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Research Article

The prediction of Prostate Cancer Based on Normal Digital Rectal Examination and Normal Prostate Specific Antigen in Clinical Benign Prostate Hyperplasia

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Abstract:

Purpose: To evaluate the prediction of prostate cancer based on normal digital examination (DRE) and normal prostate specific antigen (PSA) in clinical Benign Prostate Hyperplasia.

Materials and Methods: We reviewed medical records of prostate cancer in prostate enlargement patients with urinary retension underwent transurethral resection of the prostate (TURP) based on normal DRE, and normal PSA in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province, Indonesia in January 2010 – Desember 2016. Statistical analysis of univariate was used. Approval on the study was obtained from the Ethical Review Board for Medicine and Health Research, Medical Faculty, University of Riau.

Results: There were 644 prostate enlargement patients with urinary retension underwent TURP) in this study in which mostly (51%) in 60-69 year age group, Most (69.7%) DRE were normal and PSA levels of ≤ 4 ng/ml were in 122 (19%) patients. There were 19 (18.5%) prostate cancer in patients with normal DRE and PSA.

Conclusion: We found there were 19 (18.5%) prostate cancers in prostate enlargement patients with normal DRE and PSA findings as the prediction.

Keywords: Prediction, Rectal Toucher, Prostate Specific Antigen, Transurethral Resection of the Prostate, Prostate Cancer

INTRODUCTION

Prostate cancer is a prostate gland malignant tumor suffering men over 50 year in which 75% were found in 80 year old men and 30% in 70 year old men [1]. Prosate cancer was the second most malignancy in men after lung cancer [2]. In 2004 in The United States of America 230.110 prostate cancer patients were found. Prostate cancer was often found in Afro-America and the black skin was more than the white one [1]. Prostate cancer in Indonesia was the the most malignancy in urology clinic and 2006-2010 there were 971 cases [4]. A study by Yuwinanda (2008) din Arifin Achmad Regional General Hospital Pekanbaru Riau Province, prostat cancer was the third malignancy of 12 malignancies in urology [4].

High incidence of prostate cancer cases in Indonesia indicated the demand of diagnostic and prognostic parameters of prostate cancer such as yaitu Prostate Specific Antigent (PSA) (5). PSA is a marker of malignancy process correlating positively to prostate cancer [6]. PSA role in prostate enlargement is improving sel tumor cell proliferation through the function as coactivator for increasing Androgen Reseptor (AR) in which highly influencing on the prostate growth. The increase of serum PSA level has become an important marker of several prostat diseases is not only found in prostate cancer but can also found in Benign Prostate Hyperplasia (BPH) [7].

Benign Prostate Hyperplasia is a prostate enlargement in which can cause posterior urethral narrowing adalah penyakit pembesaran prostat yang dapat menyebabkan penyempitan urethra posterior [1]. Although it seldom cause life threatening, BPH symptoms result in disturbance of daily activities, and the prostate enlargement process occurs slowly. Transurethral Resection of the Prostate (TURP) is a most effective and gold standart management of indicated BPH [8]. The success rate of TURP in overcoming the clinical symptoms due to BPH was 88% [9].

Many studies on PSA levels of prostate before TURP had been published. Study on normal digital rectal and normal PSA level in clinical BPH patients underwent and in fact the histopathology findings were prostate cancer had been published yet. That was why, according to the above data we aimed to conduct a study on evaluating the prediction of prostate cancer based on and normal PSA) in clinical Benign Prostate Hyperplasia.

MATERIALS AND METHODS

We reviewed medical records of prostate cancer in prostate enlargement patients with urinary retension underwent TURP based on normal DRE, and normal PSA in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province, Indonesia in January 2010 – Desember 2016. Statistical analysis of univariate was used. Approval on the study was

obtained from the Ethical Review Board for Medicine and Health Research, Medical Faculty, University of Riau.

RESULT

There were 644 prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province fulfilled the inclusion criteria during seven year in January 2010 - December 2016.

DISCUSSION

There were 644 prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province fulfilled the inclusion criteria during seven year in January 2010 - December 2016. This study showed that the most age group of prostate enlargement cases with urinary retension was 60-69 year namely 21 (50%) patients while the less one were 40-49 year and ≥ 80 year namely 31 (4.8%) patient (See in Table 1). Some studies PCa occurred in younger patients (< 60 years) and to dissipate in older groups (>70 years)

Table 1. Frequency distribution of age in prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province in January 2010 - December 2016.

Age (year)	Frequency (N)	Percentage (%)
40-49	31	4.8
50-59	122	19.0
60-69	322	50.0
70-79	138	21.4
≥ 80	31	4.8
Total	**644**	**100**

This study showed DRE findings in prostate enlargement patients with urinary retension before TURP were mostly normal namely 441 (69.7%) patients while the less one abnormal namely 197 (30.6%) patients (See in Table 2).

Table 2. Frequency distribution of digital rectal examination (DRE) in prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province in January 2010 - December 2016.

DRE	Frequency (N)	Percentage (%)
Normal	447	69.7
Abnormal	197	30.6
Total	644	100

This study showed that in prostate enlargement patients with urinary retension before TURP, PSA levels were mostly 4.1 - 10 ng/ml namely 291 (45.2%) patients followed by > 20 ng/ml namely 184 (28.6%) patients and ≤ 4 ng/ml namly 122 (19%) pasien (See in Table 3).

Table 3. Frequency distribution of PSA levels in prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province in January 2010 - December 2016.

PSA (ng/ml)	Frequency (N)	Percentage (%)
≤ 2	61	9.5
2.1-4	61	9.5
4.1-10	291	4.2
10.1-20	46	7.1
> 20	184	28.6
Total	**644**	**100**

This study showed histopathology findings in prostate enlargement patients with urinary retension underwent TURP were mostly BPH namely 541 (84%) patients while PCa were 103 (16%) patients (See in Table 4).

Table 4. Frequency distribution of histopathology in prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province in January 2010 - December 2016.

Histopathology	Frequency (N)	Percentage (%)
BPH	541	84.0
Carsinoma Prostat	103	16.0
Total	**644**	**100**

This study showed bone scan findings in in prostate enlargement patients with urinary retension underwent TURP were mostly negative metastasis namely 59 (57.3%) patients while positive metastasis namely 44 (47.7) patients (See in Table 5).

Table 5. Frequency distribution of bone scan findings in prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province in January 2010 - December 2016.

Bone Scan findings	requency (N)	Percentage (%)
Metastasis (-)	9	57.3
Metastasis (+)	4	47.7
Total	)3	100

This study showed PCa stages in prostate enlargement patients with urinary retension underwent TURP were mostly local stage namely 59 (57.3%) patients while anvanced stage namely 44 (47.7%) patients (See in Table 6).

Table 6. Frequency distribution prostate cancer (PCa) stage in prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province in January 2010 -

December 2016.

CaP	Frequency (N)	Percentage (%)
Local stage	59	59.5
Advanced stage	44	40.5
Jumlah	**103**	**100**

This study showed CaP in clinical BPH without PCa signs in prostate enlargement patients with urinary retension underwent TURP were PCa in which were clinical PCa before TURP namely 84 (81.5%) patients while PCa in which clinical BPH before TURP namely 19 (**18,5%**) patients, and this was prediction **of PCa in clinical BPH TURP** (See in Table 7). This prediction was higher than the one of a study by Thomson (2004) namely 15.2% [11].

Table 7. Frequency distribution of PCa in clinical BPH without clinical PCa in prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province in January 2010 - December 2016.

CaP	Frequency (N)	Percentage (%)
Clincal BPH before TURP	19	18.5
Clinical CaP before TURP	84	81.5
Jumlah	**103**	**100**

This study showed PCa stages in clinical BPH without signs of PCa in prostate enlargement patients with urinary retension underwent TURP were PCa which were clinical PCa before TURP mostly the advanced stage namely 15 (79%) patients while PCa which were clinical BPH before TURP were lesser namely local stage in 4 (21%) patients (See in Table 8).

Table 8. Frequency distrbution of PCa stage in clinical BPH without clinical PCa in prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province in January 2010 - December 2016.

CaP dg BPH Klinis	Frekuensi (N)	Persentase (%)
Local stage	4	21
Advanced stage	15	79
Jumlah	**19**	**100**

This study showed local stage CaP in clinical BPH without signs of PCa of all CaP in prostate enlargement patients with urinary retension underwent TURP mostly local stage PCa in clinical BPH without signs of PCa namely 15 (25.4%) patients while local stage PCa in clinical PCa merely 44 (74.6%) patient of all PCa in prostate enlargement patients with urinary retension underwent TURP (See in Table 9).

Table 9. Frequency distribution of local stage PCa in clinical BPH without PCa of all PCa in prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province in January 2010 - December 2016.

PCa	Frequensi (N)	Percentage (%)
Local stage in clinical BPH before TURP	15	25.4
Local stage in clinical PCa before TURP	44	74.6
Jumlah	**59**	**100**

This study showed advanced stage PCa in clinical BPH without signs of PCa of all PCa in prostate enlargement patients with urinary retension underwent TURP mostly local stage PCa in clinical BPH without signs of PCa namely 4 (9.1%) patients while local stage PCa in clinical PCa merely 40 (90.9%) patient of all PCa in prostate enlargement patients with urinary retension underwent TURP (See in Table 10).

Table 10. Frequency distribution of advanced stage PCa in clinical BPH without PCa of all PCa in prostate enlargement with urinary retension patients underwent TURP in Arifin Achmad Regional General Hospital, Pekanbaru, Riau Province in January 2010 - December 2016.

PCa	Frequency (N)	Percentage (%)
Advance stage in clinical BPH before TURP	4	9.1
Advanced stage in clinical CaP before TURP	40	90.9
Jumlah	**44**	**100**

CONCLUSION

Prostate cancer prediction in clinical BPH before TURP were 19 (18.5%) patients in which 15 (25.4%) patients were in local stage and 4 (9.1%) patients were in advanced stage

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