Comparing the Efficacy of Different Conservative Treatment Protocols in Individuals with Urinary Incontinence Symptoms After Prostatectomy

ATABEY GERLEGIZ E[1], AKBAYRAK T [1], GURSEN C[1], MANGIR N [2], YAZICI M [2], AKDOGAN B [2], NAKIP G[1], OZGUL S[1]

[1]Hacettepe University, Faculty of Physical Therapy and Rehabilitation, Department of Fundamental Physiotherapy and Rehabilitation, Ankara, Turkey,

[2]Hacettepe University, Faculty of Medicine, Department of Urology, Ankara, Turkey

Introduction

A majority of patients (up to 87%) experience moderate-to-severe urinary incontinence (UI) early after radical prostatectomy (1). Pelvic floor muscle training (PFMT) is the most commonly recommended conservative treatment for post-prostatectomy-UI (PP-UI) (1).

In addition to **strength and endurance training**, **conscious precontraction** of the pelvic floor muscles (**Knack maneuver**) can also be taught in PFMT (2). Another widely recommended approach in the management of UI is **lifestyle recommendations** (3). However, the evidence for these recommendations is quite limited (3). The aim of this study was to reveal the additional effects of the Knack maneuver and lifestyle recommendations on PFMT in PP-UI in a randomized controlled design.

Materials and Methods

This study was designed as a prospective randomized-controlled study and included three parallel arms (**Group I**: PFMT with knack maneuver and lifestyle recommendations, **Group II:** PFMT with knack maneuver, and **Group III**: PFMT alone).

Inclusion criteria;

- Having complaints of post-prostatectomy stress type UI and stress-predominant MUI,
- Ability to voluntarily contract the pelvic floor muscles (PFM)
- Having no cooperation problems

Exclusion criteria;

- Acute disease, acute prostatectomy surgery (within the first 3 weeks after prostatectomy),
- Neurological disease or neurogenic bladder,
- Pure urgency UI,
- Pre-operative UI, and previous bladder or other prostate surgeries.

A computer-based block randomization procedure was used to assign blocks of six participants to each study arm.

Within the scope of general patient education, the definition of UI, bladder function, the connections between the kidneys, bladder, and pelvic floor, the various types and causes of UI, treatments for UI, considerations to be made to prevent further problems, the significance of PFMT, and how it performs were explained to all participants using anatomical models **(Figure 1)**.

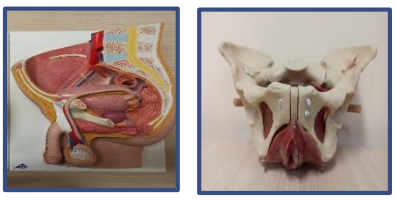

Figure 1. Urinary system and pelvic floor anatomical models.

Materials and Methods (Cont)

Firstly, standardized home-based PFMT protocols were given to all study groups.

- Anal palpation was used to teach different types of PFM contractions.
- It was stated to the participants that with the correct contraction of the PFMs, they would see the elevation of their scrotum in front of the mirror and they were asked to try this at home **(Figure 2)**.
- A total of **40 contractions** (10 fast, 10 sustained, and 20 submaximal) were performed in **3 sessions per day** for **8 weeks**. All individuals were asked to come for clinical visit every 2 weeks, to monitor exercise accuracy and compliance.
- The exercise program was intensified by increasing the number of contractions. In Group I and II, the Knack maneuver was instructed to be performed during daily activities that cause UI episodes.

Lastly, within the scope of **comprehensive lifestyle recommendations**, information about UI-related medical conditions, possible factors contributing to UI (diet, fluid intake, constipation, smoking, medications, and exercise), and implications and coping strategies were provided. A written document containing all of the information was provided to the individuals in Group I. The study protocol was approved by Hacettepe University, Clinical Research Ethics Boards (**Protocol code: KA-20081**) and Republic of Turkey, Ministry of Health, Medicines and Medical Devices Agency.

Primary outcome measure;

- International Consultation on Incontinence Questionnaire-Short Form (ICIQ-UI SF) score.

Secondary outcome measures;

- 1-hour pad test,
- King's Health Questionnaire (KHQ),
- Patient Global Impression of Severity and Improvement (PGI-S and PGI-I).

Exercise diaries were given to all individuals to increase and monitor exercise compliance. Kruskal Wallis test was used to compare the data of the 3 study groups. When the difference between the groups was revealed, the Games Howell test were used for pairwise group comparisons.

Figure 2. Elevation of the scrotum with correct pelvic floor contraction

Results

- **66 individuals** with PP-UI were **included** in the study. At the end of the study, it was determined that all outcome measures, except for the "general health perception", "personal relationships" and "severity measures" sub-domains of QoL, showed statistically significant changes in all groups over time **(p<0,001)**.
- When within-group changes were compared between groups, adding the **Knack maneuver** and **lifestyle recommendations** to the PFMT revealed **higher improvements for all outcome measures** (p<0.001).
- Primary outcome scores were as in **Table 1**.
- In addition, adding only Knack maneuver training to PFMT without lifestyle recommendations showed superiority in terms of various outcome measurement parameters (subjective UI severity and general QoL, UI effect, perception of UI severity) compared to PFMT alone.

Discussion

This is the first RCT comparing the effect of PFMT alone, in combination with the Knack maneuver and lifestyle recommendations in the management of PP-UI. As a result of this study, it was determined that in the treatment PP-UI, better results were obtained in the short term with the addition of Knack maneuver and lifestyle recommendations to PFMT. In our program, there was not much improvement between and within the group in the 4th week, so the duration of the program should be longer than 4 weeks.

Conclusions

In the treatment of PP-UI, better results can be obtained if PFMT is combined with training on the knack maneuver and comprehensive lifestyle recommendations. There is a need for further follow-up studies that demonstrate the effects by maintaining long-term compliance with conservative approaches in the management of PP-UI.

Interdisciplinary and multidisciplinary awareness should be created in the management of PP-UI. Physiotherapy approaches including behavioral interventions should be widely recommended.

Table 1. Subjective Incontinence Severity and General Quality of Life Scores and Comparisons between and within Groups (Primer Outcome Scores)

International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form					
Groups	Baseline	4th week	8th week	p_2	p_3
Group I (PFMT+Knack+LSR)	14,86±3,09	9,56±2,98	4,38±2,80[a]	<0.001*	1-2: <0.001 2-3: <0.001 1-3: <0.001
Group II (PFMT+Knack)	13,73±3,45	12±2,85	6,41±1,92[b]	<0.001*	1-2: 0.011 2-3: <0.001 1-3: <0.001
Group III (PFMT)	13,91±3,53	11,68±3,37	9,04±4,03[c]	<0.001*	1-2: 0.002 2-3: 0.001 1-3: <0.001
p_1	0.508	0.036*	**<0.001***		

PFMT Pelvic Floor Muscle Training, LSR: Lifestyle recommendations
p_1: Kruskal-wallis test, Post-Hoc:Games Howell test
*p_2: Friedman test, *: p<0.05, statistically significant difference*
p_3: Wilcoxon test, 1-2: Baseline- End of the 4th week, 2-3: End of the 4th week - End of the 8th week, 1-3: Baseline- End of the 8th week statistical values
[a, b, c]: Different superscripts in the same column indicate differences between groups.

References

1.Kretschmer A, Hubner W, Sandhu JS, Bauer RM. Evaluation and Management of Postprostatectomy Incontinence: A Systematic Review of Current Literature. Eur Urol Focus. 2016;2(3):245-59.
2. Miller J, Ashton-Miller J, DeLancey JJNU. The Knack: use of precisely-timed pelvic muscle contraction can reduce leakage in SUI. 1996;15(4):392-3.
3. Imamura M, Williams K, Wells M, McGrother CJCDoSR. Lifestyle interventions for the treatment of urinary incontinence in adults. 2015(12).

Contact:

Ege Nur ATABEY GERLEGİZ, PT
Adress: Hacettepe University, Faculty of Physical Therapy and Rehabilitation, Ankara - Turkey
Tel: +903123052525/173
E-mail: egenuratabey@gmail.com