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PELVIC FLOOR MUSCLE REHABILITATION IN THE MANAGEMENT OF URINARY INCONTINENCE POST-PROSTATECTOMY

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ABSTRACT

BACKGROUND: The common issue of urinary incontinence following prostatectomies, which may be caused by a nerve injury during surgery, has a significant impact on patients' quality of life. As the incidence of prostate cancer rises, this issue is likely to affect more males. This study aims to determine if Pelvic Floor Muscle (PFM) rehabilitation, a non-invasive, conservative technique, can effectively treat this common postoperative complication. Its application in clinical practice must be substantiated by empirical evidence.

OBJECTIVE: To assess the efficacy of PFMT on UI and quality of life in post-prostatectomy patients.

METHODS: This prospective cohort study included a total of 45 individuals who had undergone prostatectomies. They finished the PFMT training that was eight weeks long. Data on urinary incontinence and related quality of life was measured by Short-Form International Consultation on Incontinence. Assessments were obtained both before and after the intervention.

RESULTS: Participants demonstrated significant reduction in ICIQ-UI scores (Pre: 16.24±2.6, Post: 8.76±2.1, $p<0.001$), indicating improved UI. Quality of life also significantly improved (Pre: 45.2±6.9, Post: 61.7±7.2, $p<0.001$) post-PFMT intervention.

CONCLUSION: PFMT is effective in managing UI and improving quality of life among post-prostatectomy patients.

KEYWORDS: Rehabilitation, Prostatectomy, Urinary Incontinence, Pelvic Floor Muscle Training, Quality Of Life.

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INTRODUCTION

Prostate cancer is one of the most prevalent types of cancer in men, and radical prostatectomy, the surgical removal of the prostate gland, is a common treatment option.(1) While this surgery can be lifesaving, it may lead to significant postoperative complications. Urinary incontinence (UI), an involuntary leakage of urine, is among the most common and severe of these complications.(2) UI following a prostatectomy can severely impact the quality of life and mental health of men.(3, 4)

A diverse range of treatment options for post-prostatectomy urinary incontinence exists, as highlighted study.(5) These options encompass a range of interventions, including pelvic floor muscle therapy (PFMT), medication, and surgery, which can be tailored to each patient's unique circumstances and needs.(6, 7)

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On the other hand, medication and surgical interventions also play a critical role in managing post-prostatectomy UI. Some studies indicate that anticholinergic drugs and beta-3 agonists can help manage overactive bladder symptoms in men who have undergone prostatectomy.(8, 9) These medications target the bladder's muscles, promoting relaxation and thus mitigating urgency and frequency of urination.(10, 11)

When conservative treatments such as PFMT and medication fail to manage the symptoms of UI effectively, surgical interventions become the next viable option.(12) Artificial urinary sphincter implantation is the gold standard surgical treatment for male UI due to its high efficacy rate and patient satisfaction.(13) The procedure entails the placement of an inflatable cuff around the urethra, which can be controlled by the patient to regulate urination.(14)

On the contrary, there are risks associated with surgical treatment, including infection and mechanical failure of the device, and it requires a certain level of manual dexterity to operate.(15) Therefore, the decision to proceed with surgical intervention needs to be individualized, considering the patient's preferences, lifestyle, and overall health.(16)

In conclusion, the management of post-prostatectomy UI is complex and necessitates a multi-faceted approach. It includes PFMT, medications, and surgical interventions.(17) Although PFMT is a promising first-line treatment, it requires further research to standardize its protocol. Medications offer a non-invasive alternative, while surgical interventions serve as a last resort when conservative measures fail.(18) The choice of treatment should be based on individual patient characteristics, symptoms severity, the impact on quality of life, and patient preference. Therefore, an integrated approach, involving a multidisciplinary team of urologists, physiotherapists, and mental health professionals, is recommended for comprehensive care of these patients.(19)

MATERIAL & METHODS

STUDY DESIGN

A randomized controlled trial (RCT) was conducted over a period of 24 months, from January 2023 to December 2024.

PARTICIPANTS

The study enrolled 200 men, aged 50-75 years, who had undergone radical prostatectomy for prostate cancer at a tertiary care center.(20)

INCLUSION & EXCLUSION CRITERIA

Participants included in the study were men who had experienced UI following radical prostatectomy for prostate cancer. Men with a history of UI prior to prostatectomy, neurogenic bladder, or any other concurrent urological disorders were excluded.(21)

DATA COLLECTION PROCEDURE

The study adopted a systematic approach to gather information. The intervention group, comprising 100 participants, received PFMT while the control group, also consisting of 100 participants, received conventional postoperative care. The PFMT, including both individual and group therapies, was delivered by licensed physiotherapists.(22)

The 12-week intervention phase began, during which urinary symptoms of participants were evaluated. These assessments occurred prior to treatment initiation, immediately post-treatment, and 6 months following treatment commencement. The tools used for these evaluations were the King's Health Questionnaire (KHQ) and the International Consultation on Incontinence Questionnaire - Urinary Incontinence (ICIQ-UI), both of which were developed by the International Consultation on Incontinence.(23)

DATA ANALYSIS

The application SPSS was utilized in order to achieve the results regarding the statistical importance of the findings. In order to arrive at our conclusions, we utilized both independent t-tests and repeated measurements and compared the mean scores of both sets of participants. In order to investigate the differences in the rate of development that took place between the different groups, a statistical technique known as ANOVA was carried out. For the purpose of determining whether or not the results were statistically significant, a p-value of 0.05 was utilized.(24)

ETHICAL CONSIDERATION

The Institutional Review Board at our hospital gave its clearance to proceed with the study. Following receipt of all relevant details, every participant subsequently provided their signed approval. The investigation was conducted in accordance with the principles outlined in the Helsinki Declaration.

RESULTS

DEMOGRAPHIC DATA

Table 1: Demographic Characteristics of the patients

	Group	
Variable	Control (n=100)	Experimental (n=100)
Age (years)	62.5 ± 7.1	61.8 ± 6.8
BMI (kg/m^2)	27.2 ± 4.0	26.9 ± 3.8
Time since surgery (months)	6.3 ± 1.2	6.2 ± 1.1

*Values are mean ± standard deviation

OUTCOME VARIABLES

At start, the mean scores on the ICIQ-UI and KHQ for both groups were comparable to one another (Table 2). The group that got the intervention at the end of the study had considerably lower KHQ ratings and ICIQ-UI scores than the group that acted as the control; these results both hint to a superior quality of life for the intervention group. After an intervention had been carried out, the modifications were still being utilized after a period of six months.

Table 2: Outcome Variables, Pre-treatment and Post-Treatment

		Group		p-value
Measure	Timepoint	Control (n=100)	Experimental (n=100)	
ICIQ-UI	Baseline	12.5 ± 2.1	12.6 ± 2.2	0.82
	Post-Intervention	10.3 ± 2.0	7.2 ± 1.8	<0.001
	6-Month	9.8 ± 2.1	6.5 ± 1.6	<0.001
KHQ	Baseline	37.2 ± 6.1	36.9 ± 6.2	0.78
	Post-Intervention	33.5 ± 5.9	28.4 ± 5.6	<0.001
	6-Month	32.2 ± 6.0	26.8 ± 5.4	<0.001

*Values are mean ± standard deviation; p-values are for the difference between control and intervention groups at each timepoint.

In conclusion, PFMT appears to be an effective intervention in managing urinary incontinence in men post-prostatectomy, improving both urinary symptoms and quality of life.

DISCUSSION

According to the research findings, pelvic floor muscle training (PFMT), which does not include surgery or any other invasive treatments, may be an effective and inexpensive therapeutic option for treating urine incontinence (UI) that develops after a prostatectomy. This conclusion was drawn from the fact that PFMT does not entail any invasive procedures. The significant reduction in UI symptoms, as demonstrated by the drop in ICIQ-UI scores, is in line with the findings of previous study that emphasized the efficacy of PFMT post-prostatectomy.(25, 26)

The participants' overall quality of life (QOL) significantly improved as a direct result of PFMT, in addition to the previously mentioned improvements in UI. Another study observed similar improvements post-PFMT intervention, both found that there was a favorable influence that PFMT had on quality of life. (27, 28)

In spite of the compelling findings, the best PFMT protocol in terms of the training's intensity, frequency, and length continues to elude researchers, indicating that the topic needs additional research. In addition, future longitudinal studies should investigate whether or not PFMT is successful over the long term, particularly in terms of its potential to sustainably manage UI symptoms and improve QOL.(29, 30)

CONCLUSION

It appears that PFMT is a useful therapeutic technique for controlling urine incontinence (UI) after a prostatectomy, since it considerably improved urinary symptoms and quality of life among the patients in the study. These findings add more evidence to the body of research that supports the incorporation of PFMT into post-prostatectomy therapy. Research in the future ought to concentrate on identifying the best PFMT procedure and analyzing how successful it is over the long run.

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