Sleep Quality, Severity and Bother Score of Lower Urinary Tract Symptoms Among Patients with Benign Prostate Hyperplasia and Cancer

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Abstract

Background: Symptomatic Prostatic diseases incidence increase with age. Nocturia disturbs sleep. We set out to determine the quality of sleep and severity of Lower Urinary Tract Symptoms (LUTS) and bother score in patients with Benign Prostatic Hyperplasia (BPH) and Carcinoma of the Prostate (CAP). **Methods:** A cross-sectional study of new patients seen in the Urology outpatient clinic with Bladder Outlet Obstruction (BOO) from either BPH or CAP over a period of 18months. They were interviewed using Pittsburgh Sleep Quality Index (PSQI) and International Prostate Symptoms Score (IPSS) questionnaires. Data obtained were analysed using SPSS version 23.

Results: A total of 168 patients were interviewed (BPH:CAP is 59.5%:40.5 %). Significant difference between their mean ages (BPH=65.86±9.63; CAP=71.96±10.44, p=0.00, t = 3.893). About 45% of the patients with Prostatic diseases have poor sleep quality. CAP patients (52.9%) were more of poor sleepers compared with BPH patients (40.0%). CAP patients (46.3%) have more severe IPSS compared to BPH patients (33.3%). Both CAP (70.6%) and BPH (76.0%) patients reported high bother score. **Conclusion:** CAP and BPH patients have high bother score affirming need for early treatment, CAP patients had more severe lower urinary tract symptoms and have poorer sleep quality than BPH patients.

Key words: IPSS, BPH/CAP, Sleep quality, LUTS, Bother score

Ann Afr Surg. 2020; 17(2): ***

DOI: http://dx.doi.org/10.4314/aas.v16i1.*

Conflicts of Interest: None

Funding: None

Introduction

Prostatic diseases are major health problems encountered in the middle age by elderly males in both the developed and developing world especially carcinoma (1) and has been known to cause increasing morbidity in ageing men (2). The diseases are more common in men from the sixth decade of life and beyond as evident by high prevalence of lower urinary tract symptoms (LUTS) (3,4,5). Fifty percent of men above 50years of age have Benign Prostatic Hyperplasia (BPH) and this increases to 90% by the age 80years (6).

Severity of LUTS can be assessed using the international prostate symptoms score (IPSS) (7) and the bother score component can indicate need for treatment of troublesome urinary symptoms.

Prostatic disease is associated with poor quality of sleep (8). Sleep in middle aged and the elderly is less restorative and is characterized by frequent awakenings thereby affecting quality of life (9). Clinicians often trivialize complaints of insomnia during consultations at urology clinics (8), but significant correlation has been documented between the frequency of nocturia and the severity of insomnia (10). Sleep and mood disturbances should be recognized in patients during Urologic consultations since non-urologic disease may contribute to morbidity and mortality of urologic disease (11).

A number of factors affect sleep quality among patients with lower urinary tract (LUT) obstruction. Sleep problems and LUTS often develop together (12). There is a dearth of studies on sleep quality in different prostatic diseases in this environment. This study therefore sets out to compare the quality of sleep, severity and bother score of lower urinary

tract symptoms in patients with Carcinoma of the Prostate (CAP) and Benign Prostatic Hyperplasia (BPH).

Methodology

This was a cross-sectional study conducted in Olabisi Onabanjo University Teaching Hospital Sagamu. Consecutive consenting new patients with lower urinary tract symptoms and with diagnosis of Bladder outlet obstruction (BOO) secondary to either BPH or CAP over a period of 18 months (July 2016 to December 2017) were recruited into the study after appropriate counselling about the purpose and benefits of the study. Patients with Urethral stricture and BPH or CAP already on Urethral or Suprapubic catheter or any other form of treatment at presentation were excluded from the study.

Patients were then interviewed using Pittsburgh Sleep Quality Index (PSQI) and International Prostate Symptoms Score (IPSS) questionnaires. PSQI is a self-administered questionnaire for assessing sleep quality in the previous month, which contains 19 self-rated questions generating seven components of sleep assessment: i.e. subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, use of sleep medications and daytime dysfunction. Each component is scored between 0 and 3, yielding a global PSQI score between 0 and 21. High scores indicate lower quality of sleep. A global PSQI score > 5 indicates that the subject is a poor sleeper (13). It has been used extensively to assess quality of sleep in this environment(14).International Prostate symptoms score(IPSS) adopted in 1993 by the World health organization (WHO) was used to assess severity of lower urinary tracts symptoms and the Bother score component of it was used as a single measure of need for treatment(15). A total IPSS score of 0-7, 8-19 and 20-35 signifying Mild, Moderate and Severe symptoms respectively (16).

The obtained data were analysed using Statistical packages for the social sciences (SPSS) version 23. Frequencies and percentages were computed for categorical variables while means and standard deviations of the continuous variables were also determined. Proportions of categorical variables were compared using the Chi-squared test. Pearson's correlations method was used to assess the parametric data and p value $\leq$ 0.05 was considered significant. The ethical approval for the study was obtained from the Olabisi Onabanjo University Teaching Hospital Health Research Ethics Committee (OOUTH-HREC).

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Results

A total of 168 patients were interviewed. Majority (59.5%) of the patients had BPH, while 40.5 % of the patients had CAP (table 1).

Table 1: Diagnosis and Patient distribution

Diagnosis	Frequency (Number of Patients)	Percentage
CAP	68	40.5%
BPH	100	59.5%
Total	168	100%

The age range of BPH and CAP patients were 45-89years and 48-92years respectively. The CAP patients were significantly older than the BPH patients (mean age 71.96±10.44 years vs. 65.86±9.63 years; t = 3.893, p = 0.000) (table 2).

Table 2 : Age distribution and Patients'diagnosis

Diagnosis by age	N	Mean	Mode	Std. Deviation	Range	Min	Max
All patients	168	68.32	70	10.401	47	45	92
CAP patients	68	71.96	75	10.436	44	48	92
BPH patients	100	65.86	66	9.63	44	45	89

The mean Pittsburgh's global score was 4.33±2.62. While the scores for CAP and BPH patients were 4.65±2.36 and 4.11±2.78 respectively (t = 1.305, p = 0.194). A good proportion (45.2%) of all the patients with Prostatic diseases had poor sleep quality. Proportionally, CAP patients (52.9%) were more of poor sleepers compared to BPH patients (40.0%), although not statistically significant (X2 = 2.736, p = 0.098).

CAP patients (46.3%) tend to have more severe IPSS compared to BPH patients (33.3%). Both CAP (70.6%) and BPH (76.0%) patients reported high bother score.

The International prostate symptoms score severity distribution for CAP patients was 22.4%, 31.3% and 46.3%, while BPH was 26.9%, 39.8% and 33.3% respectively for mild, moderate and severe symptoms, (See Table 3). Fisher's exact test showed no significant difference in the severity of prostate symptoms between the two categories. CAP patients (46.3%) tend to have more severe IPSS compared to BPH patients (33.3%). (table 3).

Table 3: Distribution of the patients according to the severity of the IPSS

Diagnosis	IPSS grade		
	Mild	Moderate	Severe
CAP	22.40%	31.30%	46.30%
BPH	26.90%	39.80%	33.30%

The mean bother score was 4.32±1.44. The mean bother scores for CAP and BPH patients were 4.34±1.46 and 4.30±1.44 respectively, P value =0.035. There was a significant correlation between IPSS and the bother score (table4).

Table 4- PSQI, IPSS and Bother Score across the patients

Variables	PSQI	IPSS	Bother score
PSQI Scores	r=1.00	r=0.07, P=0.38	r=0.094, p=0.25
IPSS Scores		r=1.00	r=0.55*, p=0.000
Bother scores	r=0.09, p=0.25		r=1.00

There was no significant correlation between total IPSS and PSQI for CAP patients (r =0.234, p=0.198) and similarly no significant correlation in the BPH patients (r=0.104, p=0.488). There is no significant correlation between Nocturia and PSQI (r= 0.013 at p=0.87), however there is a significant correlation between IPSS and bother score across all the patients.

Discussion

Our study evaluated and compared sleep quality, severity and bothers score of LUTS in BPH and CAP patients in a Nigerian University Teaching Hospital.

In our study CAP patients were significantly older than BPH patients. This finding is consistent with what was reported in this part of the world by Udoh and Ukpong (17), Ogunlewe and Osegbe (18). This is expected as CAP prevalence continues to increase with advancing age (19, 20). The youngest patient with CAP was 48years and mean age was similar to findings by Eke and Sapira (21) where only 2% of their patients were below 50years and mean age was 71.6years in their study in Port Harcourt, Nigeria.

In our study there was no statistical significance between the mean PSQI scores of patients with CAP and BPH. However, our finding of global PSQI score of 4.33 was much lower than 8.76 reported by Araujo, Barbosa and Barichello on 50 CAP patients on hormonal therapy prior to or after radical prostatectomy with radiotherapy or radiotherapy alone done in Brazil (22). This higher value in their study may be due to the selection of participants on hormonal therapy in comparison to the participants in our study who were not on prior treatment or hormonal medication. We would expect that patients who are on treatment for chronic diseases should have better quality of sleep than those not on treatments. However, the higher PSQI score observed by Araujo, Barbosa and Barichello may be explained by side effect of hormonal therapy which causes excessive night sweating which has been documented to adversely affect the quality of sleep (23).

Close to half (45.2%) of our patients had poor sleep quality, this is higher than what was reported in a general population study (24).

Furthermore, we observed that CAP patients had higher frequency of poor sleepers compared to BPH patients, even though it was not statistically significant. This corroborate with our findings on CAP patients having more of severe lower urinary tract symptoms (LUTS) on IPSS compared with BPH patients and moderate to severe IPSS in CAP patients compared to BPH patients. This is higher than the finding of moderate to severe symptoms in 50% of men with histologically confirmed BPH (25).

In addition, CAP patients tend to bother more about their condition than BPH patients as observed on the IPSS bother score. The significant correlation between IPSS and bother score across all the patients reaffirms need for treatment.

Findings from this study will bring to the fore of sleep quality in pre-treatment prostatic diseases which hopefully can be continued later to see the effect of hormonal deprivation and other treatment modalities.

Conclusion

The finding of high bother score in this study reaffirms the need for early and adequate treatment of BPH and CAP patients to prevent morbidity and improve quality of sleep.

Limitation

Generalization of this study is hindered by the sample size.

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