Current Therapeutic Research 84 (2017) 50–53

Contents lists available at ScienceDirect

Current Therapeutic Research

journal homepage: www.elsevier.com/locate/cuthre

Is Prostate Biopsy Recommended in Turkish Men with a Prostate-Specific Antigen Level between 2.5 and 4 ng/mL?

Gokhan Koc, MD[1], Hakan Turk, MD[2,*], Mustafa Karabicak, MD[1], Sitki Un, MD[3], Batuhan Ergani, MD[1], Rahmi Gokhan Ekin, MD[4]

[1] Urology Department, Tepecik Teaching and Research Hospital, Izmir, Turkey
[2] Department of Urology, Dumlupinar University, Evliya Celebi Training and Research Hospital, Kütahya, Turkey
[3] Department of Urology, Katip Celebi University Atatürk Training and Research Hospital, Izmir, Turkey
[4] Tepecik Teaching and Training Hospital, Izmir, Turkey

ARTICLE INFO

Article history:
Accepted 14 April 2017

Key words:
prostate-specific antigen
prostate cancer
prostate biopsy
Gleason

ABSTRACT

Background: Prostate cancer is the most common solid tumor. The incidence of prostate cancer shows regional and racial differences. The ideal PSA threshold for prostate biopsy is still being debated.
Objective: We aimed to investigate cancer detection rates in Turkish men who underwent transrectal ultrasound-guided prostate biopsy (TRUSPB) who had prostate-specific antigen (PSA) levels in the range of 2.5 to 4.0 ng/mL and compare them with the rates of cancer in patients with PSA levels in the range of 4.0 to 10.0 ng/mL.
Methods: All Turkish men who underwent TRUSPB in our clinic between January 2012 and May 2014 were included; that is, 101 patients (Group 1) with PSA level in the range of 2.5 to 4.0 ng/mL and 522 patients (Group 2) with PSA level in the range of 4.0 to 10.0 ng/mL. Mean PSA level, age, prostate volume, and cancer detection rates were evaluated.
Results: The mean age was 60.5 and 64 years in Group 1 and Group 2, respectively ($P = 0.06$). The mean PSA level was determined as 3.1 and 6.8 ng/mL in Group 1 and Group 2, respectively ($P = 0.03$). The cancer detection rate was 12.7% in Group 1 ($n = 13$) and 30.8% in Group 2 ($n = 161$), which revealed a statistically significant difference between the 2 groups ($P = 0.001$). In Group 1, 9 of 13 patients (69%) had Gleason score of 6, 3 (23%) had Gleason score of 7, and 1 (8%) had a Gleason score of 8.
Conclusions: The cancer detection rate is lower in Turkish men with PSA level in the range of 2.5 to 4.0 ng/mL when compared with men with PSA level in the range of 4.0 to 10.0 ng/mL. Furthermore, most patients in whom cancer was detected who have a PSA level in the range of 2.5 to 4.0 ng/mL are low risk. Therefore, the benefit of TRUSBP in Turkish men with PSA level between 2.5 and 4 ng/mL is low.
© 2017. The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Introduction

Prostate cancer (PCa) is the most common solid tumor in Europe, with an incidence of 214 out of 100,000, and ranks second in cancer deaths.[1] In the United States in 2014, there were expected to be about 233,000 new PCa diagnoses and about 29,400 PCa deaths.[2] According to data from the Ministry of Health of the Republic of Turkey [3] and the results of a study,[4] incidence rate of PCa was 35 to 37.6 out of 100,000, and it was the second most common cancer in men.

The use of prostate-specific antigen (PSA) as a tumor marker was a substantial development in the diagnosis of PCa.[5] Currently, clinical stage T1c constitutes 40% to 50% of newly diagnosed prostate cancers and this shows the importance of PSA in the diagnosis of PCa.[6] To date, no specific lower PSA cutoff value has been indicated in the relevant guidelines for PCa diagnosis. The National Comprehensive Cancer Network[7] suggests biopsy for patients with PSA ≥ 2.6 ng/mL. An Italian panel group[8] suggests to perform a biopsy for patients with PSA ≥ 2.5 ng/mL if they report a family history of PCa. However, if patients have no family history of PCa, their recommended PSA threshold for prostate biopsy is > 4.0 ng/mL. The ideal PSA threshold for prostate biopsy is still being debated. However, there is a tendency to perform biopsy for lower PSA levels during the past few years.

Prostate cancer incidence shows regional and racial differences. Furthermore, lowering the PSA threshold may lead to

* Address correspondence to: Hakan Turk, MD, Department of Urology, Faculty of Medicine, Dumlupınar University, Evliya Celebi Training and Research Hospital, Kütahya 43100, Turkey.
E-mail address: hkntrk000@hotmail.com (H. Turk).

http://dx.doi.org/10.1016/j.curtheres.2017.04.003
0011-393X/© 2017. The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

overdiagnosis, increased rate of prostate biopsy, side effects due to biopsies and treatments, and costs. Thus, we think each country or region should set their lower PSA cutoff values while making the decision for biopsy. In this study, we aimed to determine the cancer detection rate in Turkish men with a PSA level in the range of 2.5 to 4.0 ng/mL and who underwent transrectal ultrasound-guided prostate biopsy (TRUSPB), and also to compare, with regard to cancer detection rate, the patients with PSA level in the range of 4.0 to 10.0 ng/mL.

Materials and Methods

We enrolled a total of 623 patients in the study, aged between 40 and 70 years with PSA level 2.5 to 10 ng/mL and whom TRUSPB was performed between January 2012 and May 2014 in our clinic. Patients were divided into 2 groups with respect to their PSA levels. One hundred one patients with PSA values in the range of 2.5 to 4.0 ng/mL constituted Group 1 and 522 patients with PSA values in the range of 4.0 to 10.0 ng/mL constituted Group 2. Patients who had abnormal findings from digital rectal examination, urinary tract infections, recent urethral catheterization, cystoscopy, history of transurethral resection, and previous TRUSBP history were excluded from the study. At least 2 PSA measurements were performed on all patients before biopsy.

Prophylactic ciprofloxacin was administered on all patients before biopsy. An ultrasound-guided biopsy was performed transrectally under periprostatic nerve block by using an 18-G needle and biopsy was performed in 12 quadrants in all patients. Prostate volume of the patients was also calculated during the process. The mean PSA level, age, prostate volume, and PCa detection rate were compared between the 2 groups.

Statistical analyses were performed with SPSS version 22.0 for Windows (IBM-SPSS Inc, Armonk, New York). Numerical variables were summarized with mean (SD) and categorical variables with frequency and percentage. The significance of differences among groups was assessed by Student *t* test and logistic regression analysis, and analysis of categorical variables was examined by χ^2 test and logistic regression analysis. A P value < 0.05 was considered statistically significant.

Results

Group 1 had 101 patients and Group 2 had 522 patients. The mean age was 60.5 years (range, 50–68 years) in Group 1, whereas 64 years (range, 50–70 years) in Group 2 ($P = 0.06$). The mean PSA level was found to be 3.1 and 6.8 ng/mL in Group 1 and Group 2, respectively ($P = 0.03$). The mean prostate volume was 42.9 mL in Group1 and 44.5 mL in Group 2 ($P = 0.18$), which showed no statistically significant difference (**Table I**).

Prostate cancer was detected in 12.7% of patients (n = 13) in Group 1, and in 30.8% of patients (n = 161) in Group 2. There was a statistically significant difference between the 2 groups (odds ratio, 2.5; 95% CI, 1.407–4.482; $P = 0.001$) (**Table I**). PSA levels ≥ 4 ng/mL are associated with 2.5-fold increased risk of PCa. Of Group 1 patients diagnosed with PCa, it was found that 9 of 13 patients (69%) had Gleason score of 6 (3 + 3), 3 (23%) had Gleason score of 7 (3 + 4), and 1 (8%) had Gleason score of 8 (4 + 4). In other words, low-risk PCa was identified in 69% of patients and intermediate and high-risk PCa was identified in 31% of patients. The treatment protocols of the patients are summarized in **Table II**.

Table I
Distribution of patient data according to groups.*

Characteristic	Group 1	Group 2	*P* value
Age, y	60.5 (48-72)	64 (48-82)	0.06
prostate-specific antigen, ng/dL	3.1 (0.5)	6.8 (1.5)	0.03†
Prostate volume, mL	42.9 (13.1)	44.5 (21.1)	0.18
Cancer ratio, %	12.7	30.8	0.001†

* Values for age are presented as median (range), whereas values for prostate-specific antigen and prostate volume are presented as mean (SD).
† Statistically significant.

Table II
Analysis of treatment in prostate cancer patients in whom prostate-specific antigen level is between 2.5 and 4 ng/mL.

Patient No.	Age, y	Gleason score	Treatment
1	62	3 + 3	Active surveillance
2	64	3 + 3	Active surveillance
3	63	3 + 3	Active surveillance
4	66	3 + 3	Active surveillance
5	63	3 + 3	Active surveillance
6	67	3 + 3	Radical prostatectomy
7	65	3 + 3	Radical prostatectomy
8	66	3 + 3	Radical prostatectomy
9	56	3 + 3	Radical prostatectomy
10	65	3 + 4	Radical prostatectomy
11	64	3 + 4	Radiotherapy
12	64	3 + 4	Radiotherapy + hormone therapy
13	68	4 + 4	Radiotherapy + hormone therapy

Discussion

PSA is a glycoprotein produced in the epithelial cells of the prostate and secreted into prostatic fluid.[9] The use of PSA as a tumor marker has been a significant improvement in the diagnosis of PCa.[5] Today, 40% to 50% of newly diagnosed PCas are clinical stage T1c and this shows the importance of PSA level in the diagnosis of PCa.[6]

PCa is a slowly progressing tumor. Although some studies have reported that PSA screening decreased mortality rates due to prostate cancer, no definite evidence is yet available showing that screening could reduce PCa-related deaths.[10] However, reducing the cutoff of PSA below 4 ng/mL has led to increases in detection rates of clinically insignificant cancers.[11] A publication by Johansson et al [12] on PCa patients with no treatment outcomes between 1989 and 2004 and the publications by Albertsen et al[13,14] that include long-term results of a risk analysis of patients diagnosed with localized PCa between 1971 and 1984, have increased our knowledge about disease progression. PCa patients with Gleason score of 6 or lower have 70% to 96% progression-free survival rate, whereas cancer-related deaths are expected at a rate of 42% to 87% within 10 years of diagnosis in patients with a Gleason score $\geq$ 7.[15] Chisholm et al [16] claimed that they could not predict whether or not detecting early-stage tumors would increase cancer-specific survival without performing a randomized controlled screening study, regardless of whether a radical intervention was performed. Gilbert et al[17] evaluated the results of 36,316 TRUSBP procedures. They found that PCa detection rate was 27.4% in patients with PSA level of 2.5 to 4.0 ng/mL, and 30% in patients with PSA level of 4.0 to 10.0 ng/mL. They concluded that there was no statistical difference between the 2 groups in terms of PCa detection rate. In the Prostate Cancer Prevention Trial study,[18] TRUSBP was performed to 2950 patients with PSA levels ≤ 4 ng/mL and with normal findings from digital rectal exam. As a result, PCa was detected in 15.2% of men with PSA ≤ 4 ng/mL. Rate of PCa diagnosis increased to 26.9% in the group with PSA levels between 3.1 to 4.0 ng/mL.

Download English Version:

https://daneshyari.com/en/article/5723140

Download Persian Version:

https://daneshyari.com/article/5723140

Daneshyari.com