Comparison of Visual Prostate Symptom Score and International Prostate Symptom Score in the evaluation of men with benign prostatic hyperplasia: A prospective study from an Indian population

Yogesh Taneja a,*, Priyatama Ram b, Satish Kumar a, Kishan Raj a, Charan K. Singh a, Santosh K. Dhaked a, Jiten Jaipuria a

* Department of Urology, Sri Sathya Sai Institute of Higher Medical Sciences, Prashanthigram, Anantapur, Andhra Pradesh, India
b Department of Anesthesiology, Sri Sathya Sai General Hospital, Prashanthigram, Anantapur, Andhra Pradesh, India

1. Introduction

Lower urinary tract symptoms (LUTSs) due to benign prostatic hyperplasia (BPH) are common conditions in middle-age or older men. The International Prostate Symptom Score (IPSS) is a useful and validated questionnaire to evaluate LUTS secondary to BPH. Thus, it has become a very useful tool for urologists in day-to-day practice for evaluation and follow-up of patients with LUTS. However, most patients with a low education level are not able to answer the IPSS questionnaire correctly. Furthermore, BPH incidence increases more after 50 years of age. In this age group, most men experience eyesight-related problems and/or cognitive impairment. Because of all these reasons, patients usually have to take assistance from the medical fraternity, however, this may lead to bias in patient’s responses.

To avoid the aforementioned problems when using the IPSS, Van der Walt et al. have developed an alternative questionnaire named “Visual Prostate Symptom Score (VPSS),” which assesses frequency, nocturia, and weak stream and quality of life (Qol) by means of pictograms.

There are many advantages in using the VPSS. It is easy to understand and simple to use even for elderly and less-educated persons. Various studies have been conducted in Turkish, Indonesian, South African, and Korean populations to assess its...
usefulness. However, limited data are available about its usefulness and applicability in Indian population.8–11

2. Materials and methods

This was a prospectively designed study conducted at Sri Sathya Sai Institute of Higher Medical Sciences, Prashanthigram (Anantapur, Andhra Pradesh, India). Sri Sathya Sai Institute is a tertiary care center with daily outpatient visits of around 150–160 patients. Ethical committee approval was sought for the study according to our institute’s protocol. The study was conducted from March 2016 to September 2016. A total number of 121 patients who presented to the urology outpatient department with LUTS due to BPH were enrolled in the study.

The study inclusion criteria were as follows: all patients who presented to the urology outpatient clinic with LUTSs and aged > 40 years. The exclusion criteria included the following cases: patients with uncontrolled diabetes (prostate-specific antigen > 4 ng/dL); patients with a history of transurethral resection of the prostate; patients that underwent surgery for urethral vesical calculus in the past; and patients, on evaluation, found to have LUTS due to a cause other than BPH.

Patients were followed up at 1-month and 3-month intervals. All patients were evaluated and after routine investigations, they were given both the IPSS and VPSS questionnaires. Uroflowmetry, serum prostate-specific antigen, renal function tests, and ultrasonography for prostate were done. Various parameters including the total scores, uroflowmetry parameters, age, education level, and assistance required to fill the questionnaires were noted and compared using chi-square test. The correlation test was used to assess correlation between two symptom scores and various parameters. Observations with a P value < 0.05 were considered statistically significant.

3. Results

The characteristics of the patients included in this study are presented in Table 1. The patients’ mean age was 66 years (range, 44–79 years). All patients were divided into two groups based on their education level. Patients with education level < 9th standard were included in Group A and those with education level > 9th standard in Group B. Around 55% of patients had education level < 9th standard.

A greater proportion of patients could complete the VPSS questionnaire without assistance compared with the IPSS questionnaire. In Group A (education level < 9th), the VPSS questionnaire was completed without assistance by 44 of 60 patients, whereas only 12 of 60 patients could complete the IPSS questionnaire without assistance (Table 2).

Table 1

| Characteristics | Value |
|----------------|-------|
| Age (yr)        | 66 (44–79) |
| Education level |       |
| Grade < 9th (Group A) | 60/110 (54.5) |
| Grade > 9th (Group B)  | 50/110 (45.5) |

Table 2

| Group       | VPSS assistance | IPSS assistance | P  |
|-------------|-----------------|-----------------|----|
| Group A < 9th | 16/60           | 48/60           | <0.0001 |
| Group B > 9th | 5/50            | 14/50           | <0.0001 |

IPSS, International Prostate Symptom Score; VPSS, Visual Prostate Symptom Score.

Fig. 1. Visual Prostate Symptom Score questionnaire.
In Group B (education level > 9th), the VPSS questionnaire was completed without assistance by 45 of 50 patients, whereas only 36 of 50 patients could complete the IPSS questionnaire without assistance. This difference was found to be statistically significant ($P < 0.0001$).

There was a significant difference in time taken by the patients to fill the VPSS versus the IPSS questionnaire and this was found to be statistically significant ($P < 0.0001$) as shown in Table 3.

Both the questionnaires were evaluated for correlation. All the results are summarized in Table 4.

There was a positive correlation between IPSS total score and VPSS total score ($r = 0.7235; P < 0.0001$). Similarly, a positive correlation was observed between VPSS total score and VPSS Qol ($r = 0.70753; P < 0.0001$), IPSS total versus IPSS Qol ($r = 0.65583; P < 0.0001$), and IPSS Qol versus VPSS Qol ($r = 0.84093; P < 0.0001$).

Both total VPSS and total IPSS showed a negative correlation with $Q_{\text{max}}$: IPSS total versus $Q_{\text{max}}$ ($r = -0.6287; P < 0.0001$) and VPSS total versus $Q_{\text{max}}$ ($r = -0.5782; P < 0.0001$). Similarly, a negative correlation was observed between IPSS total versus $Q_{\text{avg}}$ ($r = -0.479; P < 0.0001$) and VPSS total versus $Q_{\text{avg}}$ ($r = -0.5; P < 0.0001$). All VPSS questions showed statistically significant correlation with the corresponding IPSS questions: poor stream, VPSS Q3 versus IPSS Q5 ($r = 0.76122; P < 0.0001$); nocturia, VPSS Q2 versus IPSS Q7 ($r = 0.88558; P < 0.0001$); and frequency, VPSS Q1 versus IPSS Q2 ($r = 0.5083; P < 0.0001$).

4. Discussion

In this study, we attempted to evaluate the relationship between the VPSS (Fig. 1) and IPSS (Fig. 2) in Indian population.
The IPSS questionnaire has seven questions, which are used to evaluate storage and voiding symptoms in patients with BPH. The patient is given five options for the first seven questions and each option indicates severity of that symptom. The total score ranges from 0 to 35 and LUTSs are classified as mild to severe depending on the total score. Patients having a total score ≤7 are classified as having mild symptoms, scores from 8 to 19 are classified as moderate symptoms, and symptom scores ≥20 are classified as severe symptoms. The last question of the IPSS is about QoL. Studies have shown that this question is the single best predictor of outcome related to treatment prescribed.

One of the major problems associated with the IPSS questionnaire is its complex nature. Rodrigues et al. showed that almost 50% of the patients were unable to complete the IPSS questionnaire when they were given the freedom to not answer any question that they are not clear about. Another study by Lujan et al. confirmed these findings. They found that around 33% of patients could not complete the IPSS questionnaire.

Cam et al. in their study found that 34% of patients with a low (elementary school) educational level did not even fill the IPSS questionnaire and returned them totally unmarked. Van der Walt et al. observed that 87% of patients with an education level ≤7th grade required assistance to complete the IPSS questionnaire compared with 24% of patients with an education level ≥10th grade. In this study, it was clear that patients with education level ≤7th require more assistance for completing the IPSS questionnaire.

There have been previous studies from Namibia, Turkish society, Korean populations, and Indonesian populations that have evaluated the correlation between the IPSS and VPSS.

They all found a positive correlation between IPSS total score and VPSS total score. Similarly, a positive correlation was observed between VPSS total score and IPSS Qol, IPSS total versus Qol, and IPSS Qol versus VPSS Qol. Both total VPSS and total IPSS showed a negative correlation with Qmax. Similarly, a negative correlation was observed between IPSS total versus Qavg and VPSS total versus Qavg. All VPSS questions showed a statistically significant correlation with the corresponding IPSS questions: poor stream, VPSS Q3 versus IPSS Q5; nocturia, VPSS Q2 versus IPSS Q7; and frequency, VPSS Q1 versus IPSS Q2. Our results were found to be consistent with all these studies.

4.1. Study limitations and importance

Because this study included data from a single institution, a potential selection bias may have occurred. Nevertheless, our study results are valuable because limited data are available from rural Indian populations to elucidate an association between the VPSS and IPSS.

4.2. Conclusion and take home message

There is a statistically significant correlation between VPSS and IPSS, and it can be completed by a greater number of patients without assistance. The VPSS can be a useful tool to evaluate the severity of symptoms in patients presenting with LUTS due to BPH even with low education level.

Conflicts of interest

None.

References

1. Corru JN, Cussenot O, Haab F, Lukacs B. A widespread population study of actual medical management of lower urinary tract symptoms related to benign prostatic hyperplasia across Europe and beyond official clinical guidelines. Eur Urol 2010;58:450–6.
2. Barry MJ, Fowler Jr FJ, O'Leary MP, Bruskewitz RC, Holtgrewe HL, Mebust WK, et al. The American Urological Association symptom index for benign prostatic hyperplasia. The Measurement Committee of the American Urological Association. J Urol 1992;148:1549–57.
3. Netto Jr NR, de Lima ML. The influence of patient education level on the International Prostatic Symptom Score. J Urol 1995;154:97–9.
4. Huh JS, Kim YJ, Kim SD. Prevalence of benign prostatic hyperplasia on Jeju Island: analysis from a cross-sectional community-based survey. World J Mens Health 2012;30:131–7.
5. Cam K: BPH: how useful is a Visual Prostate Symptom Score for patients? Nat Rev Urol 2011;8:536–7.
6. Van der Walt CI, Heyns CF, Groeneveld AE, Edlin RS, van Vuuren SP. Prospective comparison of a new Visual Prostate Symptom Score versus the International Prostatic Symptom Score in men with lower urinary tract symptoms. Urology 2011;78:17–20.
7. Heyns CF, van der Walt CI, Groeneveld AE. Correlation between a new Visual Prostate Symptom Score (VPSS) and uroflowmetry parameters in men with lower urinary tract symptoms. S Afr Med J 2012;102:237–40.
8. Ceylan Y, Gunlusoy B, Degirmenci T, Kozacioglu Z, Bolat D, Minareci S. Is new Visual Prostate Symptom Score useful as International Prostate Symptom Score in the evaluation of men with lower urinary tract symptoms? a prospective comparison of 2 symptom scores in Turkish society. Urology 2015;85:653–7.
9. Afriansyah A, Gani YI, Nusali H. Comparison between Visual Prostate Symptom Score and International Prostate Symptom Score in males older than 40 years in rural Indonesia. Prostate Int 2014;2:176–81.
10. Heyns CF, Steenkamp BA, Chiwos J, Stellmacher GA, Fortsch HE, Van der Merwe A. Evaluation of the Visual Prostate Symptom Score in a male population with great language diversity and limited education: a study from Namibia. S Afr Med J 2014;104:353–7.
11. Park YW, Lee JH. Correlation between the Visual Prostate Symptom Score and International Prostate Symptom Score in patients with lower urinary tract symptoms. Int Neurourol J 2014;18:37–41.
12. Renibhore GC. Benign prostatic hyperplasia: etiology, pathophysiology, epidemiology, and natural history. In: Wein AJ, Kavaoussi LR, Novick AC, Partin AW, Peters CA, eds. Campbell-Wash urology. 10th ed. Philadelphia: Saunders Elsevier; 2012:2576–81.
13. Barry MJ, Grinman CJ, O'Leary MP, Walker-Coryck ES, Binkowitz BS, Cockett AT, et al. Using repeated measures of symptom score, uroflowmetry and prostate-specific antigen in the clinical management of prostate disease. Benign Prostatic Hyperplasia Treatment Outcomes Study Group. J Urol 1999;153:99–103.
14. Rodrigues Jr NN, de Lima ML, de Andrade EF, Apuzzo F, da Silva MB, Davidzon IM, et al. Latin American study on patient acceptance of the International Prostate Symptom Score (IPSS) in the evaluation of symptomatic benign prostatic hyperplasia. Urology 1997;49:46–9.
15. Lujan Galan M, Paez Borda A, Martin Oses E, Llanes Gonzalez L, Berenguer Sanchez A. The validity of the IPSS questionnaire in a sample of 262 patients with benign prostatic hyperplasia. Arch Esp Urol 1997;50:847–53 [Article in Spanish].
16. Cam K, Senel F, Akman Y, Erol A. The efficacy of an abbreviated model of the International Prostate Symptom Score in evaluating benign prostatic hyperplasia. BJU Int 2003;91:186–9.