VISUAL PROSTATE SYMPTOM SCORE (VPSS)-AN EMERGING PROGNOSTIC INDICTAOR FOR A SUCCESSFUL PROSTATE SURGERY

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ABSTRACT:

OBJECTIVE:

In our study our basic aim is to find a correlation between these two questionnaires both pre and post operatively (after BIPOLAR TURP), and to find out the whether VPSS can be utilized as an alternative tool to assess the patients' symptoms and its prognostic significance before and after surgical procedure.

MATERIALS AND METHODS:

This was a prospectively study conducted at Tabba Kidney Institute with a sample size of 214 patients. The patients were given both the questionnaires pre and post operatively (after 4 weeks of BIPOLAR TURP). All patients were allowed to fill the questionnaires by themselves. Correlation was noted down between the total VPSS and IPSS scores and various uroflowmetry parameters both pre and post operatively.

RESULTS:

Our results showed statistically significant correlation between the VPSS and IPSS total scores both pre operatively and after bi-polar TURP (being assessed at 4 weeks). The mean IPSS score preoperatively was 21.54(out of 35) and that of VPSS was 11.90 (out of 17). VPSS and IPSS mean value after bipolar TURP was 4.6 and 8.9 respectively with p-value of <0.005. Furthermore, both VPSS and IPSS mean value correlated well with the uroflowmetry parameters with p-value of <0.005.

CONCLUSION:

Most of the patients seek assistance from medical personnel to answer IPSS which leads to biasness, instead, VPSS is a simple questionnaire depicted by pictograms that can be easily answered by the patients with low education levels.

Keywords:

IPSS, VPSS, TURP, LUTs

INTRODUCTION:

Prostatic enlargement is a frequent cause of lower urinary tract symptoms (LUTS) in elderly male population with increasing prevalence.[1,2,3]It occurs due to the proliferation of epithelial and stromal components that are thought to be due to chronic inflammation and change in levels of sex hormones in aging male population. LUTS can be classified into irritative symptoms like increased frequency, urgency, urge urinary incontinence, nocturia and voiding symptoms such as hesitancy, straining, intermittency, weak urinary stream, sense of incomplete bladder emptying and post micturition dribbling.[4] All published guidelines recommend using validated questionnaires for the evaluation of severity of LUTS and to monitor the response after medical or surgical treatment. Some of the questionnaires that are commonly being used are International Prostate Symptom Score (IPSS), The International Consultation on Incontinence Questionnaire for Male LUTS (ICIQ-MLUTS) and Danish Prostate Symptom Score.[5,6] IPSS contains eight questions regarding LUTS (incomplete emptying, frequency, intermittency, urgency, weak stream, straining, nocturia) and one question regarding its impact on quality of life due to severity of urinary symptoms.[7,8,9] Each symptom being graded from 0-5 according to the botherness caused by it, and then the total score being summed up to categorized into asymptomatic (0 points), mild (1-7 points), moderate (8-19) and severe (20-35). Quality of life question being graded from 0-6 points i.e., delighted, pleased, mostly satisfied, mixed, mostly dissatisfied, unhappy and terrible. Similarly, ICIQ-MLUTS contains thirteen questions and DAN-PSS has 12 questions related to storage and voiding symptoms and for each of these symptoms, patient must evaluate its impact on his quality of life. IPSS has been translated into more than 50 languages and approximately 27 languages have been statistically proven translations for use in male population.[10] Although IPSS, ICIQ-MLUTS and DAN-PSS have all been translated into multiple languages even then these scoring systems are facing many difficulties to implement upon due to the complexity of its questionnaires specially in patients with low literacy rates, causing misinterpretation of total scores and needless noninvasive and invasive treatments, hence causing mismanagement and creating extra burden on healthcare system.[11,12] All these questionnaires for LUTS assessment are subjective and patient must fill these forms independently in order to correctly categorize into symptom severity and to exclude the biasness caused by medical personnel, so, there comes the need for the questionnaire which could be easy to comprehend and at the same time evaluate the patient's symptoms correctly. To counter this problem, a new tool has been developed named Visual Prostate Symptom Score (VPSS) which utilizes pictograms instead of written questions for the assessment of LUTS, hence making it more applicable for the patients who fall in the category of low literacy rate and have cognitive or visual impairment.[13,14,15,16]

MATERIALS AND METHODS:

This was prospectively designed study conducted at urology department of Tabba Kidney Institute after obtaining Ethical Review Committee approval for the study. Data was collected from Jan 2023 to Aug 2023 after obtaining written and informed consent from the patients.

Total 214 patients were enrolled in the study presented to our urology department with presenting complaints of LUTS with ultrasonographic evidence of enlarged prostate. All men of age >50 years, having lower urinary tract symptoms due to enlarge prostate were included in the study.The patients with previous history of transurethral resection of prostate, LUTS due to culture proven urinary tract infection and Biopsy proven Prostate Carcinoma were all excluded from the study.

All the patients were given IPSS and VPSS questionnaires pre operatively and then again, after 4 weeks of BIPOLAR TURP. Patients were requested to fill both the questionnaires independently and patients who were unable to do so were facilitated by medical personnel. The symptoms of the patient were graded into mild, moderate and severe accordingly to the total scores of VPSS and IPSS questionnaires. The correlation test was used to assess the correlation between two symptom scores. Data was entered and analyzed on SPSS 23.0 and p- value of <0.05 was considered to be statistically significant.

RESULTS:

Total 214 patients were enrolled in study attending the clinic of our urology department. The mean age of the patients was 69.55 ±11 years. The mean prostate size was 74.5gms±15gms. Bipolar TURP was performed with mean resection time of 30 min±12minutes. There was statistically significant positive correlation between the total IPSS and total VPSS scores both pre operatively and after BIPOLAR TURP at the follow up of the patient after four weeks (p value <0.05) as shown in table 1 and 2 respectively.

TABLE:1 PRE AND POST OPERATIVE COMPARISON OF IPSS GRADING:

IPSS GRADING			
VARIABLES	PRE-OPERATIVE	POST OPERATIVE	p value
1-7(MILD)	10	170	0.0005
8-19(MODERATE)	89	30	
20-35(SEVERE)	115	14	

TABLE:2 PRE AND POST OPERATIVE COMPARISON OF VPSS GRADING:

VPSS GRADING			
VARIABLES	PRE-OPERATIVE	POST OPERATIVE	p value
1-3(MILD)	2	180	0.0005
4-9(MODERATE)	35	20	
10-17(SEVERE)	177	14	

The mean IPSS score preoperatively was 21.54(out of 35) and that of VPSS was 11.90 (out of 17). Our results showed that both the VPSS and IPSS scores were significantly reduced post operatively to the mean of 4.6 and 8.9 respectively as shown in table 3.

TABLE:3 CORRELATION BETWEEN MEAN VPSS AND IPSS SCORING:

	MEAN IPSS	MEAN VPSS	p VALUE
PRE-OP	21.54	11.90	<0.05
POST-OP	8.9	4.6	<0.05

Similarly, the quality-of-life question in IPSS correlated well with VPSS quality of life depicted in pictogram. Hence concluding that both questionnaires can be used for quantification of LUTS. Total IPSS and total VPSS scores were negatively correlated with maximal flow; Qmax (p value <0.0001), similarly question in both IPSS and VPSS regarding the urinary stream showed negative correlation with Qmax, as it denotes the caliber and quality of stream, and higher score indicates poorer stream (low Qmax) as depicted in table 4.

TABLE:4 CORRELATION BETWEEN MAXIMAL FLOW(Qmax) WITH MEAN VPSS AND IPSS SCORING:

	Mean Qmax	Mean VPSS	MEAN IPSS	p-VALUE
PRE-OP	8ml/s	11.90	21.54	<0.05
Post-op	15ml/s	4.6	8.9	<0.05

DISCUSSION

IPSS is a complex questionnaire comprising of seven questions and one question of assessing the impact of LUTS on quality of life, and each question comes with five options for the severity of individual symptom, making it more and more complex and difficult to understand and answer.[17,18,19,20]

IPSS is a questionnaire which had to be answered by the patients themselves without any help. Although IPSS has been translated into multiple languages to be implemented upon in different countries but still most of the patients specially with no education find it difficult to comprehend, even in their national languages ultimately seeking help from healthcare providers causing biasness.[21] In conjunction with Dr Groeneveld, van der Walt et al developed Visual Prostate Symptom Score (VPSS; Stellenbosch University), which utilizes four pictograms i.e., day time frequency, night time frequency, caliber of urinary stream and one pictogram for assessing quality of life, with their corresponding numbers being added at the end to categorize the symptoms into mild, moderate and severe. Study was conducted upon 96 patients and the results showed the significant correlation between the total IPSS and VPSS scores, the quality-of-life scores(QoL), VPSS questions i.e., frequency, nocturia and urinary stream with their corresponding IPSS questionnaires. The uroflowmetry parameters i.e., average flow(Qavg.) and maximum flow(Qmax.) correlated well with VPSS force of urinary stream pictogram but Qmax does not find to have significant correlation with IPSS urinary stream questionnaire.[22] Above mentioned study included data from the patients on their initial visit only without any medical or surgical intervention. Our study was conducted upon the patients planned for surgical intervention i.e., BIPOLAR TURP and data being collected both pre and post operatively. Our results showed the positive correlation between the IPSS and VPSS questionnaires pre and post operatively. Similarly, both total IPSS and total VPSS scores, were correlated well with maximal flow i.e., Qmax hence showing the implication of both of these questionnaires before and after intervention.

O.O. Abiola et al[23] conducted his study upon 90 patients. The results of this study showed statistically significant correlation between the individual corresponding parameters of VPSS and IPSS questionnaires and positive correlation with the total scores as well which is consistent with our findings. Furthermore, this study also compared various variables like literacy rate, time required to fill the questionnaires and visual impairment and concluded that minimal education of at least of secondary level is being required for IPSS to be filled by patient themselves. One disadvantage of VPSS which is being mentioned in this study were in patients with visual impairment. Total 11 patients with visual impairment were given the questionnaires, none of them being able to complete the VPSS questionnaires without assistance as compared to IPSS which was completed by 3 patients without assistance hence concluding that visual disturbance can have a negative impact on VPSS scoring system. In contrast our study did not include the variables like socioeconomic condition and educational levels but nevertheless we found strong correlation between different questions of IPSS and VPSS concluding that VPSS can be implemented instead of IPSS for the evaluation of LUTS.

One study published in JOURNAL OF UROLOGY, USA including data collection from 998 male

participants concluded that questions in AUA-SS(American Urological Association Symptom Score) particularly like frequency and urgency were misunderstood in most of the patients with low education levels leading to both under diagnosis of the patient symptoms and unwarranted medical or surgical intervention in case of higher scores.[24] A. CHAWLA et al[25] in his article suggested that questionnaires comprising of pictures are much superior to the written questionnaires particularly in population where literacy rates are below average. In his study he evaluated several visual questionnaires like VPSS, modified VPSS, VASUS (Visual Analogue Score for Urinary Symptoms), SVPI (The Score Visual Prostatique en Images), LUTS-V, and concluded that questionnaires consisting of pictograms can be more accurate in assessing patient lower urinary tract symptoms.

Park YW et al[26] concluded in his study that majority of patients found VPSS is much easier than IPSS to be answered, and most patients did not require assistance in filling VPSS, concluding that the diagrammatic representation of the symptoms is better understood and comprehended by the patients. Furthermore, this study also showed the correlation between maximum flow rate (Qmax) to the total VPSS scoring. T Rodrigues[27] et al is his study published in year 2021, comprising of 812 participants has found strong correlation between Visual Analogue Score for Urinary Symptoms (VASUS) in African population to IPSS.VASUS comprises of five questions in the form of pictograms, the first two questions assessed the stream quality, the third question is for nocturia, fourth question for assessing the incomplete bladder emptying and final question was for quality of life. This article recommended the use of questionnaires based on pictograms like VASUS in countries of low literacy rates. M.Els et al[28] found a positive correlation between uroflowmetry parameters like Qmax and Qavg with VPSS scores and showed that relatively less time being required to complete VPSS in population with education level below 7th grade. VPSS seems to be more reliable in population where literacy rate is low and all of its questions are in the form of pictograms which are much easier to be understood by general population in common. Selekman et all[29] enrolled 121 participants in his study and the results showed the positive correlation between the VPSS and IPSS parameters like frequency, nocturia quality of stream and quality of life which correlates well with our results as well. Roy et al[30] concluded that the questions in VPSS correlated well with that of IPSS questionnaires and is much better to be applicable in Indian rural population. Results in this study showed that out of 100 patients 83% were able to complete the VPSS scoring system as compared to only 40% of patient's who were able to fill it without any assistance.

STUDY LIMITATIONS

- Data is collected from single center and majority of the population in Pakistan urinate by sitting position and to fill VPSS patients, all participants have been specifically asked to urinate in standing position.
- Furthermore, this study does not evaluate the symptoms of overactivity like urge and stress urinary incontinence so a better or modified visual scoring system is requires to assess these symptoms

CONCLUSION:

Our study showed the strong correlation between these two scores PRE and POST operatively, suggesting that VPSS could be utilized for the initial assessment and to evaluate the treatment efficacy after bipolar TURP.VPSS is based upon the pictograms and our study showed that it can easily be filled by the patients as compared to written based questionnaires like IPSS.

DECLARATIONS:

Authors declared no conflict of interest.

No funding (agency or individual) are included.

Ethical approval was taken prior to data collection.

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