A Correlation Study of International Prostate Symptom Score (IPSS) and Visual Prostate Symptom Score (VPSS) Study in Benign Prostatic Hyperplasia Cases

by Eriawan Agung Nugroho

A CORRELATION STUDY OF INTERNATIONAL PROSTATE SYMPTOM SCORE (IPSS) AND VISUAL PROSTATE SYMPTOM SCORE (VPSS) STUDY IN BENIGN PROSTATIC HYPERPLASIA CASES

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ABSTRACT

Background

International Prostate Symptom Score (IPSS) is one of the popular scoring tool to evaluate and assess patients who have prostate enlargement. IPSS contains questions that hard to assess by elderly and low educated patient. Visual Prostate Symptom Score (VPSS) has been recently developed and hoped to be an alternative to IPSS. The purpose of this study was to demonstrate that VPSS can be an alternative of IPSS in evaluating patients who have lower urinary tract symptoms, especially prostate enlargement.

Methods

This study used prospective cohort design. IPSS and VPSS (Indonesian version) were applied to evaluate 65 patients with prostate enlargement at initial visit and at the time of their follow-up examination 2 months after given medication with tamsulosine. Then, the scores of IPSS and VPSS were compared between. To evaluate the relationship of IPSS and VPSS of those patients at their initial visit and 2 months after medical treatment, Spearman correlation test was applied.

Results

Total VPSS, VPSS voiding symptoms, VPSS storage symptoms, and VPSS quality of life (QoL) have significant correlation with total IPSS, IPSS voiding symptoms, IPSS storage symptoms, and IPSS QoL (with correlation coefficient, p-value : 0,597, <0,001; 0,410, <0,001; 0,676, <0,001; and 0,809, <0,001; respectively). There was also a significant correlation of change in total IPSS with change in total VPSS after medical treatment (correlation coefficient, p-value: 0,341, <0,001).

Conclusion

This study demonstrated that VPSS can replace IPSS to evaluate patients who have lower urinary tract symptoms, especially patients with prostate enlargement.

KEYWORDS: Prostate Enlargement, International Prostate Symptom Score (IPSS) & Visual Prostate Symptom Score (VPSS)

INTRODUCTION

International Prostatic Symptom Score (IPSS) is a popular scoring tool, which contains serial questions. This score is used to assess and evaluate patients who have lower urinary tract symptoms, especially patients with

benign prostatic hyperplasia (BPH).[1] IPSS was developed in 1992 by American Urological Association (AUA). It has been translated to many languages and became standardized scoring tools worldwide.[1] IPSS is useful to assess change in symptom severity and in evaluating efficacy of medical treatment.[2] Therefore, many guidelines recommend IPSS as a main assessment tool to evaluate symptoms of LUTS and BPH at initial visit and follow-up examination.[3]

A drawback of IPSS is relatively complicated, especially for low educated and elderly patients. Elderly usually have cognitive and visual impairment so they have difficulties in reading and understanding. Beside, IPSS takes long time to administer or analyze, and often requires medical personnel help to fill it.[2,4,5]

Visual Prostate Symptom Score (VPSS) is a new scoring tool has recently been developed by van der Waltz et al and can become an alternative to IPSS.[6] VPSS consists of questions that can be divided into four schematic group and purposed to assess urinary stream, urinary frequency, nocturia, and quality of life (QoL). VPSS has an advantage over IPSS in assessing LUTS, especially in patient with low education and elderly patient, because it contains more simple question.[3,6] VPSS also can be completely faster than IPSS and may be more useful for clinical application.[5]

Previous studies of LUTS and urethral stricture patient in Namibia patients concluded that VPSS can be answered without assistance in most of patients and had significant difference from IPSS.[3] Significant correlations also found between VPSS and IPSS in two studies in Korean and Turkish.[4,7] However, there were limited regarding application of VPSS in different culture and application of VPSS in longitudinal follow-up assessment of symptoms severity changes and also for treatment efficacy.[4] This statement is not the novelty of your study.

The aim of our study was to prove that VPSS can be an alternative to IPSS in evaluating patients with lower urinary tract symptoms, especially patients with BPH, in terms of initial assessment, after medical treatment, and symptom severity changes before and after medical treatment.

METHODS

This study used prospective cohort design. Subjects of this study were 65 male patients who visited Dr. Kariadi General Hospital, Semarang, Indonesia for prostate enlargement and lower urinary tract symptoms during July 2016 – December 2016.

At initial visit, total prostate volume of those patients were calculated using trans-rectal ultrasonography, and the patients asked to fill the Indonesian version of the IPSS and VPSS to evaluate their urinary symptoms, especially symptoms correlate to benign prostatic hyperplasia. The sum of IPSS questions number 2,4, and 7 correlated to storage symptoms. The sum of IPSS questions number 1, 3, 5, and 6 related to voiding symptoms. While the sum of VPSS questions number 1 and 2 related to storage symptoms and VPSS question number 3 related to VPSS voiding symptoms.

All of these patients were asked to return to hospital for a 2 months follow-up after their initial visit and got medical treatment using tamsulosine. Patients were requested to fill another questionnaire of IPSS and VPSS at 2 months follow-up check-up to evaluate if there were some changes in their symptoms. Laboratory analysis was not done in this study subjects.

Spearman correlation test were used in this study to evaluate correlation between IPSS and VPSS at patient's initial visit, correlation between IPSS and VPSS storage symptoms, correlation between IPSS and VPSS voiding symptoms, and change of IPSS and VPSS amount after medical treatment.

A Correlation Study of International Prostate Symptom
Score (IPSS) and Visual Prostate Symptom Score (VPSS)
Study in Benign Prostatic Hyperplasia Cases

31

RESULTS

During July 2016 – December 2016, 65 new patients were evaluated. Most of the patients had 9-12 years formal education (49%), 20% had less than 9 years formal education, and 31% had more than 12 years formal education. From all of those patients, 16% patients could answer all IPSS questionnaire by himself, 49% complete questionnaire with family assistance, 16% with family and medical staff assistances. In the other hand, 31 % patients were able to complete VPSS unassisted, 56 % required family assistance, and only 13% required family and medical staff assistance. Patient's characteristics were shown in table I; with median age 62,0 years old, total prostate volume 58.0 mL, total IPSS 16, and total VPSS 8.

Statistical test results were showed in Table 2. Statistical test revealed that IPSS and VPSS have strong correlation at initial visit. There was also significant correlation between IPSS and VPSS voiding symptoms, as well IPSS and VPSS storage symptoms. There was strong and significant correlation between IPSS and VPSS QoL. IPSS was hard to understand by low educated patients and patients with difficulties in reading small text. In this study, median age of the patient was higher than previous studies, maybe because this study was done in tertiary referral hospital. It might be the cause that only 16 % of our respondents that able to complete the questionnaire unassisted, fewer than similar study previously. In this study, percentage of respondents that could complete VPSS questionnaire unassisted was higher that percentage of respondents that could complete IPSS questionnaire unassisted. This result was similar with previous studies.

DISCUSSIONS

The different between total IPSS at initial visit and after medical treatment significantly correlated with the different between total VPSS at initial visit and after medical treatment, as well correlation between changes in VPSS and IPSS storage symptoms, VPSS and IPSS voiding symptoms, and also VPSS and IPSSQoL.

Previous study in Turkish general hospital that enrolled 191 men with LUTS demonstrated significant correlation between total VPSS and IPSS, with correlation coefficient = 0,72, p<0,001.[7]Another study, included 100 men with urethral strictures, reported a correlation between total VPSS and IPSS with correlation coefficient = 0,845, p<0,001.[3]This study revealed significant correlation between total VPSS and IPSS. These conclusions support their earlier findings. Earlier study in South Korean teaching hospital that enrolled 240 patient demonstrated that IPSS subscore, including obstructive (voiding) symptoms, irritative (storage) symptoms, and quality of life (QoL), has well correlation with VPSS subscore.[4] This study also concluded significance correlation between each VPSS subscore and IPSS subscore. Those similarities suggested that VPSS has significant correlations with IPSS among cultural groups.

This study is one of the study that evaluate the relationship between changes in the VPSS and IPSS value after treatment in Indonesia. This study showed that change in VPSS value after treatment has significant correlation with change in IPSS value after treatment (in this case was medical treatment).

These study's results suggested that VPSS was useful in evaluating efficacy of treatment, especially in the evaluation of patient with LUTS and BPH at initial visit. A correlation coefficient of relationship between change in VPSS and IPSS value after treatment has lower value than the correlation coefficient of relationship between VPSS and IPSS at initial visit. Interpretation of the VPSS need more careful attention to monitor efficacy of patient's treatment. Therefore, follow-up studies including various methods of treatment still needed to support these results.

We hope that our study can initiate the use of VPSS score in patients who have difficulty in using IPSS, especially in some places in Indonesia that the majority of prostate enlargement patient's are still lack of education and have difficulty in communication because of their age (elderly).

CONCLUSIONS

Total score and subscore of VPSS correlates significantly with total score and subscore of IPSS. The change of IPSS value also correlates significantly with the change of VPSS value. VPSS which is simpler, easier, and quicker to fill can reliably use in evaluating LUTS in patients with BPH. VPSS can also be used as alternative replacement of IPSS at initial visit to hospital and follow-up examinations.

CONFLICT OF INTEREST

There was no conflict of interest in this study.

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Contributors

All authors take public responsibility for the content of the manuscript. All authors were doing the research of this study, entry the data, analyze the data and take responsibility of this manuscript writing's process.

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Tables

Table 1: Patient's Characteristics (Value Presented as Median)

Characteristic	Value
Age	62,0 (45,0-78,0)
Prostate volume	58,0 (36,0-89,0)
IPSS Initial	
Voiding	10,0 (6,0-15,0)
Storage	7,0 (5,0-9,0)
Quality of Life	3,0 (1,0-6,0)
Total	16,0 (7,0-28,0)

VPSS Initial	
Voiding	3,0 (1,0-5,0)
Storage	6,0 (2,0-8,0)
Quality of Life	3,0 (1,0-6,0)
Total	8,0 (5,0-14,0)
IPSS After treatment	
Voiding	9,0 (5,0-12,0)
Storage	4,0 (5,0-9,0)
Quality of Life	2,0 (1,0-5,0)
Total	12,0 (4,0-27,0)
VPSS After treatment	
Voiding	2,0 (1,0-4,0)
Storage	5,0 (1,0-7,0
Quality of Life	2,0 (1,0-5,0)
Total	6,0 (3,0-13,0)

Table 2: Correlation between VPSS and IPSS at Initial Visit (Spearman's Test)

	VPSS Initial			
IPSS Initial	**Total**	**Voiding Symptom**	**Storage Symptom**	**Quality of Life**
Total	0.597 (<0.001)	0.421 (<0.001)	0.534 (<0.001)	0.573 (<0.001)
Voiding Symptom	0.458 (<0.001)	0.410 (<0.001)	0.412 (<0.001)	0.549 (<0.001)
Storage Symptom	0.653 (<0.001)	0.311 (<0.001)	0.676 (<0.001)	0.531 (<0.001)
Quality of Life	0.557 (<0.001)	0.323 (<0.001)	0.461 (<0.001)	0.809 (<0.001)

Table 3: Correlation between VPSS and IPSS after Medical Treatment (Spearman's Test)

	VPSS After Treatment			
IPSS After Treatment	**Total**	**Voiding Symptom**	**Storage Symptom**	**Quality of Life**
Total	0.412 (<0.001)	0.410 (<0.001)	0.565 (<0.001)	0.559 (<0.001)
Voiding Symptom	0.436 (<0.001)	0.478 (<0.001)	0.388 (<0.001)	0.512 (<0.001)
Storage Symptom	0.657 (<0.001)	0.225 (<0.001)	0.622 (<0.001)	0.589 (<0.001)
Quality of Life	0.514 (<0.001)	0.327 (<0.001)	0.427 (<0.001)	0.763 (<0.001)

Table 4: Correlation between Change of VPSS and IPSS Score after Medical Treatment (Spearman's Test)

	Change of VPSS Value			
Change of IPSS Value	**Total**	**Voiding Symptom**	**Storage Symptom**	**Quality of Life**
Total	0.341 (<0.001)	0.281 (<0.001)	0.321 (<0.001)	0.431 (<0.001)
Voiding Symptom	0.272 (<0.001)	0.266 (<0.001)	0.199 (<0.001)	0.441 (<0.001)
Storage Symptom	0.363 (<0.001)	0.259 (<0.001)	0.364 (<0.001)	0.318 (<0.001)
Quality of Life	0.206 (<0.001)	0.209 (<0.001)	0.177 (<0.001)	0.612 (<0.001)

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PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6