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The relevance of Chronic Prostatitis Histology in Transrectal prostatic biopsy: A hospital-based retrospective study in Patna

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Abstract
Objective: *There was a link among Level of prostate cancer (PCa), symptoms of lower urinary tract and chronic prostatitis (CP) histology, despite there was uncertainty with this clinical meaning. We pursue a retrospective analysis of existing patient's data at a Patna based hospital to establish the link between diagnosis of PCa and role of CP.*
Methods: *Hospital database were used to fetch required data for patients who had undergoing prostate biopsy with all histological findings of chronic prostatitis from April 2015 to March 2019. Patients were categorised on basis of Without Chronic Prostatitis and With Chronic Prostatitis. Using univariate and multivariate analyses association between CP and PCa diagnosis was determined.*
Result: *657 patients were selected whose average mean age was 68 ± 8.23 years with PSA level of 8.8±1.1 ng/ml. Entire population were categorised on basis of Without Chronic Prostatitis (N=255) and With Chronic Prostatitis (N=402). Between group's difference of IPSS score, age, prophylactic antibiotic use, PSA, transurethral catheter at biopsy or infectious complications, alpha-blocker or 5-α-reductase inhibitor therapy and comorbidities were statistically insignificant, whereas number of cores taken, cancer diagnosis, prostate volume, suspicious digital prostate exam, previous biopsy and hospitalizations and Gleason score >=7 differences were found the be statistically significant. Protective effect between CP and diagnosis of PCa was shown by a multivariate analysis model (HR 0.14, p= <0.01).*
Conclusion: *This observation suggest that PCa diagnosis is inversely related to histological finding of CP.*
Keywords: *Prostate Biopsy; Chronic Prostatitis, Prostate Cancer.*

Introduction

When prostate-specific antigen (PSA) level rises above 4 ng/ml in male patients they has been recommended for prostatic biopsy after an assessment of life expectancy, co-morbidity and a detailed discussion regarding the implications of a biopsy and its result[1]. Data from prostate cancer prevention trial reviles that there was no normal in PSA level and there was always high risk of prostate cancer development chance with an existing PSA level[2].

The National Institutes of Health Classification System for prostatitis classified prostatitis in four category which are category I (acute bacterial prostatitis), category II (chronic bacterial prostatitis), category III (chronic prostatitis/ chronic pelvic pain syndrome - CP/CPPS) and category IV asymptomatic inflammatory prostatitis [3, 4]. The evaluation of a patient with category I and category II bacterial prostatitis consists of history and physical examination and urine culture for lower urinary tract localization cultures, respectively[5]. The various investigative procedures used in clinical, laboratory, and imaging evaluations for the patient presenting with chronic pelvic pain are discussed and categorized as mandatory, recommended, or optional procedures[6]. These categories primarily serve to rule out underlying pathology because there is no diagnostic test for chronic prostatitis/chronic pelvic pain syndrome (CPPS) [7].

There was a link among Level of prostate cancer (PCa), symptoms of lower urinary tract and chronic prostatitis (CP) histology, despite there was uncertainty with this clinical meaning. We pursue a retrospective analysis of existing patient's data at a Patna based hospital to establish the link between diagnosis of PCa and role of CP.

Methods

Hospital database were used to fetch required data for patients who had undergoing prostate biopsy with all histological findings of chronic prostatitis from April 2015 to March 2019. Patients were categorised on basis of Without Chronic Prostatitis and With Chronic Prostatitis. Procedure technique and antibiotic prophylaxis which was followed and persuade was reported at early by several time[8,9]. CP was defined as "Category IV" according to the NIH classification of prostatitis syndromes (asymptomatic inflammatory prostatitis). Using univariate and multivariate analyses association between CP and PCa diagnosis was determined. Value was consider as statistically significant when $p<0.05$. Statistical analysis was made with the aid of SPSS® v. 17.0 (IBM®, New York) program.

Result

657 patients were selected whose average mean age was 68 ± 8.23 years with PSA level of 8.8±1.1 ng/ml. Entire population were categorised on basis of Without Chronic Prostatitis (N=255) and With Chronic Prostatitis (N=402). Table 1 describes all the clinical characteristics. Except for number of previous biopsies (p=0.04) and previous hospital admissions (p=0.01), there were no differences.

Table 1: Clinical characteristics

Characteristics.	Without Chronic Prostatitis (n=255)	With Chronic Prostatitis (n=402)	p value
Age, years	68 ± 8.28	68 ± 8.21	0.96
PSA, ng/dl	8.5±1.1	8.9±1.1	0.49
PIPSS, total	7.8 ± 6.0	8.6 ± 5.5	0.34
LUTS therapy (alpha-blockers)			
Yes	159	269	0.83
No	93	129	
Unknown	3	4	
LUTS therapy (5-ARI)			
Yes	18	26	0.54
No	235	372	
Unknown	2	4	
Transurethral catheter at prostate biopsy			
Yes	13	29	0.67
No	239	368	
Unknown	3	5	
Hospitalization 1 month before prostate biopsy			
Yes	33	33	0.01
No	219	365	
Unknown	3	3	
Previous biopsies number			
Yes	206	294	0.04
No	46	105	
Unknown	3	3	

Procedure characteristics including histological information and indications for TRPB were summarized in table 2 & 3, respectively.

Table 2

Characteristics.	Without Chronic Prostatitis (n=255)	With Chronic Prostatitis (n=402)	p value
PCa diagnosis			
Yes	147	62	<0.01
No	108	340	
Gleason score ≥ 7			
<7	104	49	0.21
≥7	40	12	
Unknown	3	1	
Atrophy			
Yes	79	265	<0.01
No	176	137	
Hyperplasia			
Yes	145	390	<0.01
No	110	12	
PIN/ASAP			
Yes	18	12	0.16
No	237	390	

PCa: Prostate Cancer; PIN: Prostatic Intraepithelial Neoplasia; ASAP: Atypical Small Acinar Proliferation of the prostate

Table 3: Procedure characteristics

Characteristics.	Without Chronic Prostatitis (n=255)	With Chronic Prostatitis (n=402)	p value
Number of cores taken	13.9 ± 3.5	15 ± 3.6	<0.01
Prostatic volume, cm3	48.2 ± 31.6	53.7 ± 27.3	0.05
Antibiotic prophylaxis			
Piperacillin/ tazobactam	236	376	0.81
Others	16	22	
Unknown	3	4	
DRE suspicious of malignancy			
Yes	93	100	0.02
No	159	298	
Unknown	3	4	
Early infectious complications*			
Yes			0.46
No	231		
Unknown	1	0	

(± SD): Standard Deviation; DRE: Digital Rectal Examination.
* Includes positive urine cultures or acute prostatitis or clinical urinary tract infection

Between group's difference of IPSS score, age, prophylactic antibiotic use, PSA, transurethral catheter at biopsy or infectious complications, alpha-blocker or 5-α-reductase inhibitor therapy and comorbidities were statistically insignificant, whereas number of cores taken, cancer diagnosis, prostate volume, suspicious digital prostate exam, previous biopsy and hospitalizations and Gleason score >=7 differences were found the be statistically significant. Protective effect between CP and diagnosis of PCa was shown by a multivariate analysis model (HR 0.14, p= <0.01).

Discussion

Prostate cancer remains a major concern of public health. Tremendous mortality, morbidity and economic costs are associated with palliation of the disease, screening, treatment[10,11]. Aetiological factors that initiate and enhance the progression of this malignancy are beginning to emerge, with strong evidence that chronic inflammation and uncontrolled cell proliferation within the prostate are linked to initiation and neoplastic conversion[12]. This evidence suggests that dietary strategies targeting inflammation and proliferation would be effective in limiting CaP development[13 -16]. We are often confronted with the association of abnormal PSA levels and biopsies that reveal no PC but only inflammation. The ratio of free-to-total PSA, calculated as percentage of fPSA, has been suggested as a useful tool for differentiating between PC and BPH, because the ratio is lower in PC than in BPH[17].

A recent meta-analysis had confirm that stromal prostatic tissue release of cytokines which can develop prostatic hyperplasia with subsequent neo-vascularization [15]. This study found a clear association between BPH development, chronic prostatic inflammation and increasing LUTS severity. Furthermore it can be concluded the chronic inflammation can predict the intensity of the medical therapy received by BPH patients. Lower frequency of PCa was also found in patients with histological chronic prostatitis in this

study. This may be related with higher prostate size and higher frequency of prostatic hyperplasia both well-known factors associated with lower incidence of PCa. This study includes all patients who underwent a prostatic biopsy irrespective of the decision-making matrix for the individual patient. Hence, this study is a snapshot analysis of Indian patients undergoing prostatic biopsy in clinical practice at a tertiary care hospital.

Conclusion

This observation suggest that PCa diagnosis is inversely related to histological finding of CP. Histological CP could be associated to other pathological findings in TRPB.

Disclosure

The author has no potential conflicts of interest to disclose.

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