CORRELATION BETWEEN AGE, IPSS, PROSTATE SIZE WITH HISTOPATHOLOGICAL FINDINGS AND MANAGEMENT OF PROSTATISM

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ABSTRACT

Introduction: Benign prostatic obstruction/enlargement (BPO/BPE) is one of the important aetiology for Bladder outlet obstruction (BOO) in men. Study has been planned to measure various parameters of bladder dysfunction by using Cystometry in patients of Prostatism and to find out correlation between various parameters like age, prostate size, IPSS, management of patients with Prostatism, choice of operative procedure performed and various histopathological findings. **Methods:** This was observational study. Total 75 patients with age> 50 year and IPSS > 19 having symptoms of Prostatism were included in the study. Patient detailed history was taken and demographic parameters with IPSS, histopathological findings, management plan, Ultrasonography findings were recorded in structured proforma. **Results:** It is seen that the maximum i.e. 39 (52%) cases of prostatism are observed in the age group of 60 to 70 years. The average age was 67.29 years. Maximum i.e. 31 (41.33%) cases of prostatism had prostate size in 50-70 gms.36 patients were managed by catheterisation while surgery was performed in remaining 39 patients. Transurethral resection of prostate (TURP) was performed in 36 of 39 patients. IPSS was decreased significantly from average of 26 to average of 22 after 2 weeks of operation/catheterisation. **Conclusion:** Prevalence of BPE increases with age as there found to be positive correlation between age and Prostate size. TURP was preferred procedure in our tertiary centre for the treatment of BPE. Significant decrease in IPPS suggests improvement in symptoms of BPE after operation/catheterisation.

Keywords: Bladder outlet obstruction; Prostatism; International Prostate Symptom Score; Transurethral resection.

INTRODUCTION

Bladder outlet obstruction (BOO) is one of the important pathology in cases of bladder dysfunction. BOO in men has traditionally been linked to the prostate. Recent terminological changes have led to the use of benign prostatic obstruction/enlargement (BPO/BPE) as nomenclature to replace previously used eponyms such as benign prostatic hyperplasia (BPH) [1]. Also synonymous with BOO in men is LUTS [1]. Other causes of BOO in men include urethral stricture disease, dysfunctional voiding, neurogenic-based detrusor-sphincter dyssynergia (DSD), and primary bladder neck obstruction

Prostatism is a clinical syndrome, occurring mostly in older men, usually caused by enlargement of the prostate gland and manifested by irritative symptoms (nocturia, frequency, sensory urgency, and urgent incontinence) and obstructive (hesitancy, decreased stream, terminal dribbling, double voiding, and urinary retention). Several symptom scoring systems have been developed to assess the degree of symptom severity [2]. The most widely used scoring system is the International Prostate Symptom Score (IPSS), developed by the American Urological Association (AUA) and adopted

by the World health Organization (WHO) [3]. IPSS is based on the answers to seven questions concerning urinary symptoms and one question concerning quality of life.

Surgical treatment for BPO/BPE includes transurethral resection of prostate (TURP) which remains the gold standard procedure when medical treatment fails or ineffective.

Uroflowmetry has been added to the assessment tools for patients with BPH. Like the IPSS, it is not diagnostic of BPH, but also gives an insight into the degree of obstruction caused by the benign prostatic enlargement (BPE). Uroflowmetry and postvoid residual urine volume (PVR) are simple tests that can raise or lower the suspicion of bladder outlet obstruction (BOO), but neither can make a definitive diagnosis. Urodynamics with pressure flow studies remain the gold standard for diagnosing BOO and other voiding and storage abnormalities responsible for LUTS and voiding dysfunction [4]. In simple bedside cystometry which is one of the urodynamic studies, various parameters are measured such as Bladder capacity, postvoid residual volume of urine (PVR) and Urge capacity.

Keeping in this mind, study has been planned to measure various parameters of bladder dysfunction by using Cystometry in patients of Prostatism and to find out correlation between various parameters like age, prostate size, IPSS, management of patients with Prostatism,

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choice of operative procedure performed and various histopathological findings.

MATERIALS AND METHODOLOGY

Study design: This was an observational study

Ethics approval: The study was started after prior approval from Institutional Ethics Committee.

Research place: Men attending clinic of Urology department, Rural Medical College, Loni

Study period: Conducted for a period of two years

Inclusion criteria: Patients included were having age> 50 years, International Prostate Symptom Score> 19, Catheterized patients who have developed retention due to prostatism, Patients with chronic retention, as well with distention overflow due to prostatism and patients willing to participate in the study after written informed consent.

Exclusion criteria: Patients with any of the following were excluded: Patients with urethral stricture, Patients with urethral stone, Patients having obstruction because of causes other than prostatism (mechanical or neurological reasons).

Sample size: The study included total 75 patients.

Methodology:

Patient data was recorded on structured proforma which includes age, IPSS, Cystometry & USG findings, management of patient based on cystometry findings i.e. whether operated or catheterised, if operated then which procedure i.e. either TURP or Millins prostatectomy, histopathological findings and IPSS score & cystometry repeated after 2 weeks.

For cystometry, first patient was explained the entire simple cystometry procedure. Patient is asked to void before catheterization and post void urine collected after catheterization is noted as PVR. Next, with the patient in supine position, foley's catheter was inserted perurethrally under all aseptic precautions, sterile water is instilled through a 50 ml syringe so that the top of fluid column in the syringe is 15 cm above the pubic symphysis. The sterile water was then instilled in 25 ml increments. Patient was explained to indicate when he gets urge to micturate and the volume of fluid instilled until then was noted. Meanwhile, any involuntary contraction of the bladder indicated by column of fluid moving upwards and continuing to rise despite requesting the patient to relax and volume of fluid instilled was noted. After that, instillation of water was continued. Patient was told to indicate when he was unable to hold more, has severe discomfort and feels like he must rush to the toilet. This reading was noted as bladder capacity. Patient was then followed up two weeks later whether operated or catheterized and cystometry was repeated.

All the parameters that were recorded initially were again measured after 2 weeks [post void residual urine (ml), urge to micturate (ml) and bladder capacity (ml)].

Statistical analysis: Data was analyzed and compared among different variables using percentages and Z-test of difference between two proportions. P value less than 0.05 were considered significant.

RESULTS

All 75 patients of Prostatism were studied regarding their age; values of which were presented in following table.

Table 1: Age wise distribution of the cases with prostatism

Age in years	No. of cases
50-60	18 (24)
60-70	39 (52)
70-80	16 (21.3)
> 80	2 (2.67)
Total	75
Mean ± SD	67.29±7.95

It is seen that the maximum i.e. 39 (52%) cases of Prostatism are observed in the age group of 60 to 70 years. The average age was 67.29 years. The 60-70 years age group is significantly higher than other age group (Z test of difference between two proportions, $p<0.05$)

Size of prostate as measured from USG is compared with age for all 75 patients and findings were presented in Table 2.

Table 2: Co-relation between size of prostate and age
The value of Karl Pearson's correlation coefficient i.e. r = 0.007434, thus there is a positive correlation between age and prostate size; it means as age increases (decreases) prostate size also increases (decreases).

Prostate size (gms)	Age (Years)			
	50-59	60-69	70-79	≥80
<30	0	2	1	0
30-49	5	11	8	0
50-69	9	16	4	2
70-90	2	6	2	0
90-100	0	2	0	0
<100	2	2	1	0
N (%)	18(24)	39 (52)	16(21.3)	2 (2.7)

IPSS score was calculated in all 75 patients by using IPPS scale and findings were presented in Table 3.

Table No.3: IPSS score in the cases of Prostatism

IPSS score	N (%)
20-25	34 (45.33)
25-30	23 (30.67)
30-35	18 (24)
Mean ± SD	26.68±4.50

34 (45.33%) cases of prostatism are observed in the IPSS score of 20-25, followed by 23(30.67%) in 25-30, and 18(24%) in 30-35 IPSS score in the cases of prostatism. The average IPSS score noted was 26.68.

While considering the management of patients, it was found that 39 patients were operated while 36 patients were catheterised.

Out of 39 patients who were operated from total 75 patients, 36 were operated by TURP procedure while remaining 3 patients were operated by Millins Prostatectomy and remaining 36 patients were catheterized

Among histopathological findings, 36 patients (48%) were diagnosed as BHP, 3 patients (4%) as Carcinoma of Prostate and remaining 36 patients (48%) were normal.

IPSS score in all 75 patients was correlated with Prostate size pre-operatively and postoperatively and findings were presented in Table 4.

Table 4: Correlation between IPSS score and prostate size (Before and after Operation / Catheterization)

Prostate size (grams)	IPSS score Before & after Operation/ Catheterization					
	20-24		25-29		30-35	
	Before	After	Before	After	Before	After
<50	14	44	3	6	6	0
50-100	18	8	16	10	9	2
>100	2	1	4	2	3	2
Total	34	53	23	18	18	4

Before operation: Value of $\chi^2 = 14.87$, d.f .=2, significant, p<0.05, By applying Chi-square test there is a significant association between IPSS score and prostate size before Operation / Catheterization (i.e. p<0.05).

After operation: Value of $\chi^2 = 25.54$, d.f.=2, highly significant, p<0.01, By applying Chi-square test there is a highly significant association between IPSS score and prostate size after Operation / Catheterization (i.e. p<0.01)

DISCUSSION

Bladder outlet obstruction (BOO) is a common cause of lower urinary tract symptoms (LUTS) in men and women. In men, Prostatism constitutes the most common cause of BOO.

Majority of men with BPE/BPO undergo surgery to relieve bothersome urinary symptoms and improve Quality of life [5]. In the last decade there has been increasing awareness among urologists that a policy of prostatectomy in any man with lower urinary tract symptoms is unacceptable. International consultation on benign prostatic hyperplasia guidelines states that baseline measurement should include the International Prostate Symptom Score (I-PSS), maximum urine flow, post-void residual urine and an evaluation of prostate volume by digital rectal examination.

In Present study, average age of patient is 67.29 ±7.95 (mean± SD), average IPSS score is 26.68 ±7.95 (mean± SD) while average prostate size reported was 62.32±26.97 (mean± SD) in USG findings. A study done by Jeremy L. et al [6] had average age of patients 64±12.3 (n=64), average IPSS 13 ±6.3 while average prostate size was 35 ± 23.5 grams. In another study conducted by W.P.J Witjes et al [7]; had average age of patients 63±10 (n=63), average IPSS was 17.3± 6.9 while average prostate size was 41.6±20.8 grams. In the present study mean prostate size & IPSS was more compared to other studies because the mean age i.e.67.29 years and the sample size i.e.75 was more as compared to other two studies. Also, in our study maximum i.e. 31 (41.33%) cases of prostatism had prostate size in between 50-70 grams. The value of Karl Pearson's correlation coefficient i.e. r = 0.007434, thus there is a positive correlation between age and prostate size; it means as age increases (decreases) prostate size also increases (decreases).

In another meta-analysis study done by Berry et al [8],the prevalence of pathological benign prostatic hyperplasia is only 8 per cent at the fourth decade; however, 50 per cent of the male population has pathological benign prostatic hyperplasia when they are 51 to 60 years old. Study conducted by Oranusi et al [9] reported that average age was 67.2 ± 9.7 (n=51 BPH patients).

In present study, IPSS decreased from average of 26 to average of 22 2 weeks postoperatively. In similar study conducted by Poul C. Frimodt et al in 2004 [10], IPSS decreased from 16 to 4 3 months after operative procedure. This may be attributed to the follow up period. Poul C. Frimodt had a follow up of 3 months where as in present study 2 weeks follow up was done.

CONCLUSION

Prevalence of BPE/BPO increased after the age of 50 years & maximum chances of BPE causing BOO was found between 60-70 year age group. Positive correlation was found between prostate size and age of patients with maximum patients [31 (41.33%)] having prostate size between 50-70gms.After urodynamic evaluation, 36 patients were managed by catheterisation while surgery was performed in remaining 39 patients. TURP was the preferred procedure in our tertiary care centre for the surgical management of BPE. IPSS was decreased from average of 26 to average of 22 after 2 weeks of operation which suggest improvement in symptoms of BPE patients.

Limitations: Further studies with larger sample size with use of advanced surgical modalities for BPE would be required.

Conflict of Interest: Declared none

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