



## Prostate cancer profile in Dr. Sardjito General Hospital Yogyakarta: 5<sup>th</sup> years study

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### ABSTRACT

In Indonesia, there are no definite data, but Globocan shows prostate cancer in 5th place in Indonesia in 2018. The aim of this study is to provide in updating database of prostate cancer profile in tertiary hospital in Indonesia. Retrospectively investigated 90 prostate cancer patients at the Sardjito General Hospital Yogyakarta were under follow-up treatment from 2015 to 2020. The medical record was reviewed to find data for the patient's age, gender, prostate volume, PSA total, testosterone level, hydronephrosis, method of diagnosis, histopathology results, Gleason Scores, ISUP Grade, and Staging TNM. From a total 90 subjects, showed an average age of 67 years (SD=10.4). The level of prostate volume (TAUS), most subjects were >30 cm<sup>3</sup> with 73 subjects (81.4%). Of the total subjects, the median of total PSA value for diagnosis is 234.4 (94.4 – 1720.3) ng/mL with the median of total testosterone value at diagnosis is 317 (10 - 384) ng/dL. An equal between biopsy and TURP were used in method of diagnosis and histologic finding consisting of Adenocarcinoma were found in 88 subjects (97.8%) with Gleason score > 7 in 69 subject (69.6%) and ISUP Grade 5 in 59 subject (65.6%). The staging T1c was found in 43 subjects (47.8%) and M staging with metastasis stage was found in 55 subjects (61.1%). In contrast with developed country, this study shows that most Indonesian prostate cancer patients are diagnosed in metastatic stage with higher PSA level and ISUP grade. Further encouragement in prostate cancer screening for men with symptoms or risk factor should be considered to find more cases in lower stages for better prognosis and survival rate.

### ABSTRAK

Di Indonesia belum ada data yang pasti, namun Globocan menunjukkan kanker prostat menempati urutan ke-5 di Indonesia pada tahun 2018. Tujuan dari penelitian ini adalah untuk menyediakan dalam pemutakhiran database profil kanker prostat di rumah sakit tersier di Indonesia. Diselidiki secara retrospektif 90 pasien kanker prostat di RSUD Sardjito Yogyakarta menjalani perawatan lanjutan dari 2015 hingga 2020. Rekam medis ditinjau untuk menemukan data usia pasien, jenis kelamin, volume prostat, total PSA, kadar testosteron, hidronefrosis, metode diagnosis, hasil histopatologi, Gleason Score, ISUP Grade, dan Staging TNM. Dari total 90 subjek, menunjukkan usia rata-rata 67 tahun (SD=10.4). Tingkat volume prostat (TAUS), sebagian besar subjek >30 cm<sup>3</sup> dengan 73 subjek (81,4%). Dari total subjek, median nilai PSA total untuk diagnosis adalah 234,4 (94,4 – 1720,3) ng/mL dengan median nilai total testosteron saat diagnosis adalah 317 (10 - 384) ng/dL. Kesamaan antara biopsi dan TURP digunakan dalam metode diagnosis dan temuan histologis yang terdiri dari Adenokarsinoma ditemukan pada 88 subjek (97,8%) dengan skor Gleason > 7 pada 69 subjek (69,6%) dan ISUP Grade 5 pada 59 subjek (65,6%). Stadium T1c ditemukan pada 43 subjek (47,8%) dan stadium M dengan stadium metastasis ditemukan pada 55 subjek (61,1%). Berbeda dengan negara maju, penelitian ini menunjukkan bahwa sebagian besar penderita kanker prostat di Indonesia terdiagnosis pada stadium metastatik dengan kadar PSA dan derajat ISUP yang lebih tinggi. Dorongan lebih lanjut dalam skrining kanker prostat untuk pria dengan gejala atau faktor risiko harus dipertimbangkan untuk menemukan lebih banyak kasus pada stadium yang lebih rendah untuk prognosis dan tingkat kelangsungan hidup yang lebih baik.

### Keywords:

Prostate Cancer;  
Indonesia;  
TNM Staging;

## **INTRODUCTION**

Prostate cancer is currently the most commonly diagnosed cancer in 105 countries. It is the fourth most common type of non-skin malignancy (7.1%) in male malignancies, the second most common malignancy in males worldwide.<sup>1</sup> In 2018, 1.3 million new cases of prostate cancer and 359,000 related deaths worldwide were reported. With rapid population growth and aging worldwide, this cancer is the 5<sup>th</sup> leading cause of death in men.<sup>1</sup> Early diagnosis and early treatment of prostate cancer have been associated with reduced mortality rates in many countries, including the United States, North America, Oceania, Northern, and Western Europe as well as in developing countries in Asia.<sup>2-5</sup>

The incidence and mortality of cancer are increasing rapidly throughout the world as diagnostic tools advance. As one of the diagnostic methods of choice, the prostate-specific antigen (PSA) is a member of the kallikrein gene family. It is also known as the androgen-dependent hK3 (human kallikrein 3).<sup>6-9</sup> Screening for PSA in prostate cancer cases has reduced the death rate of prostate cancer by more than 40%, as well as the 75% decrease in the number of advanced cases since diagnosis in the United States.<sup>10</sup>

In Indonesia, there are no definite data, let alone in testosterone level or tumor burden data although Globocan reported that prostate cancer in the 5<sup>th</sup> place in Indonesia in 2018.<sup>1,11</sup> Based on 2011 data from the Indonesian Urological Oncology Society (ISUO) during the 2006-2010 period, 971 patients were diagnosed with prostate cancer. The mean age was 68.3 years, mostly (37.6 %) at 70-79 years of age. The diagnostic method used was primarily biopsied in 563 cases (57.9%). The majority cases were patients with stage 4 (50.5%), followed by stage 2 (271 cases or 27.9 %), stage 1 (83 cases or 8.5%), and stage 3 (28 cases or 2.9 %). Orchiectomy was the most

widely used initial therapy (307 cases or 31%), followed by hormonal drugs (182 or 18%), radical prostatectomy (89 cases or 9%), radiotherapy (63 cases or 6%) and the rest was active monitoring, chemotherapy, and combinations.<sup>12</sup> In this study, we reported the profile of the prostate cancer in Dr. Sardjito General, Yogyakarta for a period of 5 years.

## **MATERIALS AND METHODS**

### **Subjects and design**

This was an observational study with descriptive retrospective design involving 90 prostate cancer patients who underwent follow-up treatment at the Dr. Sardjito General Hospital, Yogyakarta, Indonesia from 2015 to 2020.

### **Protocol of study**

The data from patients' medical records in Dr. Sardjito General Hospital, Yogyakarta were collected by 2 observers to reduce bias. This study has been approved by the Medical and Health Research Ethics Committee, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta (Ref. No. KE/FK/1059/EC/2020). Inclusion criteria were patients who have been diagnosed with prostate cancer from 2015 to 2020. Exclusion criteria were patients who were not registered in Dr. Sardjito General Hospital, Yogyakarta. The data of the patient's age, gender, prostate volume, pre-treatment total PSA level, pre-treatment total testosterone level, hydronephrosis, TURP history, histopathology results, Gleason scores, ISUP grade, staging, and tumor burden were retrieved from the medical report.

### **Statistical analysis**

Data were analyzed with cross tabulation table using the IBM SPSS 23.00 statistics and served in table form.

## RESULTS

Ninety secondary data of prostate cancer inpatients visited and registered in Dr. Sardjito General Hospital, Yogyakarta from 2015 to 2020 were collected (TABLE 1). According to the patient age, among 90 patients, 22 patients (24.4%) were <60 y.o., 34 patients (37.8%) were 61-70 y.o. and 34 patients (37.8%) were >70 y.o. Average age of the patients were 67 ±10.4 y.o. Furthermore, according to the level of prostate volume (TAUS) showed most patients (48 patients or 53.3%) had prostate volume > 30 cm<sup>3</sup> with median

of 51 cm<sup>3</sup> (38.3 – 104.4). Median of the PSA level for diagnosis was 234.4 (94.4 – 1720.3) ng/mL, whereas median of the testosterone level was 317 (10 - 384) ng/dL.

Based on the histological findings (TABLE 1), adenocarcinoma was found in most of all patients (88 patients or 97.8%) with most of patients had Gleason score > 7 (69 patients or 69.6%) and ISUP grade > 2 (75 patients or 83%). In addition, staging ≤ T2 was found in 74 patients (82.2%) and metastasis stage was found in 55 subjects (61.1%).

TABLE 1. Characteristic of subjects

Characteristics	n (%)	Mean (SD)	Median	Q1	Q3
Age (y.o)					
• 60	22 (24.4)	67 ± 10.4	70	63.75	75
• 61 – 70	34 (37.8)				
• > 70	34 (37.8)				
Prostate volume (cm <sup>3</sup> )					
• ≤ 30	17 (18.6)	102 ± 117.5	51	38.3	104.4
• > 30	48 (53.3)				
• Unknown	31 (34.4)				
Total PSA (ng/mL)					
• ≤ 20	8 (8.9)	710 ± 1334.5	234.4	94.4	1720.3
• > 20	58 (64.4)				
• Unknown	24 (26.7)				
Testosterone level (ng/dL)					
• ≤ 300	19 (21.1)	280 ± 310	317	10	384
• > 300	19 (21.1)				
• Unknown	52 (47.8)				
Hydronephrosis:					
• Unilateral	11 (12.2)				
• Bilateral	26 (28.9)				
• Without	53 (58.9)				
Method of Diagnosis					
• Biopsy	45 (50)				
• Turp	45 (50)				
Histopathologic finding					
• Adenocarcinoma	88 (97.8)				
• Non-Adenocarcinoma	2 (2.2)				
Gleason Score					
• ≤ 7	21 (23.3)				
• > 7	69 (69.6)				

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ISUP grade	
• 1	8 (8.9)
• 2	6 (6.1)
• 3	5 (5.6)
• 4	10 (11.1)
• 5	59 (59.6)
Staging	
• ≤ T2	74 (82.2)
• > T2	13 (14.4)
• Unknown	3 (3.4)
Metastasis	
• Yes	55 (61.1)
• No	14 (15.6)
Unknown	21 (23.3)
Tumor burden:	
• High volume	46 (51.1)
• Low volume	23 (25.6)
• Unknown	21 (23.3)

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## DISCUSSION

The Indonesian Society of Urologic Oncology (ISUO) reported during the period of 2006 to 2010 971 patients were diagnosed with prostate cancer. The average age of the patients was 68.3 years.<sup>12</sup> Demographics of prostate cancer patients at Dr. Sardjito General Hospital during the period of 2015 to 2020 showed 50% of cases were locally advanced prostate cancer, including high metastatic and high-volume Tumor Burden disease. This study also showed that the majority of patients with prostate cancers are only detected at an advanced stage or metastasis. Lack of knowledge of Indonesian people concerning prostate cancer and its screening test cause the delay in early diagnosis and not regularly performed. Metastatic tracking was mandatory based on the results of the data in this study. Cases of prostate cancer are of interest to researchers, where total serum testosterone levels may have reached castration levels at the time of initial diagnosis and without prior hormonal therapy.

PSA screening in cases of prostate cancer reduces the mortality rate

and decreases in advanced cases based on the EAU Risk Group.<sup>10,14</sup> The majority of patients visiting Dr. Sardjito General Hospital, Yogyakarta have been diagnosed with locally advanced prostate cancer early on. It is believed that early diagnosis of metastatic stage prostate cancer is very likely and that further screening efforts are required to take into account the cost-benefit of early-stage prostate cancer diagnostics.

Interestingly, according to the researchers, although the screening of testosterone levels in cases of prostate cancer at the time of initial diagnosis with serum total testosterone levels had low levels.<sup>15</sup> Androgen is the main source of the prostate to grow. Higher consumption of androgen leads to the increase of prostate hyperplasia, which can be seen by measuring PSA. Two studies showed low level of serum total Testosterone correlated with advanced diseases.<sup>16-17</sup> Researchers assume that further research involving total serum testosterone levels with a larger sample may be able to further explain the androgen-dependent pathway and the accuracy of the management options for prostate cancer. Researchers assume

that metastatic tracking is mandatory, considering the results of this study, it was found that the majority of the initial presence of PSA in prostate cancer patients with total serum PSA levels >20 ng/mL was due to cost-benefit considerations.

## CONCLUSION

In contrast with developed country, this study shows that most Indonesian prostate cancer patients are diagnosed in metastatic stage with higher PSA level and ISUP grade. Further encouragement in prostate cancer screening for men with symptoms or risk factor should be considered to find more cases in lower stages for better prognosis and survival rate.

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