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CORRELATING PSA AND PSAD WITH THE PREVALENCE OF CHRONIC PROSTATITIS

Urology

Dr. Sagar Bassi	Bharati Hospital, Dhankawadi, Pune.
Dr. Abhigna Panda	Bharati Hospital, Dhankawadi, Pune.
Dr. Hrishikesh Deshmukh	Bharati Hospital, Dhankawadi, Pune.
Dr. D. K Jain	Bharati Hospital, Dhankawadi, Pune.
Dr. Pawan	Bharati Hospital, Dhankawadi, Pune.

ABSTRACT

Prostatitis is a common disease that has a severe impact on quality of life with a prevalence of 11-13%. The typical presentation may include perineal, testicular, and penile discomfort which may be associated with sexual dysfunction. Symptoms persist for a minimum duration of 3 months Diagnosing chronic prostatitis is challenging due to the similarity of symptoms with BPH and Ca prostate. These may be differed by S. PSA and TRUS biopsy of the prostate in case of raised S. PSA Diagnosing chronic prostatitis is challenging due to the similarity of symptoms with BPH and Ca prostate. These may be differed by S. PSA and TRUS biopsy of the prostate in case of raised S. PSA The present study was aimed at finding the prevalence of histological proven Ch prostatitis in patients presenting with lower urinary tract symptoms and correlation with PSA and PSAD levels. **Material And Methods** we included 100 consecutive patients with Lower urinary tract symptoms undergoing Transurethral resection of the prostate (TURP) or TRUS Biopsy Normal PSA levels were considered as less than 4ng/dl and PSAD was between 0.03 -0.39 ng/ml. ALL Samples in form of TURP chips OR TRUS guided prostate Biopsy bites were sent for Histopathological evaluation and the patients were divided into three groups BPH, BPH+ CP, and Ca P respectively **Results-** we found 27% had chronic prostatitis, 5% had Ca Prostate and 68% had BPH. The mean sr PSA among the cases with BPH, BPH + CP, and CaP was 2.19, 9.52, and 14.10 respectively, the mean PSAD among the cases with BPH, BPH + CP, and CaP type of diagnosis was 0.0491, 0.143, and 0.384 respectively

KEYWORDS

INTRODUCTION

Prostatitis is a common disease that has a severe impact on quality of life with a prevalence of 11-13%.[1]

In 1995, the NIH convened the National Workshop on Chronic Prostatitis to establish a new definition and classification of prostatitis syndromes. In this classification, category III is chronic prostatitis or is also called Chronic Pelvic Pain Syndrome (CPPS).[2]

CP/CPPS (NIH category III) is defined as urologic pain or discomfort in the pelvic region, associated with urinary symptoms and/or sexual dysfunction, lasting for at least 3 of the previous 6 months. CP/CPPS is subclassified as an inflammatory type (NIH category IIIA) and a noninflammatory type (NIH category IIIB) according to the presence of leukocytes in prostatic samples[3]

The typical presentation may include perineal, testicular, and penile discomfort which may be associated with sexual dysfunction. Symptoms persist for a minimum duration of 3 months. CP/CPPS is often associated with negative cognitive, behavioral, sexual, or emotional consequences.[3]

The clinical presentation of prostatitis may range from asymptomatic patients to patients with chronic, potentially incapacitating, pelvic pain.[4]

Diagnosing chronic prostatitis is challenging due to the similarity of symptoms with BPH and Ca prostate. These may be differed by S. PSA and TRUS biopsy of the prostate in case of raised S. PSA

Similarly, a large number of patients with lower urinary tract symptoms and clinically benign hyperplasia of the prostate have high PSA levels and after TURP is found to have Ch prostatitis on Histopathological examination[5].

The PSA density (PSAD) was coined to correlate PSA levels in serum with the prostate volume. Several studies suggested that PSA density higher than 0.15 ng/ml/cm3 increases the cancer detection rate. Hence PSA Density can act as an important marker in the detection and categorization of patients subjected to prostate Biopsy on basis of high PSA[6].The present study was aimed at finding the prevalence of histological proven Ch prostatitis in patients presenting with lower urinary tract symptoms and correlation with PSA and PSAD levels

MATERIAL & METHODS

We conducted a prospective study in Dept of urology at Bharati hospital, Pune between march 2020 to march 2022, in which we included 100 consecutive patients with Lower urinary tract symptoms undergoing Transurethral resection of the prostate (TURP) or TRUS Biopsy was included in after informed consent. Patients with urosepsis and already known Ca prostate were excluded from the study.

Study Methodology

Informed written consent was taken from all patients. All patients included in the study were evaluated as per the proforma. In all patients, a detailed history was taken including any comorbidities, history, IPSS score, and physical and rectal examination was done Laboratory investigations were carried out as per requirement. These included hemogram, renal function tests, blood sugar level, coagulation profiles, and urinalysis with urine culture and sensitivity and Serum PSA. PSA density was calculated by dividing total PSA by prostate volume.

Radiological evaluation was done in the form of Transabdominal USG, uroflowmetry in all patients. Patients with clinical suspicion of Ca prostate or High PSA density were subjected to TRUS and TRUS guided prostatic Biopsy.

On digital rectal examination, grading was based on approachability to tip/ base of the prostate with finger stating as-
Grade1- can be reached easily (1-2cm)
Grade 2- can be reached but with difficulty (2-3 cm)
Grade 3- cannot be reached or can be reached but with very difficulty (3-4/ >4cm)

Patients hence were offered TURP as a treatment for Lower urinary tract symptoms or undergo diagnostic TRUS guided prostatic Biopsy based on clinical findings and PSA levels. All patients with BPH + CP on TRUS biopsy eventually underwent TURP.

ALL Samples in form of TURP chips OR TRUS guided prostate Biopsy bites were sent for Histopathological evaluation and the patients were divided into three groups BPH, BPH+ CP, and Ca P respectively.

Statistical Analysis

All the data was noted down in a pre-designed study proforma. Qualitative data was represented in the form of frequency and percentage. Association between qualitative variables was assessed by Chi-Square test with Continuity Correction for all 2 X 2 tables and Fisher's exact test for all 2 X 2 tables. Quantitative data was represented using Mean ± SD and Median & IQR (Interquartile range). Analysis of Quantitative data between the two groups was done using unpaired t-test if data passed 'Normality test' and by Mann-Whitney Test if data failed 'Normality test'. A pvalue < 0.05 was taken as a level of significance. SPSS Version 21 was used for analysis.

OBSERVATIONS AND RESULTS

In our study group, we found 27% had chronic prostatitis, 5% had Ca Prostate and 68% had BPH.

The mean age of cases with BPH, BPH + CP, and CaP type of diagnosis was 67.8 years, 70.6 years, and 65.8 years respectively. Dysuria was found in 31%in group A, 44% in Group B, and 20% in group C. Of 68 cases with BPH, 21 (31.0%) had dysuria, out of 27 cases with BPH + CP; 12 (44.0%) had dysuria and out of 5 cases with CaP; 1 (20.0%) had dysuria. Of 68 cases with BPH, 16 (23.5%) had grade 1, 52 (76.5%) had grade 2 and none had grade 3 DRE. Of 27 cases with BPH + CP, 1 (3.7%) had grade 1, 14 (51.9%) had grade 2 and 12 (44.4%) had grade 3 DRE. Of 5 cases with CaP, 1 (20.0%) had grade 1, 4 (80.0%) had grade 2 and none had grade 3 DRE. Showing more prevalence of ch prostatitis in larger glands. Similar findings were observed when compared on abdominal and Transrectal ultrasonography with mean prostate volume among the cases with BPH, BPH + CP, and CaP type of diagnosis was 42.93, 66.63, and 37.20 cc respectively.in our study, we also found the mean IPPS score among BPH, BPH + CP, and CaP was 24.6, 26.6, and 20.6 respectively, with the higher score in the BPH+CP group as compared to BPH and CaP groups as shown in table 1.

Table 1

	BPH (Group A)	BPH + CP (Group B)	CaP (Group C)
Mean age(years)	67.8	70.6	65.8
DRE			
GRADE 1	16(23.5%)	1 (3.7%)	1(20%)
GRADE 2	52(76.5%)	14(51.9%)	4 (80%)
GRADE 3	0	12 (44.4%)	0
Mean TRUS PV (cc)	42.93	66.63	37.20
Mean IPSS	24.6	26.6	20.6

The mean sr PSA among the cases with BPH, BPH + CP, and CaP was 2.19, 9.52, and 14.10 respectively. The mean sr PSA of cases studied differs significantly across three groups (P-value<0.05) with the finding of chronic prostatitis within the grey zone of PSA levels (4-10). Similarly, the mean PSAD among the cases with BPH, BPH + CP, and CaP type of diagnosis was 0.0491, 0.143, and 0.384 respectively. The distribution of mean PSAD of cases studied differs significantly across three groups. (P-value<0.05). Shows higher PSAD levels in cases with chronic prostatitis in comparison to cases with BPH but much lesser levels in comparison to CaP, as in table 2

Table 2

	BPH (Group A)	BPH+CP (Group B)	CaP (Group C)
Mean S. PSA	2.19	9.52	14.10
Mean PSAD	0.049	0.143	0.38

DISCUSSION

This study was conducted with the primary aim to find the prevalence of prostatitis among the patients presenting with lower urinary tract symptoms. A total of 100 patients with Lower urinary tract symptoms undergoing transurethral resection of the prostate (TURP) or TRUS Biopsy were included.

Out of 100 patients recruited there were 68% of patients suffered benign prostatic hyperplasia, 5% had prostate cancer and 27% were having both i.e. chronic prostatitis and benign prostate hyperplasia. The various other studies have reported the prevalence of prostatitis among the different populations, the prevalence of CaP ranged between 18 to 65%, BPH between 50 to 82%, and that of chronic prostatitis between 2.9 to 78%, with very wide variation in the prevalence. In our study, we found Ch prostatitis in 27% of patients which was comparable to Shtricker A et al who found among 65(48.1%) patients who underwent prostate biopsy chronic inflammation (based on massive lymphocyte infiltration or giant cell granuloma) was noted in 13 (20%) patients[7]. Also, Lee SO et al found the prevalence of ch prostatitis in 15.7% of their patients undergoing TRUS guided prostatic biopsies[8]. The mean age in study by piovesan AC et al was 67 ± 4.3 years compared to our study[4].

Similar to our study, Kumar S et al reported that the mean IPPS score in patients with prostatitis was numerically but not significantly higher than that in those without prostatitis[9]. Similarly, Urkmez A et al also noted significantly higher IPSS scores among histologically diagnosed prostatitis patients when compared with that of the BPH group. In our study, we found the mean prostate volume of 65.44 cc which was much higher than the BPH and Ca prostate group[10]. This was similarly, reported by Chung JH et al who found, the prevalence of chronic prostatitis was statistically significant for any level of prostate volume over 50 ml.

In a study by Piovesan AC et al out of 183 patients who underwent surgical treatment for BPH due to obstructive or irritative symptoms, histological evidence of prostatitis was observed in 145 patients, the PSA level was within the normal range in this group with a mean value of 5.1 ± 2.5. Lee SO et al demonstrated the PSA levels of chronic inflammation patients to be 9.93 ± 4.73 ng/ml, which was similar to our study[8]. Ghafoori M et al reported a significant difference in the level of PSA density with mean values of 0.83 ± 1.01 and 0.24 ± 0.32 in patients with CaP and without CaP respectively[11]. In our study we found to study the mean PSAD among the cases with BPH was 0.049, while in BPH + CP and CaP was 00.143 and 0.384 ng/ml/cm3 respectively, the PSAD was found to be significantly higher values in patients with CaP than BPH and BPH+CP. The PSA density was 7.82 times higher in CaP than BPH patients, 2.91 times higher in BPH+CP than BPH, and 2.69 times high in CaP than BPH+CP patients.

CONCLUSION

The present study found the prevalence of BPH to be 68%, Chronic prostatitis 27%, and Ca Prostate 5% among the patients with symptoms of LUTS, the mean PSA levels in patients with Ch prostatitis as 9.52 and PSAD levels 0.143ng/ml. Hence all patients presenting with LUTS with PSA in the grey zone i.e 4-10 should be considered with the possibility of ch prostatitis and hence should be evaluated further before forwarding for prostatic biopsy.

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