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TO STUDY THE BURDEN OF MALES PRESENTING WITH LOWER URINARY TRACT SYMPTOMS(LUTS), ULTRASONOGRAPHIC CORRELATION OF PROSTATE AND UROFLOWMETRY, INTERNATIONAL PROSTATE SYMPTOM SCORE(IPSS) SCORING IN ALL PATIENTS PRESENTING TO TERTIARY CARE CENTER, HAPUR.



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ABSTRACT

Introduction: Men with lower urinary tract symptoms based on International Prostatic Symptoms Scale, suggestive of BPH. Trans-abdominal sonogram, gives the prostate volume. Further evaluation with uroflowmetry for PVR urine gives an idea about severity of LUTS. So the purpose of this study was to assess the size of the prostate gland in patients with lower urinary tract symptoms and to compare it with uroflowmetry along with IPSS scoring. This study may be useful to the surgeons in terms of prevalence of prostate enlargement in each decade after 40 years. **Aim:** To study the correlation of ultrasonographic prostate size with uroflowmetry and International Prostate Symptom Score (IPSS) in all male patients presenting with Lower Urinary Tract Symptoms (LUTS). **Materials And Methods:** 80 patients presented with LUTS (Lower urinary tract symptoms), after clinical history and examination, patients underwent ultrasonography for prostate size. Uroflowmetric parameters were recorded. IPSS score of all patient were recorded. **Results:** IPSS scoring in maximum patients were >20 in 90% of patients. In transabdominal USG, out of 80 patients, 77 patients prostate volume was more than 35 gms. The patients had a T avg of <10sec, 72% of the patients had value between 10-15sec. 28% of the patients had value >15sec.

KEYWORDS

INTRODUCTION

Prostate is one of the accessory glands of the male reproductive system that secretes fluid to form bulk of the semen along with the seminal vesicles and bulbourethral glands. Post pubescent male, the prostate gland has a volume of up to 20 to 30 ml. In men above 40 years of age, BPH is a common entity with significant disability. It is a condition that occurs when the enlarged prostate gland compresses the urethra leading to LUTS. BPH can be a histological diagnosis that refers to proliferation of smooth muscle, fibrous tissue and glandular tissue within the prostatic transition zone.⁽¹⁾

The clinical assessment of prostatic size by transabdominal sonogram has proven to be a more accurate predictor of actual prostatic size, as studies show that trans-abdominal sonogram estimate of prostate size and surgical size shows good correlation. The enlarged gland contributes to the lower urinary tract symptoms through two routes by direct LUTS from enlarged tissue (static component), by increased smooth muscle tone and resistance (dynamic component). The over activity of detrusor is thought to be a contributor to the storage symptoms seen in lower urinary tract symptoms. The symptoms of lower urinary tract caused secondary to BPH are usually not life threatening but can impact the quality of life and should not be underestimated.⁽²⁾

Urine flowmetry is the electronic recording of urine flow rate throughout the micturition. Abnormal urine flow may be caused by LUTS and bladder dysfunction resulting in significant PVR volume. Increasing PVR urine volume denotes significant bladder dysfunction and risk of developing urinary tract infection⁽³⁾. Thus, this concept favours inclusion of PVR urine volume measurement in the evaluation of men with BPH. Thus men with lower urinary tract symptoms based on International prostatic symptoms scale, suggestive of BPH should undergo clinical evaluation for prostatic size by trans-abdominal sonogram. They should further be evaluated by urine flowmetry for PVR urine to assess the severity of LUTS. So the purpose of this study is to assess the size of the prostate gland in patients with lower urinary tract symptoms and to compare it with uroflowmetry. This study may be useful to the urologist in terms of prevalence of prostate enlargement in each decade after 40 years and its significance with the uroflowmetry parameters.

AIM

To study the correlation of ultrasonographic prostate size with uroflowmetry and International Prostate Symptom Score (IPSS) in all male patients presenting with Lower Urinary Tract Symptoms (LUTS).

MATERIALS AND METHODS

Cases presenting with lower urinary tract symptoms (LUTS) were selected for our study. A written informed consent was taken from each patient before enrolling them for study. Data collected according to the proforma which included patient's details, history, clinical features, laboratory investigations, diagnosis. After structural clinical interview a transabdominal ultrasound was done for estimation of prostate size. IPSS scoring was calculated according to the World Health Organization "Eight question index". Uroflowmetry of every patient was done. Qmax, Qavg and postvoid urine was recorded.

OBSERVATION AND RESULTS:

The study was conducted at Surgery Department, Saraswathi Institute of Medical Sciences and Hospital, Hapur, UP.

Age	No of patients	Percent
<50 years	5	6%
51-60 years	13	16%
61-70 years	32	40%
>71 years	30	38%
Total	80	100%

Fig1. Age Wise Distribution Of Patients Presenting With Luts.

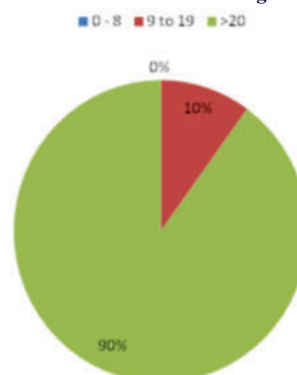


Fig2. Distribution Of Patients According To Ipss Scoring.

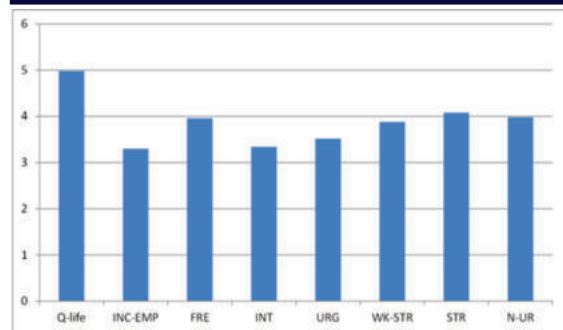


Fig3. Distribution IPSS Scoring with six bothersome lower urinary symptoms with one question regarding quality of life affected by these symptoms in bar diagram against the mean value. Q-life (quality of life), INC-EMP (Incomplete emptying), FRE (frequency), INT (Intermittency), URG (Urgency), Wk-STR (weak stream), STR (Straining), N-UR (nocturia).

Prostate volume on USG	No.	%
25-35 gm	3	3.75
35-45 gm	7	8.75
45-55 gm	15	18.75
55-65 gm	25	31.25
65-75 gm	11	13.75
75-85 gm	17	21.15
85-95 gm	2	2.5
TOTAL	80	100.0

Fig4 Distribution of study subjects as per Prostate volume on USG.

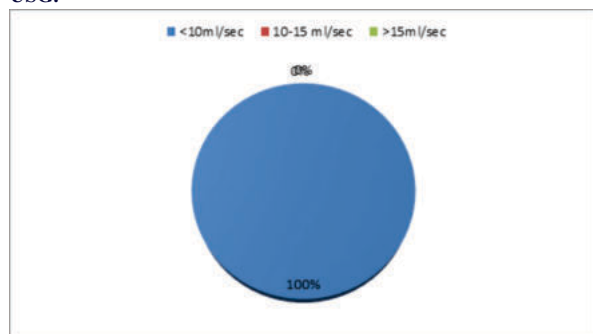


Fig.5 Distribution of Uroflowmetry Qmax

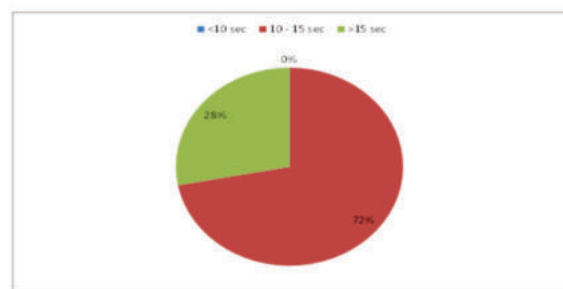


Fig.6 Distribution of Uroflowmetric Tmax

Table 7: Uroflowmetry F tm-flow time (time taken for complete emptying of bladder)

Flow time-in seconds	Mean values in seconds	Standard deviation in seconds
0	83.4000 sec	22.09534Sec
1 week	28.3600sec	3.41521sec
1 month	26.3800sec	2.67940sec
3 months	24.0000sec	3.70879sec

A total of 80s were enrolled in the study. Maximum patients belonged to age group of 60-70 years who presented with LUTS, later on on were diagnosed with BPH. All patients underwent evaluation of IPSS scoring. Scoring in maximum patients were >20 that is out of 80 patients, 72 scored more than 20(90%). After clinical evaluation and history. All patients underwent transabdominal USG. 25 Patients (31%) prostate volume on USG measured 55-65 gm. 17 patients (21%)

prostate volume on USG 75-85 gm. Uroflowmetry study was conducted in all patients of prostate. Qmax < 10 ml in all patients presenting with LUTS. The patients had a T avg of < 10 sec, 72% of the patients had value between 10-15 sec. 28% of the patients had value > 15 sec.

DISCUSSION

Benign prostatic hyperplasia is a disease of old men which lead to troublesome LUTS. The enlarged gland has been proposed to contribute to the overall lower urinary tract symptoms (LUTS) complex via at least two routes: (a) direct bladder outlet obstruction (BOO) from enlarged tissue (static component) and (b) from increased smooth muscle tone and resistance within the enlarged gland (dynamic component).⁽³⁾

Voiding symptoms have often been attributed to the physical presence of BOO. The same symptoms that point to bladder outlet obstruction in the patients may be difficult to identify without specialized studies. Hence it is highly essential to have a methodology where the routine investigations and relevant examination would identify the patients who may be beneficial from transurethral prostatectomy.⁽⁴⁾

Fundamental questions remains unanswered about the value of uroflowmetry in the assessment of men presenting with lower urinary tract symptoms thought to be secondary to bladder outlet obstruction, however The peak flow rate (PFR; Qmax) more specifically identifies patients with BPH than does the average flow rate (Qavg).⁽⁵⁾

The Fourth International Consultation on BPH concluded that flow rate measurement represents a reproducible way to quantify the strength of the urinary stream and, when used in combination with symptom scores for a small subset of patients (20%), has a high probability of correctly characterizing whether there is BOO.⁽⁶⁾

Kadow and coworkers concluded that uroflowmetry was able to separate physiologically unobstructed and obstructed patients. They found that PFR distinguished between normal men and patients with BPH, urethral stricture, or prostatitis. However, they also noted that a subgroup of patients with a decompensated detrusor muscle should not be separated from the obstructed men on the basis of PFR alone.⁽⁷⁾

The present study which was done on 80 patients, was designed to see for the uroflowmetric parameters in BPH patients. The Mean age of this study was 67.63 years. Most of the patients (40%) were in the age group of 61-70 years. Sanjeev single et al., in their study displayed almost similar results with patients Mean age of 67.7 years, for benign prostatic hyperplasia. Similarly Malik Hussain Jalbani et al., and K. Bar et al., reported patients with Mean age 63.62 years and 68 years respectively.⁽⁸⁾

In the present study flow rate (Qmax) was found to be 6.9 +/- 0.99488 ml/sec. This rate is 7.6 +/- 2.41 ml/sec and 7.1 ml/sec reported by Malik Hussain Jalbani et al and Nielsen et al respectively.⁽⁹⁾

In another study by M.C Songra et al on total of 50 patients after transurethral resection of prostate the mean preoperative Qmax value was 9.59 post operatively mean Qmax improved to 17.33 ml/sec. The average of first three months after postoperative follow up of our patients (16.7667 +/- 1.05892) was significantly improved like those reported by above mentioned workers, the flow rates in these studies remains stable throughout the follow up period.⁽¹⁰⁾

In the present group the IPSS questionnaire, which include one quality of life question and six bothersome LUTS was self administered on BPH patients. There was a significant mean for all questions (p < 0.005 for all symptoms. Results plotted in the table. The results are more or less similar to the study conducted by F.P CHUANG Et al.⁽¹⁰⁾

CONCLUSION

The enlarged gland has been proposed to contribute to the overall lower urinary tract symptoms (LUTS) complex via at least two routes: (a) direct bladder outlet obstruction (BOO) from enlarged tissue (static component) (b) from increased smooth muscle tone and resistance within the enlarged gland (dynamic component). This has been confirmed in this study by the ultrasonographic measurement of prostate gland and uroflowmetric studies with IPSS scoring.

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