Although some overlap in pathophysiology is evident between sexes, incontinence in men is often a consequence of prostatic enlargement or from damage to continence mechanisms during surgery or radiotherapy for prostate cancer. By contrast, incontinence in women is typically related to dysfunction of the bladder or pelvic floor muscles, with such dysfunction often arising during pregnancy or childbirth, or at the time of menopause.[7- 9] Many studies, however, indicate that the prevalence of stress incontinence falls after the menopause. Until recently, estrogen, usually as part of a hormone replacement therapy (HRT) regimen, was used for treatment of urinary incontinence in postmenopausal women.[10] Hence; the present study was conducted for evaluating the efficacy of Pelvic Floor Muscle Exercises as a Treatment for Urinary Incontinence in Postmenopausal Women.

Following the PRISMA 2020 guidelines, a search was conducted by López-Pérez MP et al in the electronic databases PubMed, Web of Science, and Scopus for articles with at least one group performing PFM exercises in post-menopausal women with urinary incontinence. Eight articles were included, and each study had at least one group of PFM exercise-based intervention alone or combined. The volume or duration, frequency, and number of sessions were heterogeneous. All the studies reported significant differences in favor of PFM exercise in strength, quality of life, and/or severity of urinary incontinence.[11]

Mean age and mean BMI of the patients was 59.1 years and 23.7 Kg/m^2. Type of incontinence was mixed stress and urge in 72 percent of the patients. Mean time to primary response at baseline, 3 months post-intervention and one-year post-intervention was 8.1, 3.2 and 1.8 respectively. Significant improvement was seen at different successive time intervals. The purpose of daily exercise is to increase muscle strength and to enhance motor skills through practice. The basic regimen consists of 3 sets of 8 to 12 contractions sustained for 8 to 10 sec each, performed 3 times a day. Patients should try to do this every day and continue for at least 15 to 20 weeks. Specific exercise regimens vary considerably in frequency and intensity, and the ideal exercise regimen has not yet been determined (Newman et al., 2018). However, good results have been achieved in several trials using 45 to 60 paired contractions and relaxations per day. Some clinicians use an exercise prescription to prescribe the daily exercise program (Newman, 2014; Newman and Wein, 2013).[13- 15]

In another study conducted by Betschart C et al, authors compared subjective PFMT outcome in premenopausal versus postmenopausal women. Successful outcome was reported by 59% of the premenopausal patients and 70% of the postmenopausal patients (P = 0.16), the attainment of the subjective goal by 68% and 81% (P = 0.09), and the need of an incontinence operation in a follow-up of 30 to 102 months by 15% and 14% (P = 1.0), respectively. None of the outcome parameters reached significance. In comparing premenopausal to postmenopausal women,

they could not detect any statistically significant difference with regard to patients' satisfaction for the outcome of PFMT.[16]

Studies that show an agreement between the subjective tools of evaluation are still a conflict. It has already been proven that the PFMT brings an improvement in the subjective factors as well as the life quality of women with urinary incontinence. Sherburn et al found an improvement in the evaluated symptoms with the pad test and urinary journal, but when the life quality before and after was evaluated, there was no difference at all. In the Aslan et al. study, it can be observed that in the King Health Questionnaire the results of urinary incontinence didn't affect women on a great scale. It was identified that the general perception of health kept higher scores on both groups.[17- 20] Studies have shown that there is a significant increase in absorbent weight in women when they are in the menopausal transitional phase and women that are in the post-menopausal phase. Women in the post-menopausal phase that don't use hormonal therapy also show significant increase in the absorbent weight, when compared with those that do make use of hormonal replacement therapy. Franco et al compared the one-hour Pad-test with subjective outcomes, such as the analogical visual scale, severity of symptoms scale, Stamey grade, in addition to the evaluation of life quality through the surveys: Urogenital Distress Inventory (UDI-6),Incontinence Impact Questionnaire (IIQ-7), and the International Conference on Incontinence Questionnaire (ICIQ-SF). The results showed that only the ICIQ-SF had a correlation with the Pad-test.[20- 22]

There is evidence in the literature on muscle strengthening that the exercise frequency needed to preserve muscle strength (force-generating capacity) may be less than what is typically prescribed by the physical therapist. Graves et al demonstrated that reducing exercise frequency from 2 or 3 times per week to once per week afforded maintenance of knee extensor strength as long as the mode, intensity, and duration of exercise were held constant.[23] Carpenter and colleagues[24] demonstrated maximal isometric strength gains in lumbar extension during the first 12 weeks of training with continued training once per week or every other week as sufficient to preserve strength gains.

CONCLUSION

From the above results, the authors conclude that PFM exercise is a highly recommended intervention to treat urinary incontinence in postmenopausal women.

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