The value of international prostate symptom scoring system in the management of BPH in Jos, Nigeria

OC Amu, EI Udeh, AI Ugochukwu[1], NK Dakum[2], VM Ramyil[2]

College of Medicine, Unec, [1]Enugu State University Teaching Hospital, Parklane, Enugu, [2]Jos University Teaching Hospital, Plateau State, Nigeria

Abstract

Objective: To determine the value of international prostate symptom scoring (IPSS) system in management of patients with benign prostatic hyperplasia (BPH) in Jos, Nigeria.

Materials and Methods: This was a prospective study of 104 newly diagnosed patients with BPH from June 2006 to July 2007. Patients' symptoms were initially evaluated by administering a pretreatment IPSS/Quality of Life Score (QOLS). This categorized patients into mild, moderate, and severe symptom groups. The mild symptom group had watchful waiting as mode of management. The moderate symptom group received doxazosin, an alpha blocker, while the severe symptom group had prostatectomy. A post-treatment IPSS/QOLS was administered 3 months after. Mean changes in IPSS/QOLS was calculated and subjected to paired student's t- test for significance in changes. Spearman's correlation coefficient was used to test significance between correlations.

Results: Mean age of patients was 64.3 years. 3 patients (2.9%), 53 patients (51.0%), and 48 patients (46.1%) fell into the minor, moderate, and severe symptom categories, respectively. The QOLS correlated with IPSS. There was a mean change in symptom scores of +2.3 for the minor symptom category, -8.1 ($P < 0.001$) for IPSS and -1.7 ($P < 0.001$) for QOLS in the moderate symptom category, and -24.6 ($P < 0.001$) for IPSS and -4.0 ($P < 0.05$) for QOLS in the severe symptom category.

Conclusion: The study has shown that IPSS is a valuable tool in management of patients with BPH.

Key words: Value of IPSS, BPH, Jos Nigeria

Introduction

Benign prostatic hyperplasia (BPH) is the most common cause of bladder outlet obstruction in men older than 50 years of age.[1,2] Clinically apparent BPH represents a considerable health problem for older men due to the negative effects it has on quality of life.[3]

In any disease, measuring physiological status alone gives an incomplete picture of health, defined by the WHO as a state of complete physical, mental, and social well being, and not merely the absence of disease or infirmity. Assessment of this broad definition in individual patients necessitates understanding the patients' perceptions of disease, which are based on symptoms and the bother they cause.[4] Most patients seeking treatment for BPH do so because of bothersome symptoms that affect the quality of their lives. To the patient, of course, relief of symptoms is the single most important outcome, not flow rate, detrusor pressure, or urethral resistance factors.[5] The availability of reliable symptom scores is important to determine the severity of the disease, to assess the patient's symptoms, to determine

Address for correspondence:
Dr. Okwudili C. Amu,
College of Medicine, Unec, Enugu State, Nigeria.
E-mail: amuokwy@yahoo.com

points of necessary intervention, and to document the response to therapy. Such assessment tools also allow comparison of the effectiveness of various interventions and facilitate the monitoring of disease progression in individual patients.[4] Symptom indices also enhance communication between patient and doctor.[6] Combining information from symptom indices with other measurements of disease such as physiological investigations allows a more global assessment of health to be made.[4]

The validated scoring systems include the American Urological Association Index, later adopted by WHO as the International Prostate Symptom Score, the Maine Medical Assessment Program Score, and the Danish Prostatic Symptom Score.[4]

The most widely used score internationally is the IPSS, based on the AUA symptom score.[7] The IPSS is a well-designed and extensively studied scale for quantifying lower urinary tract symptoms (LUTS) suggestive of benign prostatic obstruction[8] and has been validated in several studies.

International Prostate Symptom Scoring system has not found wide application in our hospitals including Jos University Teaching Hospital (JUTH). In other places, it has already become a valuable tool in the management of BPH. This study aims to establish a case for routine use of this scoring system.

Materials and Methods

The study spanned a period of 14 months from June 2006 to July 2007 in JUTH and ECWA Evangel Hospital. This is a hospital-based study and the population studied was drawn from newly diagnosed cases of BPH in the two hospitals. Approval for the study was obtained from the research and ethical committees of JUTH and ECWA Evangel hospital. Informed consent from patients who fulfilled the inclusion criteria was also obtained. Diagnosis of BPH was based on suggestive history, digital rectal examination, abdomino-pelvic ultrasound, cystoscopy to exclude bladder pathology, quantitative PSA, and prostatic biopsies for Prostate specific antigen (PSA) above normal level to exclude carcinoma of the prostate (Normal PSA value is 0–4 ng/ml).

A pretreatment IPSS was administered to the patient. The literate patients filled out their questionnaires, while the researcher translated and filled the questionnaires for the illiterate patients. The pretreatment IPSS was used to categorize patients into mild (IPSS 0–7), moderate (IPSS 8–19), or severe (IPSS 20–35) groups. The Quality of Life Score (QOLS) was also recorded. Based on these categories, treatment was assigned. The minor symptom group underwent watchful waiting. The moderate symptom group had medical therapy with a1-blocker; doxazosin at the dose of 4 mg per day. This therapy lasted for 3 months.

The severe symptom category had open prostatectomy (transvesical). The choice of transvesical prostatectomy was based on the fact that it was the preferred method of the surgeons; moreover, the facilities for transurethral resection of the prostate were not available in both centers at the time of the study. Watchful waiting in these patients entailed 2 weekly reassessment for worsening symptoms or development of complications like acute urinary retention, hematuria, bladder stones, renal impairment, and recurrent urinary tract infections.

Selected patients were subsequently supervised over a period of 3 months in the surgical outpatients intermittently to confirm that instructions were being followed and a post-treatment IPSS with the QOLS taken at 3 months to ascertain changes in IPSS and QOLS due to intervention. Each patient was interviewed using a standard proforma (Appendix) to obtain demographic and social history.

The percent drop in score was calculated ([Score [pre] - Score [post]] × 100/Score [pre] = percent improvement in score). This was regarded as a predictive value.

Results collected from the data were analyzed using a multipurpose computer statistical programme EPI-INFO and Microsoft Excel 8.0 with the assistance of a computer analyst. Results were expressed using tables as means, standard deviation (SD), and ranges. Charts and pictograms were used where necessary. Spearman's correlation coefficient was used to test significance in correlation between qualitative variables. Paired student t-test was used to compare means of variables measured to test for significance. P values ≤ 0.05 were considered significant association.

Results

The number of patients initially recruited for the study was 124. However, a total of 20 patients were lost to follow-up either before or after intervention following the pretreatment IPSS. These patients were excluded from the analysis. A total of 104 patients completed the study and were analyzed.

The mean age of the patients was 64.3 years (SD = 8.6, range = 45–91). Majority, 42 (40%), of the patients were aged 60 to 69 years. In terms of literacy level, 52 (50.0%) had no formal education, 14 (13.5%) each had primary and secondary education, while 24 (23.0%) had tertiary education.

The International Prostate Symptom Score (IPSS) and Quality of Life Assessment score (QOLS) distribution is as follows: Out of the 104 patients, 3 patients (2.9%), 53 patients (51.0%), and 48 patients (46.1%) fell into the minor, moderate, and severe categories, respectively, as shown in Figure 1.

In the minor category, mean of the pretreatment score for IPSS was 5.7 (SD = 0.6, range = 5–6) and 2.3 (SD = 0.6) for QOLS.

For the moderate category, mean of the pretreatment score for IPSS was 15.5 (SD = 3.1, range = 8–19) and 4.1 (SD = 0.9) for QOLS.

For the severe category, mean of the pretreatment score for IPSS was 28.2 (SD = 4.3, range = 20–35) and 5.0 (SD = 0.9) for QOLS.

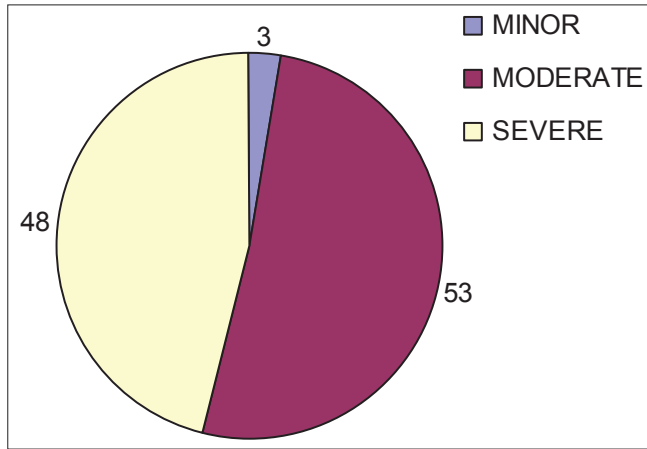Spearman's correlation coefficient was 0.72 ($P < 0.001$).

Figure 1: Pie chart showing pretreatment severity of symptoms based on IPPS

The mean ± SD post-treatment IPSS and QOLS, respectively, at 3 months were as follows:

For the minor category: IPSS was 8.0 ± 1 and QOLS was 2.3 ± 0.6.

Mean magnitude of change in IPSS between the post treatment and pretreatment was +2.3 ± 1.5 (41%). No change noted in QOLS

For the moderate category: IPSS was 7.4 ± 4.9 and QOLS was 2.4 ± 1.0.

Mean magnitude of change in IPSS between the post treatment and pretreatment was -8.1 ± 5.4 (52%). The change in QOLS was -1.7 (41%).

For the severe category: IPSS was 3.6 ± 1.5 and QOLS was 1.1 ± 0.60.

Mean magnitude of change in IPSS between the post treatment and pretreatment was -24.6 ± 4.4 (87%). The change in QOLS was -4.0 (79%).

These changes are illustrated in Table 1 and Figure 2 (a and b).

The correlation between quality of life and post treatment IPSS was 0.78 ($P < 0.001$).

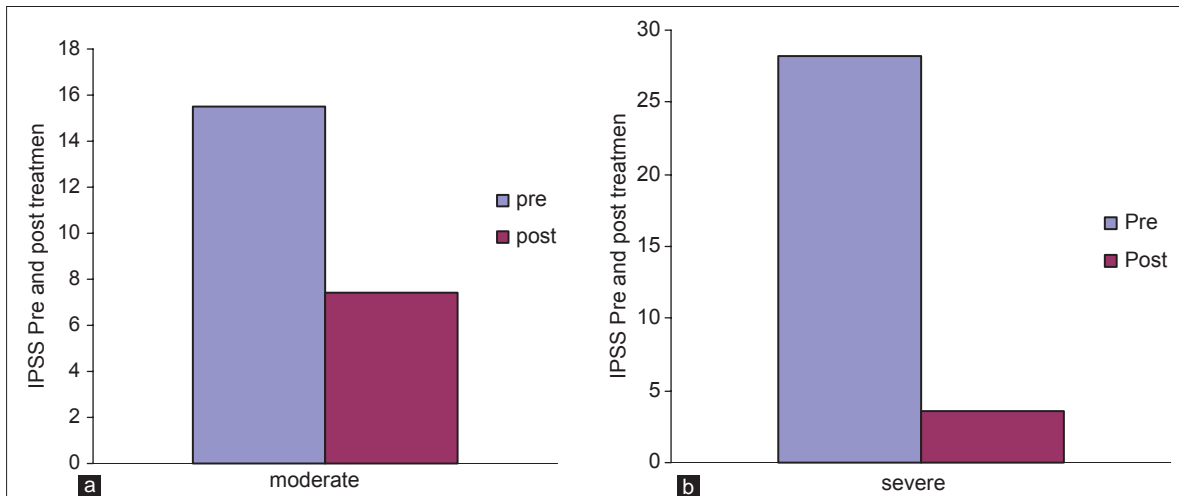The changes noted in the pre- and post treatment IPSS and

Figure 2: (**a**) Column chart of changes in IPSS at 3 months post treatment. (**b**) Column chart of changes in IPSS at 3 months post treatment

Table 1: Summary of changes in IPSS and QOLS						
Category	Pretreatment IPSS score (mean)	Post treatment IPSS score (mean)	Magnitude of change (%)	Pre QOLS (mean)	Post QOLS (mean)	Magnitude of change (%)
Mild	5.7	8.0	+2.3 (41%)	2.3	2.3	0
Moderate	15.5	7.4	-8.1 (52%)	4.1	2.4	−1.7 (41%)
Severe	28.2	3.6	−24.6 (87%)	5.0	1.1	-4.0 (79%)

also in the QOLS were subjected to a test of significance using the t test: paired two samples for means.

The patients were not enough in the minor category to merit statistical analysis, zero change was noted in QOLS in the minor category.

For the moderate category, $P < 0.001$ for both IPSS and QOLS.

For the severe category, $P < 0.001$ for both IPSS and QOLS.

The predictive value was found to be 87% for the severe group treated by surgery and 52% for the moderate group treated by the alpha adrenergic blocker, doxazosin.

Discussion

Increasing costs and morbidity related to frequency of prostatectomies have led to a search for tools for better evaluation, predictors of good outcome, as well as to alternative treatment strategies. Symptoms lead the patient to seek treatment and symptom improvement is the chief goal for the patient.

Studies using symptom indices to measure symptoms, to assess severity of symptoms and the bother caused by them, and to follow changes with time and perhaps treatment have been undertaken in men with diagnosed symptomatic BPH.[4,9-11].

Patient's age distribution in this study is consistent with previous studies by others, which have shown that the prevalence of LUTS suggestive of benign prostatic obstruction increases with age.[7,8,12]

In the initial assessment of patients, it was possible using IPSS to categorize patients according to severity of symptoms into minor, moderate, and severe groups and to also determine the level of bothersomeness of their symptoms. It is noteworthy that most of the patients (51.0%) fell into the moderate category and that the mean QOLS increased with increasing mean IPSS. Spearman's coefficient of 0.72 showed significant correlation between QOLS and pretreatment IPSS. The relative distribution of scores in this study is similar to the result seen in the study by McConnell *et al.*[13]

The role of IPSS in the choice of treatment modality and monitoring response to therapy has been well documented. Prior to the 1980s, prostatectomy was the only widely accepted intervention for BPH. However, in men with symptomatic BPH, it is clear that progression is not inevitable and that some men undergo spontaneous improvement or resolution of their symptoms.[14] Previously, all these patients would have had prostatectomy whether it was actually indicated or not. This initial assessment result puts the urologist in a better position to understand the

magnitude of the patient's problem and expectation and to choose the appropriate intervention for the patient.

These patients were subjected to different management protocols based on their scores. The overall change in the pretreatment IPSS and QOLSs for the 104 patients was found to be statistically significant ($P < 0.001$) after 3 months of intervention.

There was worsening of patient's symptoms, as depicted by increased IPSS and QOL scores in the minor symptom category who were managed by watchful waiting for 3 months. However, the number of patients in this group was too small to merit statistical analysis. Other studies have shown varying results with this category of patients. McConnell *et al.*[13] in their detailed review of interventions for BPH noted some improvements in symptoms in about 40% of patients studied, but more than one-third of patients actually experienced deterioration under the watchful waiting strategy. Wasson *et al.*[15] also reported disease progression in 47% of patients randomized to watchful waiting. They attributed this to increasing postvoidal residual urine (PVR) or symptom score. Conversion to other treatment protocol usually becomes necessary in such group of patients. However, it is known that some group of patients experience no change in their symptom scores for several months.[13] Based on the findings in this study, alternative treatment protocols like alpha adrenergic blockers should be instituted for worsening symptoms in the mild group or even surgery if complications set in. However, in our society patients usually present when their symptoms become a source of worry for them. Watchful waiting may not be a viable management option.

There was symptom improvement in the moderate symptom category treated with alpha adrenergic blocker. Doxazosin was used in this study. The mean magnitude of change in IPSS and QOLS, 8.1 (52%) and 1.7 (41%), was statistically significant ($P < 0.001$) and is comparable to findings in other studies. Nwofor *et al.*[16] employed doxazosin in their study and noted comparable changes in IPSS scores. MacDonald and co-workers[17] in one of the largest series on efficacy of alpha blockers; a meta-analysis to evaluate the efficacy and adverse effects of doxazosin for treating LUTS compatible with benign prostatic obstruction noted a mean magnitude of change in IPSS of 9.2 over a 14-week study period and 7.2 for alfuzosin over the same period. They also noted that the effects of the different alpha adrenergic blockers on patients with moderate IPSS were comparable with slight differences.

In the severe symptom category, open prostatectomy was offered because of surgeons preference. Moreover, facilities for transurethral resection of the prostate were not available in both centers at the time of the study. The mean magnitude of change was 24.6 (87%) for the symptom score and 4.0 (79%) for the quality of life. This represents a tremendous improvement in patient's symptoms. The

findings were statistically significant (*P* < 0.001). This study has demonstrated that the magnitude of improvement is greater for surgical treatment modalities than for nonsurgical treatment options.

For IPSS change after prostatectomy, others reported mean IPSS improvements of 10.5 to 16 points.[7,18-21] Possible reasons for these differences may be late presentation to health care until symptoms are very severe due to the high level of illiteracy in our environment. Most of the patients in this study had no formal education. Differences in study design may be another reason.

Surgical options have the highest degree of symptom improvement.[13] Efficacy, in terms of durable improvement in symptom score, is superior to other treatment options available for the obstructing prostate gland,[13] as was the finding in this study. There may be need for further studies to define long-term outcome.

There was neither significant morbidity nor mortality recorded in this study

Role of IPSS in Outcome Prediction

The probability of symptom improvement measured by the IPSS is highest for surgical modality with a predictive value of 87%. However, this does not mean that every patient with symptoms of lower urinary obstruction due to BPH should have surgery, since medical therapy with alpha adrenergic blockers has also been shown to be effective in well-selected patients obviating the risks associated with surgical procedures.

Conclusions and Recommendations

Conclusion
This study has shown that the IPSS is a valuable tool in the management of patients with BPH in terms of initial assessment and categorization of patients. It is useful in detecting, measuring, and monitoring change in symptoms following treatment. It could be used to guide choice of treatment modality. It is also a valuable tool for evaluation of treatment outcome and follow-up; and its application in measuring response to therapy and predicting outcome cannot be overemphasized.

The use of this scoring system would definitely improve the management of patients with BPH and would provide a basis for comparison with other treatment modalities in the future.

It is therefore recommended as follows:
1. IPSS should be used routinely in management of patients with BPH.
2. Further studies need to be undertaken to ascertain long-term treatment outcomes.

APPENDIX

PROFORMA
The role of IPSS (International Prostate Symptom Score) system in the management of patients in Jos, Nigeria.

A) PERSONAL DETAILS

i.   Serial No……………………………………….
ii.   Hospital No………………………………………
iii.   Age…………………………………………………….
iv.   Sex…………………………………………..
v.   Occupation: i. C/S ii. Farmer   iii. Military
iv   Businessman
v.   others (specify)………………….....……………
vi.   Marital status
vii.   Literacy level:
        Primary   ( )
        Secondary   ( )
        Tertiary   ( )
        Non-formal   ( )
        None   ( )

B. DIAGNOSIS OF BPH:

i.   Clinically (History & DRE)
ii.   Ultrasound
iii   Cystoscopy

C. PRETREATMENT IPSS SCORE

D. TYPE OF TREATMENT GIVEN:

i.   Watchful waiting
ii.   Medical; Doxazosin (cardura)
iii   Surgical
        a.   Trransvesical prostatectomy
        b.   Others

E. POST TREATMENT IPSS SCORE AT 3 MONTHS……………

References

1. Weinerth JL, Robertson CN. The male genital system. In: Sabiston DC, Lyerly KH, editors. Textbook of surgery: The biological basis of modern surgical practice. 15th ed. Philadelphia: W B Saunders; 1997. p. 1457-78.

2. Barry, MJ, Adolfsson, J, Batista, JE Measuring the symptoms and health impact of benign prostatic hyperplasia and its treatments. In: Denis, L, Griffiths, K, Khoury, S eds. (1998) Proceedings of the 4th International Consultation of Benign Prostatic Hyperplasia (BPH). SCI, Paris, pp. 265-321

3. Donovan JL, Kay HE, Peters TJ, Brookes ST, Neal DE, Abrams P, *et al.* Using the ICSQol to measure the impact of lower urinary tract symptoms on quality of life: Evidence from the ICS-BPH study. International continence society BPH. Br J Urol 1997;80:712-21.

4. Hines JEW. Symptom indices in bladder outlet obstruction. Br J Urol 1996;77:494-501.

5. Mebust WK, Roizo R, Schroeder F, Villers A. Correlations between pathology, clinical symptoms and the course of the disease. The International Consultation on Benign Prostatic Hyperplasia - Proceedings. Paris, 1991; 53:51-62.

6. O'Leary MP, Barry MJ, Fowler FJ. Hard measures of subjective outcomes: Validating symptom indexes in urology. J Urol 1992;148:1546-8.

7. Barry MJ, Fowler FJ, O'Leary MP, Bruskewitz RC, Holtgrewe HL, Mebust WK, *et al.* The American Urological Association symptom index for benign prostatic hyperplasia. J Urol 1992;148:1549-57.

8. Hakenberg OW, Pinnock CB, Marshall VR. Preoperative urodynamic and symptom evaluation of patients undergoing transurethral prostatectomy: Analysis of variables relevant for outcome. BJU Int 2003;91:375-9.

9. Kirby RS. The clinical assessment of benign prostatic hyperplasia. Cancer 1992;70:284-90.

10. Denis LJ. Future implications for the management of benign prostatic hyperplasia. Eur Urol 1994;25:29-34.

11. Cockett ATK, Barry MJ, Holtgrewe HL, Sihelnick S, Williams R, McConnell J. Indications for treatment for benign prostatic hyperplasia. The American Urological Association Study. Cancer 1992;70:280-3.

12. Arrighi HM, Guess HA, Metter EJ, Fozard JL. Symptoms and signs of prostatism as risk factors for prostatectomy. Prostate 1990;16:253-7.

13. McConnell JD, Barry MJ, Bruskewitz RC, Bueschen AJ, Denton SE, Holtgrewe HL, *et al.* Benign Prostatic Hyperplasia; Diagnosis and Treatment. Clinical Practice Guideline No. 8. AHCPR Publication No. 94-0582. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service. US: Department of Health and Human Services; 1994.

14. Joseph C. Presti MD Jr. Neoplasms of the Prostate Gland. In: Tanagho EA, McAninch JW, eds. Smith's General Urology 15th ed. New York, NY: Lange Medical Books/McGraw -Hill/Appleton and Lange; 2004. p. 12-20.

15. Wasson JH, Reda DJ, Bruskewitz RC. A comparison of transurethral surgery with watchful waiting for moderate symptoms of benign prostatic hyperplasia. N Engl J Med 1995;332:75-9.

16. Nwofor AME, Dogunro AS. Doxazosin in the treatment of elderly Nigerians with BPH. Afr J Urol 2002;8:56-61.

17. MacDonald R, Wilt TJ, Howe WR. Doxazosin for treating lower urinary tract symptoms compatible with benign prostatic obstruction: A systematic review of efficacy and adverse effects. BJU Int 2004;94:1263-70.

18. Emberton M, Black N, Blandy JP, McPherson K, Devlin BH, Neal DE, *et al.* The effectiveness of prostatectomy in reducing symptoms and improving the quality of life in 5131 men. J Urol 1995;153:317-20.

19. Keoghane S, Cranston D, Lawrence K, Dol IH, Fellows G, Smith J. The Oxford laser prostate trial: A prospective randomised controlled trial of contact vaporisation of the prostate versus TURP. J Urol 1995;153:230-4.

20. Gill HS, Kabalin JN. Urodynamic evaluation of patients in a randomised study of TURP versus laser prostatectomy: Preoperative and one-year follow up. Neurourol Urodyn 1993;12:372-5.

21. Horninger W, Janetschek G, Pointer J, Watson G, Bartsch G. Are TULIP, interstitial laser and contact laser superior to TURP? J Urol 1995;153:413-7.