



Prostatitis in Benign Prostatic Hyperplasia (BPH) patients in Sanglah general hospital, Denpasar

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ABSTRACT

Most of prostatitis cases in BPH are underdiagnosed, due to asymptomatic prostatitis or overlapping symptoms. Therefore, prostatitis usually found by chance from histologic finding of prostate tissue specimens. A retrospective descriptive study, all BPH patients who underwent TURP or open prostatectomy at Sanglah General Hospital from January-December 2014. Data was collected from medical records, prostatitis was determined by histological examination. Out of total 93 BPH patients who underwent

TURP or open prostatectomy, 78 (86.7%) revealed chronic prostatitis, 3 samples were missing. Mean of age was 66.9 years, median of PSA level was 9.41 ng/ml, and median of prostate volume was 48.36 ml, 34% had history of urine catheter insertion for 30 days or more, 56.8% with bacteriuria, and 25% with obesity. Chronic prostatitis frequently presents in men with BPH. This condition needs further study to elucidate whether it provides a better information for BPH management.

Keywords: *Benign Prostatic Hyperplasia (BPH), prostatitis, chronic prostatitis, prostate inflammation*

Cite This Article: Lesmana, R., Duarsa, G.W.K. 2018. Prostatitis in Benign Prostatic Hyperplasia (BPH) patients in Sanglah general hospital, Denpasar. *Medicina* 49(1): 14-16. DOI:10.15562/medi.v49i1.253

Prostatitis pada pasien hiperplasia prostat jinak di rumah sakit umum pusat Sanglah, Denpasar

ABSTRAK

Prostatitis pada hiperplasia prostat jinak atau *Benign Prostatic Hyperplasia (BPH)* seringkali tidak terdiagnosa, dikarenakan banyaknya prostatitis asimtomatik atau gejala yang tumpang tindih dengan BPH. Seringkali diabaikan, prostatitis biasanya ditemukan secara tidak sengaja pada pemeriksaan histopatologi dari spesimen jaringan prostat. Penelitian deskriptif retrospektif pada semua pasien BPH yang dilakukan *Transurethral Resection of the Prostate (TURP)* maupun prostatektomi terbuka di Rumah Sakit Umum Pusat Sanglah bulan Januari-Desember 2014. Data diambil dari rekam medis, prostatitis

ditentukan dari pemeriksaan histopatologi. Terdapat 93 pasien BPH yang dilakukan TURP atau prostatektomi terbuka, 78 (86.7%) didapatkan dengan prostatitis kronis dan 3 hasil histopatologi hilang. Rata-rata usia 66.9 tahun, median PSA 9.41 ng/ml, dan median volume prostat 48.36 ml, 34% dengan riwayat pemakaian kateter urin selama 30 hari atau lebih, 56.8% dengan bakteriuria, dan 25% dengan obesitas. Prostatitis kronis terjadi pada banyak laki-laki dengan BPH. Kondisi ini memerlukan penelitian lebih lanjut untuk penatalaksanaan BPH yang lebih baik.

Kata kunci: *Benign Prostatic Hyperplasia (BPH), prostatitis, prostatitis kronis, inflamasi prostat*

Cite Pasal Ini: Lesmana, R., Duarsa, G.W.K. 2018. Prostatitis pada pasien hiperplasia prostat jinak di rumah sakit umum pusat Sanglah, Denpasar. *Medicina* 49(1): 14-16. DOI:10.15562/medi.v49i1.253

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Diterima : 2017-12-27
Disetujui : 2018-01-13

INTRODUCTION

Benign Prostatic Hyperplasia (BPH) is a common degenerative condition in men from all over the world. Although BPH is generally not a life threatening condition, symptoms or complication could significantly affect quality of life. Histologically, 20% men of age 41-50 had BPH, 50% in the age of 51-60 years, and >90% above the age of 80 years.¹ In 45-80 years old men with BPH, 90% have Lower Urinary Tract Symptoms (LUTS).²

The purpose of this study is to find out the prevalence of concomitant prostatitis in BPH, along with the characteristics. The role of inflammation has been suggested as the pathogenesis of BPH in 1937, and now BPH is hypothesized as an immune-mediated inflammatory disease.³ Inflammation process stimulates tissue destruction, growth factor released, increases cellular proliferation and differentiation, and leads to prostate

hyperplasia.³ Therefore, prostatitis frequently occurred in BPH, but frequently undiagnosed and tended to be ignored. It is frequently found unintentionally by the histopathological examination after the prostate resection. This may be caused by the overlapping symptoms between BPH and prostatitis that makes it difficult to determine whether the symptoms are caused by BPH or by prostatitis or both,⁴ in addition, not all prostatitis is symptomatic. According to the National Institute of Health (NIH) classification, prostatitis category IV is asymptomatic prostatitis and only diagnosed by biopsy. Prostatitis category IV was found on 45-98% of resected prostate specimens.⁵

MATERIALS AND METHODS

This is a descriptive study, which recorded 102 men who were diagnosed with BPH and underwent open prostatectomy or Transurethral Resection of the Prostate (TURP) in Sanglah Hospital, Denpasar, Indonesia between January and December 2014. From histologic examinations, it was found that 9 were malignant, 3 histologic specimens were missing, and 90 were eligible to be evaluated.

Retrieved from medical records were age, body mass index, duration of preoperative urinary catheter usage, concomitant bacteriuria, preoperative serum total PSA levels, and prostate volume. PSA was defined as total Prostate Specific Antigen in serum taken preoperatively, with normal value was 0-4 ng/ml. Prostate volume was measured by transabdominal ultrasound, normal volume was up to 20-30 ml. Bacteriuria was defined as existence of pathogen bacteria in urine with symptoms or inflammation response, determined by midstream urine culture with bacterial count $\geq 10^5$ Colony Forming Unit (CFU). Catheter duration was defined as duration of urine catheter usage before subjects underwent TURP. Urine catheter usage <30 days was categorized as short term usage, and ≥ 30 days was categorized as long term usage. Obesity was defined as body mass index >25 kg/m², which derived from body weight (kg) divided by squared of height (m²).

RESULTS

There were 90 men with BPH who underwent either open prostatectomy or TURP in Sanglah Hospital, Denpasar, Indonesia. Among those 90 men with BPH, 78 (86.7%) showed chronic prostatitis based on histological examinations. Age distribution was normal based on Shapiro-Wilk normality test. Mean age was 66.9 ± 7.6 years, minimum age was 52 years and maximum was 91 years.

Table 1 Characteristic of Men With Concomitant BPH and Prostatitis

Characteristics	N (%)
PSA, median (IQR) (ng/ml)	9.41 (14.66)
min-max (ng/ml)	0.24-93.71
Prostate volume, median (IQR) (ml)	48.36 (39.22)
min-max (ml)	13.6-150.38
Bacteriuria	
No	19 (43.2)
Yes	25 (56.8)
Catheter duration	
<30 days	33 (66.0)
≥ 30 days	17 (34.0)
Obesity	
No	39 (75.0)
Yes	13 (25.0)

Characteristics of men with concomitant BPH and prostatitis is shown in Table 2. Median of PSA levels was 9.41 ng/ml, and median of prostate volume was 48.36 ml. 34% had history of urine catheter insertion for 30 days or more, 56.8% with bacteriuria, and 25% with obesity (Table 1).

DISCUSSION

Prostate inflammation is a challenge for health care provider these days, due to unclear etiology and wide variety of symptoms, from asymptomatic to chronic pelvic pain.⁶ Data that we collected in Sanglah Hospital, Denpasar from January until December 2014, from 102 men with BPH, 78 (86.7%) were with prostatitis based on histopathological examination. This number is slightly higher than Piovesan's study, 78% within 145 men with BPH,⁶ and also a study from Nickel who showed 77% prostatitis in men with BPH.⁷

There are several conditions that have been proposed as risk factors for prostatitis. In this research, we put urinary catheter usage, bacteriuria, and obesity as controlled variables. Referencing to Infectious Diseases Society of America Guidelines and review from Nicolle et al (2014), short term urinary catheterization is less than 30 days, and long term urinary catheterization is 30 days or more.^{8,9} Jayakumar et al (2011) stated that 80% patients with bacteriuria were correlated with urinary catheter.¹⁰ We consider this since men with BPH frequently had urine retention and catheterization. In our study, there was 17 out of 50 (34%) subjects with urinary catheter 30 days or more, and there were 25 out of 44 (56.8%) with bacteriuria.

Obesity has been known related to metabolic syndrome, and both correlated with systemic inflammation.¹¹ It was stated that obesity may stimulate the increase of proinflammatory substances.¹² In our study, subjects 13 out of 52 (25%) were with obesity. A study from Wu et al (2013) investigated correlation between obesity and prostatitis with results OR=1,1 but statistically not significant (p=0,55).¹³

Prostatitis is a non-malignant condition that most diagnosed in patients with elevating PSA.¹⁴ PSA was hypothesized as a self antigen that stimulates inflammation process in the prostate. There was a proliferative reaction on CD4-T cell when inserted with seminal plasma, where the antigens were from prostate tissue.¹⁵ Hou et al (2009) inserted protein expression or extract from prostate to mice, and found that there was a specific immune response to that antigen, that led to prostatitis-like conditions due to lymphoid infiltration.¹⁴ They also found the specific protein in prostate, which was seminal vesicle secretory 2 (SVS2), that induced the CD4- T cell reaction and spontaneously form an antibody then caused prostatitis.

Inflammation has a positive correlative with elevating PSA.¹⁶ We found that median PSA level of men with concomitant BPH and prostatitis was 9.41. Several studies have been done to examine correlation between PSA and prostatitis. Brawn (1991), concluded that prostate inflammation caused serum PSA elevation, Irani (1997) showed a correlation between prostate inflammation aggressiveness with PSA elevation, Kandirali (2007) modified grading method from Irani, and demonstrated an association between the extent and the aggressiveness grade of prostatic inflammation in asymptomatic patients and increased PSA levels and PSA density and decreased percentage of free PSA.¹⁶

CONCLUSION

Chronic prostatitis was frequently found in men with BPH. The asymptomatic or overlapping symptoms may contribute to underdiagnosis and negligence. This condition needs further study to evaluate factors which may produce better management outcome.

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