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The most bothersome lower urinary tract symptom affecting quality of life using international prostate symptom score in patients with benign prostate hyperplasia

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Abstract

Background: Benign prostate hyperplasia (BPH) is a well known disease of the elderly and aging males. It is an adenomatous growth of the prostate arising mostly from the transitional zone and causing varying degree of bladder outlet obstruction that manifests as lower urinary tract symptoms (LUTS). The degree of bother of these symptoms can affect health-related quality of life of the patients. The aim of this study was to determine the most bothersome LUTS affecting quality of life using International prostate symptom score (IPSS) in patients suffering from BPH.
Patients and method: This was a prospective study of eighty nine (89) men who were being evaluated for BPH between January 2018 and December 2018. They all the met inclusion criteria. Detailed history, physical examination and laboratory investigations were done and all patients had trans-rectal ultrasound examination of the prostate.
Results: The mean age of the patients was 64.02± 9.60years while the mean prostate volume was 64.94± 42.95mls. Mean IPSS was 14.47± 5.28 and that of Qol was 4.55± 3.81 while mean total irritative symptoms was 9.90± 2.51, mean total obstructive symptoms was 4.56±3.81. Correlation between Qol and IPSS was strongly positive and statistically significant: r (89)= .639, P<.05. For the individual symptoms, nocturia correlated more with QOL: r (89)= .537, P<.05 with a coefficient of determination (R^2) of 28.8%.
Conclusion: Nocturia correlated more with quality of life and was noted as the most bothersome lower urinary tract symptom affecting Qol in our study.
Key words: Lower urinary tract symptoms, Quality of life, International prostate symptom score, Benign prostatic hyperplasia.

Introduction

Lower urinary tract symptom (LUTS) is a manifestation of bladder outlet obstruction for which BPH is the commonest cause in elderly males.[1] It can be classified into irritative, obstructive and post micturition symptoms and its severity measured by a world Health Organization (WHO) tool namely international prostate symptom score (IPSS)[2,3] and the degree of bother to the patient with Qol scale. The IPSS uses 3 storage symptoms including frequency, urgency and nocturia in combination with 3 voiding symptoms namely intermittency, weak stream, straining and 1 post micturition symptom, of which in this study is included among the voiding or obstructive symptoms, that is, incomplete bladder emptying. Each symptom is scored from 0 (not at all) to 5 (almost always). Maximum score is 35 while the minimum score is 0. The higher the score, the more severe the condition. IPSS is also useful in therapeutic monitoring overtime.[4] It is further classified into mild (score 0-7). Moderate (score 8-19) and severe (score 20-35). Quality of life scale complements IPSS by quantifying the degree of bother of these symptoms to the patients. It is graded

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from 0 (delighted) to 6 (terrible). For mild to moderate symptom severity, the Qol scale is the tool employed to decide need for treatment of the BPH patient and also for selecting treatment methods.[5,6] Many authors have deployed Qol scale in assessing impact of LUTS on BPH sufferers. However, it has been highly criticized by some authors blaming the poor standardization of the scale and its inappropriate use.[7] Others also argue that the use of one-item scale to assess overall Qol of a patient is misleading.[5,8] In one study, World Health Organization generic instruments were used namely WHOQOL-bref and WHOQOL-old which the authors proposed to provide a more comprehensive assessment of quality of life.[9] Individual components of the IPSS variably contribute and affect the overall health related quality of life. In this study, we set out to determine the most bothersome symptom affecting Qol using IPSS in patients with BPH.

Patients and method

This was a prospective study of eighty nine (89) patients who were referred from the general outpatient department of our hospital to urology clinic for consultation. The study period was between January 2018 to December 2018. They all met the inclusion criteria. Exclusion criteria were patients catheterized for any reasons, those diagnosed of prostate and bladder cancers, urethral structure patients, past history of prostate and urethral surgeries and neurogenic bladder from any cause (such as spinal cord injury, diabetic cystopathy, past history of cerebrovascular disease). Detailed history, physical examination and a focused rectal examination of the prostate was done to assess its features. Relevant laboratory investigations were done including renal function test, full blood count, prostate specific antigen, urinalysis and urine culture. Trans-rectal ultrasound scan was performed to measure prostate volume, assess outline and echogenicity. Prostate volume was measured using the prolate formular: AP x T x cranio-caudal length x 0.52. The international prostate symptoms score is a W.H.O instrument designed to assess the severity of seven (7) LUTS. Each symptom is measured on a scale of 0-5 (0=No symptom to 5 = symptoms almost always present). This questionnaire was administered to the patients after getting their consent. Disease specific quality of life question is meant to assess the level of satisfaction with above symptoms. This was also administered and graded from 0 (delighted) to 6 (terrible).

Statistical Analysis: Data from filled proforma was collated in Microsoft excel spreadsheet and analyzed using statistical package for social sciences (SPSS) version 20.0

Table 1: Descriptive statistics for IPSS and individual components

	Mean	Standard Deviation
Qol	4.55	0.97
Incomplete emptying	1.42	1.36
Frequency	2.93	1.16
Intermittency	1.17	1.10
Urgency	2.78	1.26
Weak Stream	1.12	1.14
Straining	0.91	1.00
Nocturia	4.15	0.87
IPSS	14.47	5.28
IPSS (Obstructive)	4.57	3.81
IPSS (Irritative)	9.90	2.51

Table 2: Descriptive statistics for age, prostate volume and prostate specific antigen(psa).

	Mean	Standard Deviation
Age	64.02	9.61
Prostate Volume	64.94	42.96
PSA	7.71	11.25

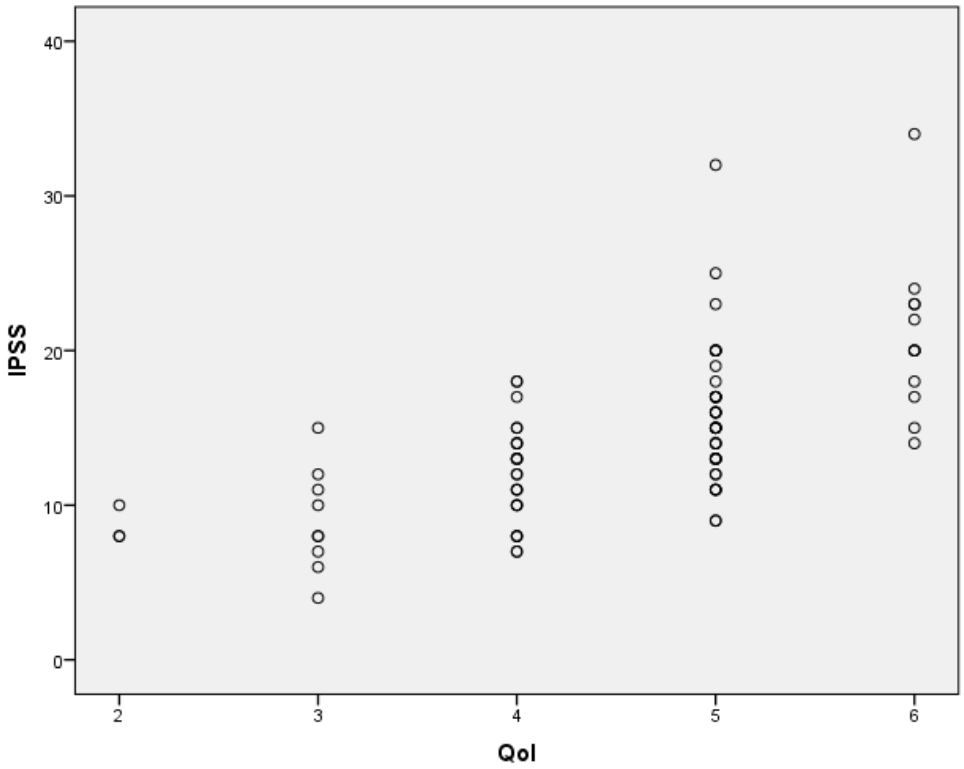

Figure 1: Scatter plot between IPSS and Qol

Table 3: Correlation between IPSS and quality of life (Qol)

	IPSS	Qol
IPSS Pearson Correlation	1	.639
Sig. (2 tailed)	64.94	.000*
N	89	89

*Correlation significant at P<.05

Table 4: Correlation between Qol and individual components of IPPS.

Variables	R	R^2(%)	Sig(1-tailed)
Incomplete emptying	.454	20.6	.000*
Frequency	.451	20.3	.000*
Intermittency	.265	7.0	.006*
Urgency	.458	21.0	.000*
Weak Stream	.414	17.1	.000*
Straining	.418	17.5	.000*
Nocturia	.537	28.8	.000*

R=Correlation coefficient, R^2= Coefficient of determination.

*Correlation significant at P< .05

Results

We analyzed data obtained from 89 patients with a mean age of 64.02± 9.61 years. The mean prostate volume was 64.94±42.96mls while mean PSA was 7.71±11.25ng/ml. Mean IPSS was 14.47±5.28 while mean Qol scale was 4.55±0.97. Mean obstructive symptoms was 4.56±3.81 and mean irritative symptoms was 9.90±2.51. Mean scores for incomplete emptying, frequency, intermittency, urgency, weak stream, straining and nocturia were 1.42 ± 1.36, 2.93 ± 1.16, 1.17 ± 1.10, 2.78 ± 1.26, 1.12 ± 1.14, 0.91± 1.00, 4.15± 0.87 respectively. Using multivariate regression analysis, we obtained a strong positive correlation between Qol and IPSS: r(89) = .639, P<.05, also nocturia correlated with Qol more than the other variables: r(89)=.537, P<.05 with a coefficient of determination (R^2) of 28.8% (Table 4).

Discussion

BPH has been noted to be the commonest cause of bladder outlet obstruction in elderly males.[1] It represents an adenomatous growth of the prostate mainly from the transitional zone that forms the lateral lobes and from the peri-urethral zone that forms the median lobe. The consequence of this obstruction manifests as lower urinary tract symptoms whose severity can be measured with a W.H.O tool principally IPSS and Qol scale which on the other hand assesses the level or degree of bother of these symptoms. Although LUTS are usually linked to pathologies at the bladder neck and beyond, it could be a sign of underlying medical condition including diabetes mellitus and cardiac diseases,[10,11] yet careful evaluation will reveal enlarged prostate with poor urodynamic parameters. Previous reports,[12,13] documented the prevalence of LUTS of between 63 to 83% in adult males in their 7th and 8th decade of life. LUTS had been variously reported to affect health-related quality of life in elderly male patients including social and emotional well being, sexual health and work productivity[14], energy and vitality and of course general health perception.[6] Many authors document a strong positive correlation between Qol and IPSS[15,16-18] similar to our study [r(89) = .639, P<.05]. In this study, we went beyond this fact to critically evaluate the most bothersome LUTS affecting Qol in BPH patients.

The mean age of these men was 64.02±9.61 years in close similarity with other studies of Asian and African men with BPH symptomatology.[1,19-21] We recorded a mean IPSS of 14.47±5.28 which was significantly different and lower than that reported in two studies of Asian men[16,22] who were also older than our patients. A study in Nigeria reported a slightly higher mean IPSS[23] with equally older group of patients. Our study reveals that there is a positive trend of early presentation to hospital for care based on a moderate symptom score and a relatively younger age. This is not unconnected to widespread awareness campaigns on health and diseases in general and prostate diseases in particular. Mean Qol score was also lower in our patients than in the two Asian studies[16,22] confirming a direct link between Qol and IPSS. In a combined study conducted in United States, United Kingdom

and Sweden, it was gathered that health related quality of life is affected by LUTS.[24,25] Our study also demonstrated an increasing severity of irritative voiding symptoms over obstructive symptoms as they affect Qol. Other studies also reported same findings.[26,27] Among the various LUTS evaluated in this study, nocturia was the most bothersome symptom affecting Qol. Similar reports had been published.[19,27-29] International continence society defines nocturia as a complaint that an individual has to wake up at night one or more times to void urine.[30] Tobler[31] in his article stressed that sleep is essential to all biological individuals and is a phenomenon of a physiologic state of unconsciousness and inactivity of the voluntary muscles. Nocturia has been known to negatively affect Qol and sleep pattern[32] resulting in decreased general well being and increased incidence of nighttime falls.[33] Urinary frequency at night affects not only the overall health-related quality of life of patients but also has a strong impact on the immune system and host defence mechanisms predisposing to increased morbidity and mortality.[33,34] Besides, bladder outlet obstruction notably recognized as a principal cause of nocturia in elderly men, its origin could be multifactorial. An evaluation of patients with nocturia demands careful and focused screening for diabetes mellitus, cardiac disease, alcohol intake and diuretic use, otherwise treating a potential cause of bladder outlet obstruction in isolation way result in a futile effort. The other LUTS measured in IPSS also contribute in various ways and mechanisms, but nocturia, as demonstrated in our work, similar to other studies, is the most bothersome LUTS affecting Qol in BPH patients.

The limitation of this work is that, we did not specify the role of specific co-morbidities as they may have affected these elderly men which could have further worsened their Qol. Besides, Qol scale lacks the ability to recognize differences in Qol impairment as it relates to various age groups. However, this study is informative enough to further expantiate on proper evaluation of patients with LUTS especially when nocturia is the principal symptom to avert serious and life threatening consequences.

Conclusion

Nocturia is the most bothersome LUTS as measured by IPSS affecting Qol in BPH patients.

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