

Evaluation of Sonographic Prostate Volume in Relation with International Prostate Symptom Score.

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Abstract

Introduction

The International Prostate Symptoms Score (IPSS) may be used to measure the severity of lower urinary tract symptoms. To assess baseline patient pain, IPSS uses a seven-point questionnaire with a maximum total possible score of 35. IPSS is also used to monitor a patient's symptom improvement.

Materials and Procedures:

The current prospective investigation was carried out at our tertiary care hospital's Department of General surgery and department of radiodiagnosis. The research lasted six months, from January to June 2022. At 95% confidence interval and 5% acceptable margin of error, a sample size of 100 was computed. The research included patients with lower urinary tract complaints. Transabdominal ultrasonography was performed on all patients to determine prostate size/volume. The current research divides study participants into three groups based on the severity of their symptoms as determined by the IPSS score. 22% of the patients had mild symptoms, 40% had moderate symptoms, and 28% had severe symptoms. Prolate ellipsoid formula Antero-posterior x Transverse x Cranio-caudal x 0.52 was used to determine prostate volume. 12% of patients had a prostatic volume of 20 cc, 26% had a prostatic volume of 21-30 cc (Grade I), 34% had a prostatic volume of 31-50 cc (Grade II), 21% had a prostatic volume of 51-80 cc (Grade III), and 7% had an 80 cc (Grade IV).

Conclusion

We concluded from the current research that there was no association between age and international prostate symptom score, nor was there any correlation between prostate volume or prostate enlargement grade and IPSS score.

Introduction

One of the most frequent age-related benign neoplasms in men is benign prostate hyperplasia (BPH). The incidence of benign prostatic hyperplasia increases with age, with most occurrences occurring after the age of 45 [1]. Various studies have shown that the prevalence increases with age, with more than 50% recorded by the age of 60 and about 90% reported by the age of 85 [2]. Prostate stromal and epithelial cell hyperplasia results in the creation of distinct nodules surrounding the periurethral area. These pathological alterations result in an enlarged prostate gland, which causes lower urinary tract symptoms (LUTS) in patients, such as a poor and/or intermittent stream, prolonged micturition, straining, dribbling, and the sensation of an incomplete bladder emptying. These are referred to as obstructive symptoms, whereas other symptoms such as frequency, urge incontinence, urgency, and nocturia are referred to be storage symptoms [3].

The International Prostate Symptoms Score (IPSS) may be used to measure the severity of LUTS. To assess baseline patient pain, IPSS uses a seven-point questionnaire with a maximum total possible score of 35. IPSS is also used to track a patient's symptom improvement [4]. Ultrasonography is currently a widely accessible technology for measuring prostatic size/volume [5]. Trans abdominal sonography is simple to conduct, takes less time, and offers precise measures of prostate size/volume, post-void residual volume, and intravesical extension, as well as the upper urinary tract and bladder [6]. The size/volume of the prostate is also a significant consideration when deciding on a therapy [7]. As a result, the current research was carried out at our tertiary care hospital to examine and evaluate sonographic prostate volume in connection to international prostate symptom score.

Materials & Methods

The current prospective investigation was carried out at our tertiary care hospital's Department of general surgery and department of radiodiagnosis. The research lasted six months, from January to June 2022. At 95% confidence interval and 5% acceptable margin of error, a sample size of 100 was computed. The research included patients with lower urinary tract complaints. Transabdominal ultrasonography was performed on all patients to determine prostate size/volume. Before beginning the research, the Institutional Ethics Committee was consulted. Each research participant provided written informed permission.

All research participants had basic laboratory tests performed, including prostate specific antigen levels. Patients with established prostatic cancer and serum Prostate Specific Antigen levels more than 10 ng/ml, as well as those who had previously had prostatic surgery, were excluded from the current research. Before therapy, the International Prostate Symptom Score (IPSS) was collected using a clinically predesigned performa questionnaire and a personnel interview with the patient. 1) Incomplete emptying

2) Frequency

3) Intermittency

4) Urgency

5) Weak stream are all questions on the questionnaire.

- 6) Constraint
- 7) Nocturia;
- 8) Quality of life as a result of urine problems.

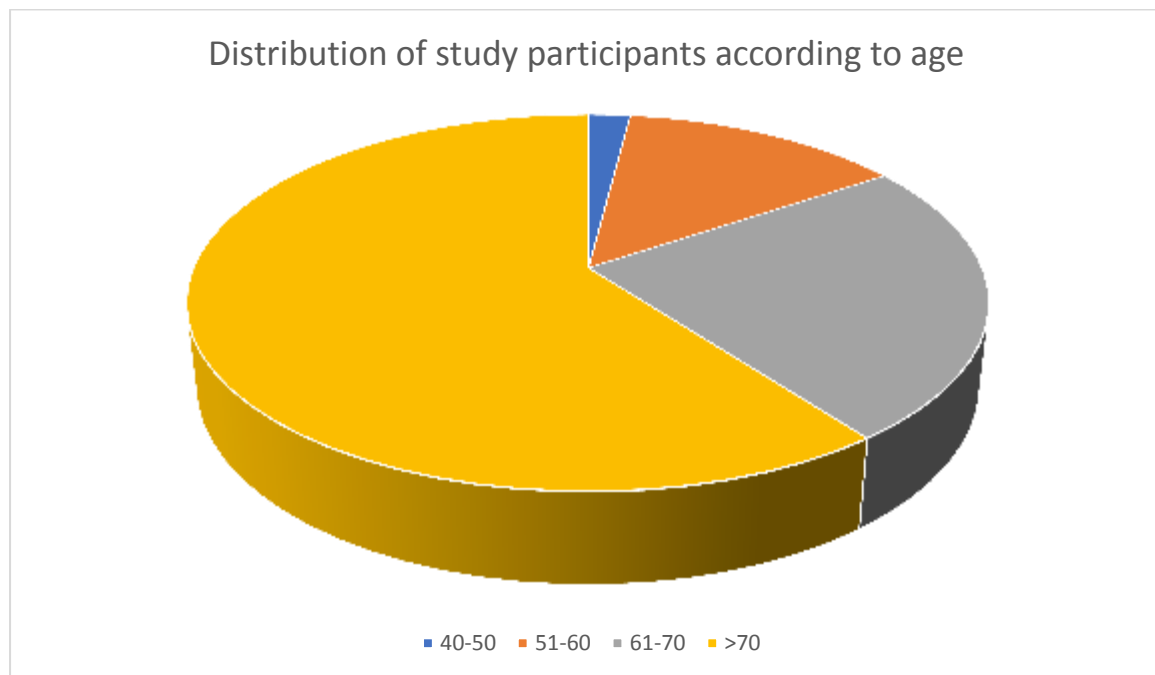
SPSS v22 was used to analyse the data. All tests were performed using an alpha (level significance) of 5%; a significant relationship exists if the p value is less than 0.05.

Results

A total of 100 individuals with lower urinary tract symptoms were participated in the current investigation. Transabdominal ultrasonography was performed on all patients to determine prostate size/volume. The patients in our research ranged in age from 41 to 82 years old, with a mean age of 64.89 years. Out of the total number of research participants, 48% were between the ages of 61 and 70 years, 27% were between the ages of 51 and 60 years, 21% were between the ages of 70 and 70 years, and 4% were between the ages of 40 and 50 years. (Table 1)

Table 1: Distribution of study participants according to age

Age (years)	No. of cases
40-50	4%
51-60	27%
61-70	48%
>70	21%



In the current investigation, study participants were divided into three groups based on their IPSS score and prostatic volume as measured by ultrasonography. 22% of the patients had mild symptoms, 40% had moderate symptoms, and 28% had severe symptoms. Prolate ellipsoid formula Antero-posterior x Transverse x Cranio-caudal x 0.52 was used to determine prostate volume.

In the current study, 12% of the patients had a prostatic volume of 20 cc, 26% had a prostatic volume of 21-30 cc (Grade I), 34% had a prostatic volume of 31-50 cc (Grade II), 21% had a prostatic volume of 51-80 cc (Grade III), and 7% had a prostatic volume of 80 cc (Grade IV) (Table 2).

Table 2: Distribution of study participants based IPSS score and prostatic volume.

Parameters		No. of cases
Grading the severity of symptoms	Mild	22%
	Moderate	40%
	Severe	38%
Prostatic volume	≤ 20	12%
	21 -30 (Grade I)	26%
	31-50 (Grade II)	34%
	51-80 (Grade III)	21%
	≥80 (Grade IV)	7%

Discussion

A total of 100 individuals with lower urinary tract symptoms were participated in the current investigation. Transabdominal ultrasonography was performed on all patients to determine prostate size/volume. The patients in our research ranged in age from 41 to 82 years old, with a mean age of 64.89 years. Out of the total number of research participants, 48% were between the ages of 61 and 70 years, 27% were between the ages of 51 and 60 years, 21% were between the ages of 70 and 70 years, and 4% were between the ages of 40 and 50 years. Similar findings were reported in a study conducted by C Agrawal et al among 120 patients with enlarged prostate glands causing lower urinary track symptoms and reported similar findings to the current study among most patients with enlarged prostate glands causing lower urinary track symptoms [8]. Similar findings were reported in a study conducted by Basawaraj NG et al among 126 patients with enlarged prostate glands causing lower urinary track symptoms and reported similar findings to the current study among the majority of patients with enlarged prostate glands causing lower urinary track symptoms [9].

In the current investigation, study participants were divided into three groups based on their IPSS score and prostatic volume as measured by ultrasonography. 22% of the patients had mild symptoms, 40% had moderate symptoms, and 28% had severe symptoms. Prolate ellipsoid formula Antero-posterior x Transverse x Cranio-caudal x 0.52 was used to

determine prostate volume. A study conducted by F-P Chuang et al among 99 patients with enlarged prostate glands causing lower urinary track symptoms yielded similar results to the current study among the majority of patients with enlarged prostate glands causing lower urinary track symptoms [10]. A research done by Mostafa A et al on 1851 individuals yielded comparable outcomes to the current study among the majority of patients with enlarged prostate glands presenting lower urinary track symptoms [11].

In the current study, 12% of the patients had a prostatic volume of 20 cc, 26% had a prostatic volume of 21-30 cc (Grade I), 34% had a prostatic volume of 31-50 cc (Grade II), 21% had a prostatic volume of 51-80 cc (Grade III), and 7% had a prostatic volume of 80 cc (Grade IV). Similar findings were reported in a study conducted by Sanjeev S et al among 50 patients with enlarged prostate glands causing lower urinary track symptoms [12], which reported similar findings to the current study among the majority of patients with enlarged prostate glands causing lower urinary track symptoms. Similar findings were reported in a study conducted by G B Overland et al among 611 patients with enlarged prostate glands causing lower urinary track symptoms and reported similar findings to the current study among most patients with enlarged prostate glands causing lower urinary track symptoms [13].

Conclusion

We concluded from this research that there was no association between age and international prostate symptom score, nor was there any correlation between prostate volume or prostate enlargement grade and IPSS score.

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