

Lower urinary tract symptoms and feeling of incomplete emptying in Saudi Arabian men and its correlation with postvoid residual urine

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Abstract

Purpose: This study was conducted to assess the clinical value of postvoid residual (PVR) urine measurement and associate it with the feeling of incomplete emptying in men with lower urinary tract symptoms.

Methods: Two hundred men were surveyed in the King Fahd Hospital of the University. Patients who had previous urological surgery and patients who are currently on urology treatment were excluded. Information from the remaining 181 patients was analyzed. International Prostate Symptom Score (IPSS) sheets were filled, and then, the PVR was measured.

Results: Data from IPSS sheets were evaluated: 45 patients (24.8%) were characterized as experiencing no symptoms (Score: 0 and 1), 87 (48%) as mild-to-moderate symptoms (Score: 2 and 3), and 49 (27%) as severe symptoms (Score: 4 and 5). The PVR measurement showed no statistical difference in all three categories (being 10, 13, and 12, respectively). Feeling of incomplete emptying despite little PVR was frequently observed.

Conclusion: The study concluded that the feeling of incomplete emptying was poorly correlated with PVR urine volume measurement. This feeling was significantly associated with worsening of both voiding and storage symptoms.

Keywords: International prostate symptom score, lower urinary tract symptoms, postvoid residual urine measurement

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INTRODUCTION

Lower urinary tract symptoms (LUTSs) are highly prevalent among men and women and destructively affect their quality of life (QoL).^[1] Thorough history and physical examination are performed to diagnose and manage LUTS. Evaluation of LUTS includes using questionnaires, such as the International Prostate

Symptom Score (IPSS) to establish the impact of these symptoms on a patient's regimen. Patients who are troubled by LUTS feel imprisoned by their symptoms. They rearrange their calendar and their movements based on the availability of a toilet. Some may refrain from attending social events and/or visits that require a long drive. The impact of LUTS on patients should not be taken lightly or overlooked.

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LUTSs are divided into three categories by the International Continence Society: storage, voiding, and postmicturition symptoms.^[2] LUTSs, though affect both men and women, commonly affect middle-aged men. The European Prospective Investigation into Cancer and Nutrition study has estimated that LUTS is present in 62.5% of middle-aged men (voiding symptoms 25.7% and storage symptoms 51.3%).^[3] To date, most studies on LUTS have mainly focused on voiding or storage symptoms, whereas postmicturition symptoms (a feeling of incomplete emptying following urination and/or postmicturition dribble) have been relatively unnoticed despite their damaging impact on QoL.^[4]

Objective studies including postvoid residual (PVR) urine are also recommended in LUTS patients.^[5] PVR can be measured by transabdominal ultrasound, which is a simple, accurate, and noninvasive method.^[6] However, a feeling of incomplete emptying does not always strongly correlate with measured PVR volume.^[7] Urologists occasionally encounter men with LUTS complaining of a feeling of incomplete emptying despite no or little PVR. In this study, we assess the clinical importance of PVR measurement in men with LUTS and associate that with the feeling of incomplete emptying on the IPSS questionnaire.

METHODS

The study used data from a university hospital outpatient interview survey. The survey directed at male participants who gave oral consents to the survey and voluntarily expressed their intention to participate. The university hospital outpatient survey was carried out in the King Fahd Hospital of the University in a urology booth at the hospital reception. IPSS questionnaire survey was performed in 200 male outpatients, visitors, and staff of the university hospital. People with previous urological surgery and people who are already taking treatment for urological conditions were excluded. The number went down to 186 after applying exclusion criteria. After the questionnaire was filled, patients were asked to empty their bladder fully, and then, a PVR measurement was done using a standard bladder scan. Five patients did not attend for bladder scan PVR measurement after filling up the questionnaire, hence their exclusion from the study. Ultimately, 181 patients were eligible for analysis. The mean age of the patients was 51 years (range from 24 to 71).

The severity of LUTS was measured by IPSS based on the American Urological Association symptom index, with one additional question on QoL.^[8] IPSS questionnaire has been translated into many different world languages and adapted based on the circumstances of each country.

IPSS questionnaire is now widely used for objective assessment of LUTS. The Arabic version of the IPSS was verified by Hammad and Kaya in 2010.^[9] In terms of relevance and reliability, it is now the most typical analytical instrument for LUTS evaluation in Saudi Arabia.

The IPSS questionnaire consisted of eight items, which included seven 6-point scale questions on symptoms (feeling of incomplete emptying, urinary frequency, interrupted stream, urinary urgency, weak urinary stream, urinary hesitancy, and nocturia) and one 7-point scale question on patients' satisfaction with their urinary condition. Based on the criteria, symptom severity was divided into three groups: mild (a symptom score of 0–7), moderate (8–19), and severe (20–35).^[8] The QoL or level of satisfaction of LUTS patients was represented by seven grades: “No problem” (0 point = very satisfied), “I’m all right” (1 point), “Somewhat satisfied” (2 points), “Half-satisfied, half-dissatisfied” (3 points), “Somewhat dissatisfied” (4 points), “Distressed” (5 points), and “I can’t stand it” (6 points = very dissatisfied).

After the patients filled the questionnaire survey, they were asked to empty their bladder in a private bathroom and a PVR was measured. The PVR was measured three times using a noninvasive ultrasound-operated bladder scanner, and the average of the three readings was taken as the PVR.

To enhance the validity of IPSS, we excluded patients who had received any treatment for benign prostatic hyperplasia or prostate cancer; those who had evidence of apparent neurological condition; those with a history of urinary tract infection within the last 3 months; and finally, those who had undergone urological surgery, which might affect their IPSS score.

This is a cross-sectional study to evaluate the clinical importance of PVR measurement in Saudi men with LUTS. The reliability of the questionnaire used in this study was estimated to be similar to that in previous studies. This suggested that we used the same method as previous studies. Well-trained professional doctors conducted the university hospital outpatients' survey. The same group of doctors measured the PVR. This study enrolled hospital outpatients through a formal procedure in compliance with the applicable laws and regulations, good clinical practices, and ethical principles.

RESULTS

On the IPSS questionnaire (range from 0 to 5), 45 patients (24.8%) were characterized as experiencing no symptoms (Score: 0 and 1), 87 (48%) as mild-to-moderate symptoms (Score: 2 and 3), and 49 (27%) as severe

Table 1: Study data that show number of patients and different symptom scores

	Total	No symptoms (0 or 1)	Mild-to-moderate symptoms (2 or 3)	Severe symptoms (4 or 5)
Number of patients	181	45	87	49
Mean age	61	60	62	50
Mean IPSS total score	17	7	16	24
Mean PVR	12	10	13	12
Mean voiding symptom score	2.7	1.8	2.6	3.9
Mean storage symptom score	2.6	1.9	2.4	3.7
Mean QoL symptom score	3.8	2.9	3.7	4.8

IPSS: International Prostate Symptom Score, PVR: Postvoid residual, QoL: Quality of life

symptoms (Score: 4 and 5) [Table 1]. The age was similar among those groups. The PVR measurement showed no statistical difference in all three categories. A feeling of incomplete emptying despite little PVR was frequently observed. This was significantly associated with worsening of voiding symptoms, storage symptoms, total IPSS score, and QoL symptom score. The voiding symptoms mean score was 1.8 in the no symptom group, 2.6 in the mild-to-moderate group, and 3.9 in the severe symptom group. The storage symptoms were significantly related as well showing a mean score of 1.9, 2.4, and 3.7 in no symptom, moderate symptom, and severe symptoms, respectively. The QoL score was 4.8 in the severe group and 3.7 and 2.9 in the moderate group and no symptom group, respectively.

DISCUSSION

The feeling of incomplete emptying was poorly correlated with PVR urine volume seen in this population study. A substantial number of patients complained of a feeling of incomplete emptying with little PVR, and this feeling was significantly associated with worsening of both voiding and storage symptoms. Feeling of incomplete emptying is a self-explanatory term for a feeling experienced by the individual after passing urine. There may be several hypotheses that might explain the development of a feeling of incomplete emptying. A prostatic protrusion in the bladder might cause a sense of incomplete emptying as the prostate grows. The feeling of incomplete emptying with little PVR may be closely associated with sensory changes of the bladder.^[10] Alterations in the finely tuned neurogenic pathway can be responsible for significant alterations in lower urinary tract function. Several studies have tackled the subject of sensory dysfunction of the bladder trying to explain the pathophysiology of an overactive bladder, which might be accountable for the development of residual urine sense despite little PVR.^[11,12] This also explains the worsening of voiding symptoms, storage symptoms, total IPSS score, and QoL symptom score. Nevertheless, it still remains indeterminate why patients suffer from a feeling of incomplete emptying despite no or little PVR.

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Conflicts of interest

There are no conflicts of interest.

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