



EVALUATION OF SLEEP QUALITY AND NOCTURIA IN BENIGN PROSTATIC HYPERPLASIA PATIENTS BEFORE AND AFTER TRANSURETHRAL RESECTION OF PROSTATE-A SINGLE CENTER PROSPECTIVE STUDY

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ABSTRACT

Objective: Nocturia is one of the most bothersome lower urinary tract symptoms (LUTS). It was previously reported that TURP significantly reduced the number of night-time voids but only few reported about the change of sleep quality. Therefore we studied the impact of TURP on nocturia and sleep quality. **Materials And Methods:** A prospective study was conducted in 45 patients with LUTS including nocturia who were referred for TURP from November 2023 to April 2024. Before and 6 months after TURP, LUTS and sleep quality were investigated. LUTS and quality of life (QoL) due to urinary symptoms were assessed by International Prostate Symptom Score (IPSS) and QoL index. Sleep quality was assessed by the Pittsburgh Sleep Quality Index (PSQI) that is a self-rated questionnaire developed to assess sleep quality and consists of 7 components. Sleep disorder was defined if patients had 5.5 or more of PSQI, because this is a proposed cut-off value to have the best sensitivity and specificity for the diagnosis of sleep disorder. **Results:** The study's findings revealed significant improvements in LUTS following TURP, particularly in nocturia scores, although this improvement was modest compared to other symptoms. The average nocturia score on the IPSS decreased from 3.2 to 2.0 post-surgery. However, the overall quality of sleep, as measured by the PSQI, showed only a slight improvement, with the PSQI score decreasing from 5.1 to 4.8. Overall PSQI did not change significantly after TURP. However, PSQI improved in patients with 3 or more of Q7 compared to patients with 2 or less of Q7. **Conclusion:** TURP remains a cornerstone in the management of LUTS in patients with BPH, offering substantial relief from symptoms including nocturia. However, its impact on sleep quality is less clear, with improvements being modest and not universal among patients.

KEYWORDS : LUTS, Sleep quality, Nocturia, PSQI**INTRODUCTION**

Benign Prostatic Hyperplasia (BPH) is a prevalent condition among older men, characterized by the enlargement of the prostate gland. Among the lower urinary tract symptoms (LUTS) associated with BPH, nocturia—frequent urination during the night—is particularly disruptive, significantly impairing sleep quality and overall quality of life. While Transurethral Resection of the Prostate (TURP) is a well-established surgical intervention for alleviating LUTS, its impact on sleep quality, particularly concerning nocturia, has not been thoroughly examined. Nocturia, the condition of waking up at night to urinate, becomes more common with age and has a significant impact on the quality of life (QoL) of affected individuals. The influence of nocturia spans various aspects, including general QoL, sleep quality, daytime functioning, morbidity, and even mortality. Lower urinary tract symptoms (LUTS) and benign prostatic obstruction (BPO) are recognized as major urological conditions contributing to nocturia in men. Recent discussions have also focused on the link between nocturia and sleep disorders, emphasizing that nocturia is a frequently overlooked cause of poor sleep, particularly in the elderly. Moreover, increased severity of nocturia is associated with poorer overall health. It is also noted that patients with LUTS/BPO often experience high rates of insomnia and reduced QoL. This study aims to evaluate changes in sleep quality and nocturia in patients with BPH before and after TURP. Nocturia is one of the most bothersome lower urinary tract symptoms (LUTS). It was previously reported that TURP significantly reduced the number of night-time voids but only few reported about the change of sleep quality. Therefore we studied the impact of TURP on nocturia and sleep quality.

MATERIALS AND METHODS

A prospective study was conducted in 45 patients with LUTS including nocturia who were referred for TURP from November 2023 to April 2024 at RGGGH and Madras medical college hospital, Chennai. Before and 6 months after TURP, LUTS and sleep quality were investigated.

LUTS and quality of life (QoL) due to urinary symptoms were assessed by International Prostate Symptom Score (IPSS) and QoL index.

Sleep quality was assessed by the Pittsburgh Sleep Quality Index (PSQI) that is a self-rated questionnaire developed to assess sleep quality. It consists of seven components, including subjective sleep quality (component 1), sleep latency (component 2), sleep duration (component 3), habitual sleep efficiency (component 4), sleep disturbances (component 5), use of sleeping medication (component 6) and daytime dysfunction (component 7), each of which has a range of 0–3 points. In each component, a score of 0 indicates no difficulty,

whereas a score of 3 indicates severe difficulty. The seven components' scores are then added to yield one global score, with a range of 0–21 points. Sleep disorder was defined if patients had 5.5 or more of PSQI, because this is a proposed cut-off value to have the best sensitivity and specificity for the diagnosis of sleep disorder.

RESULTS

TURP significantly improved not only voiding symptoms, but also storage symptoms, including nocturia, in patients with LUTS. Although TURP did not simultaneously improve overall quality of sleep, some components (subjective sleep quality and habitual sleep efficiency) of the PSQI were significantly improved.

TURP decreased the nocturia score of the IPSS by an average of 1.2 points. Previous studies on the efficacy of TURP also show an improvement of 1.0–1.4 points of nocturia score.

In the present study, the nocturia score showed the least improvement among the seven subscores of IPSS. Even though nocturnal frequency reduced, sleep disorders did not respond well to surgical treatment.

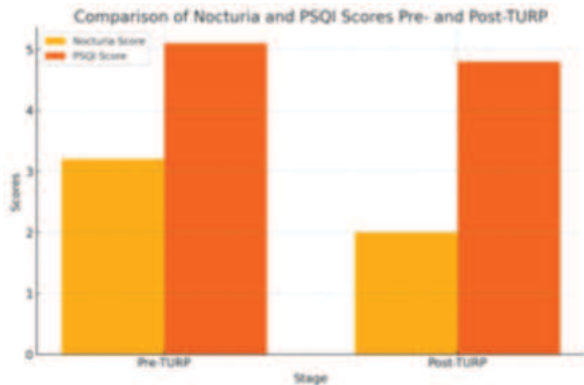
The study's findings revealed significant improvements in LUTS following TURP, particularly in nocturia scores, although this improvement was modest compared to other symptoms. The average nocturia score on the IPSS decreased from 3.2 to 2.0 post-surgery.

Tables**Table 1: Patient Characteristics**

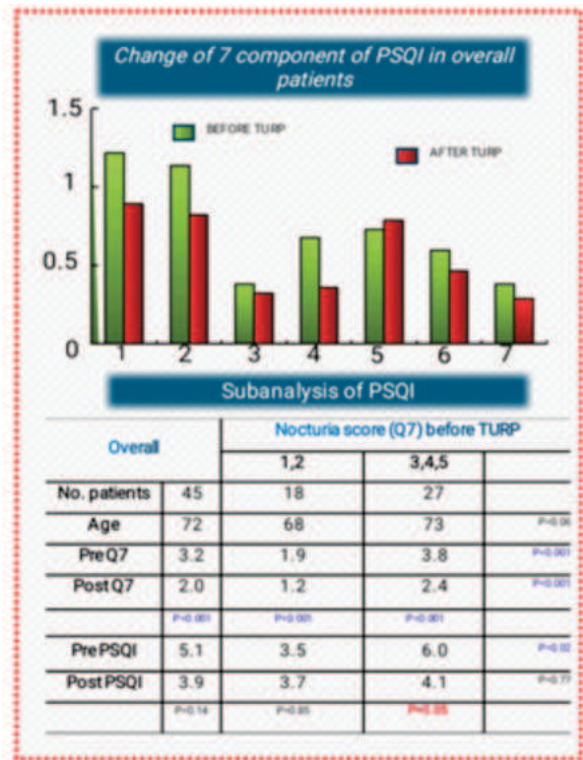
Parameter	Value
Average Age (years)	71.5 ± 7.5
Prostatic Volume (ml)	45 ± 27
Pre-TURP IPSS	18 ± 7
Pre-TURP Nocturia Score	3.2 ± 1.1
Pre-TURP PSQI	5.1 ± 3.4
Patients with PSQI > 5.5 (%)	60%

Table 2: Changes in Nocturia and Sleep Quality Scores

Measurement	Pre-TURP Score	Post-TURP Score
Nocturia Score (IPSS)	3.2 ± 1.1	2.0 ± 1.1
PSQI	5.1 ± 3.4	4.8 ± 3.4
Patients with PSQI > 5.5 (%)	60%	45%



However, the overall quality of sleep, as measured by the PSQI, showed only a slight improvement, with the PSQI score decreasing from 5.1 to 4.8. Overall PSQI did not change significantly after TURP. However, PSQI improved in patients with 3 or more of Q7 compared to patients with 2 or less of Q7.



DISCUSSION

These findings highlight the complexity of sleep disturbances in patients with BPH. While TURP effectively reduces nocturia and other LUTS, the persistence of sleep disorders in many patients post-surgery suggests that other factors might influence sleep quality.

These could include psychological factors, other co-morbidities, or disruptions in circadian rhythms, which were not addressed by the

surgical intervention. LUTS/BPO is a well-known risk factor for nocturia, which is one of the most troublesome symptoms in men. Epidemiological studies indicate that 40–70% of the population over the age of 65 suffers from chronic sleep disturbances, with nocturia being a significant contributor. Recently, the connection between nocturia and sleep disorders has gained attention, highlighting that nocturia is often an overlooked cause of poor sleep in the elderly. The modest improvement in nocturia scores aligns with previous studies, which also reported similar findings, reinforcing the idea that TURP has a limited effect on nocturia. Moreover, the persistence of high PSQI scores in a significant portion of the cohort after TURP suggests that nocturia may not be the sole contributor to sleep disturbances in patients with BPH. This finding aligns with the broader understanding that sleep disorders in these patients could be multifactorial, encompassing not only urological symptoms but also psychological factors, lifestyle habits, and the natural aging process. As such, while TURP addresses the mechanical obstruction caused by an enlarged prostate, it may not fully resolve the complex interplay of factors that contribute to poor sleep quality. Future research could explore the integration of holistic approaches, combining surgical treatment with cognitive-behavioral therapy, sleep hygiene education, and pharmacological interventions targeting other potential causes of sleep disruption. This integrated approach could potentially offer a more comprehensive solution for improving sleep quality in patients suffering from BPH.

CONCLUSION

TURP remains a cornerstone in the management of LUTS in patients with BPH, offering substantial relief from symptoms including nocturia. However, its impact on sleep quality is less clear, with improvements being modest and not universal among patients. Further research is needed to explore additional interventions that could address the multifactorial nature of sleep disturbances in this population, potentially involving a combination of surgical, medical, and behavioral therapies.

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