

# Are Prostate Cancer Screenings Performed in Compliance with Cancer Guidelines?

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## Abstract

**Objective:** This study aims to examine whether our region's Prostate Cancer (PCa) screening programs comply with the European Association of Urology (EAU) Guidelines.

**Method:** This study was conducted as a retrospective, cross-sectional study between April 2014 and July 2022. Two hundred seventy patients who applied to our clinic for various reasons and were diagnosed with PCa were included in the study. Characteristics of the patients, such as age at diagnosis, comorbidities, age at first PSA examination, and PSA values, were recorded.

**Results:** The mean age of the patients at the time of cancer diagnosis was 67.42±8.64 (43-91) years. PSA value (median±IQR) at the diagnosis was 9.58±19.43 (1.83-3437) ng/ml. When the distribution of cancer according to different decades of life was examined, there were 5 (%1.8) patients in the 40-50 age range, 44 (16.1%) in the 50-60 age range, 111 (40.7%) in the 60-70 age range, 86 (31.5%) in the 70-80 age range, and 24 (8.8%) after the age of 80. While 138 patients (51.1%) had local and benign tumor features, 59 (21.9%) patients were diagnosed with metastatic findings. Only 31.3% (61/195) of the patients were under regular follow-up by a specific urology doctor.

**Conclusion:** It was found that the screening of prostate cancer, the most common type of cancer in men, was not performed by the guidelines, and as a result, diagnosis and treatment were delayed. It was determined that many patients lost the chance of curative treatment. In this disease, where early diagnosis is vital for effective treatment and preservation of quality of life, it is essential to follow up with aging men in accordance with the guidelines. It may be beneficial to periodically train and follow up with all health professionals interested in this issue.

**Key words:** EAU Guidelines, Prostate cancer, Age, Prostate Cancer Screening Programs

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## INTRODUCTION

Prostate cancer (PCa) is one of the most common cancers and the leading cause of death in men. It constitutes 15% of all newly diagnosed cancers. Although it is more common in some regions, it generally constitutes a significant public health problem worldwide. Although the underlying cause has not been fully elucidated until now, its close relationship with some risk factors such as age, genetic factors, and sexually transmitted diseases is well known (1-6). Since the cause is not known precisely, we do not have a recommendation or medicine to prevent the disease. Today, all efforts are focused on early diagnosis and treatment rather than preventive measures. In cases diagnosed early, there are effective treatments such as radical prostatectomy (RP) and radiotherapy. There is a strenuous effort worldwide for the early diagnosis of cancer. Significant steps have been taken in this regard. Many international associations, such as the European Association of Urology (EAU) and the American Association of Urology (AUA), have prepared guidelines for this disease (7). In our country, especially EAU guidelines are followed in diagnosing and treating prostate cancer. However, it is not known how much these guidelines are followed in our daily practice precisely. In our own experience, these guidelines are often neglected. This study was planned to see the use of these guidelines in

patients diagnosed with prostate cancer.

This study aims to examine whether patients newly diagnosed with PCa are followed up in accordance with EAU guidelines.

## METHODS

This study was carried out in the Urology Clinic of Ordu Medical Faculty Training and Research Hospital. Permission was obtained from the local ethics committee for the study (No: 2022/09-214). Between April 2014 and July 2022, 270 patients diagnosed with prostate cancer in our clinic and whose data could be accessed were recorded. In this study, the data were recorded prospectively by a specialist doctor at the first encounter. Laboratory studies of all patients were completed after approximately 10 hours of fasting and before invasive procedures. All patients with primary prostate cancer, Prostate Specific Antigen (PSA) value, and pathology results, remembering the questions asked, and supporting the study were enrolled.

Patients who received treatment for prostate cancer had psychological/neurological diseases causing severe forgetfulness or cognitive impairment, did not want to participate in the study, or did not want to talk about the subject were excluded from the study. Age, body mass index (BMI), belly circumference, comorbidities, smoking, and alcohol use status of the patients were recorded. In addition, access data such as age

at the time of cancer diagnosis, serum PSA value, age at first urological examination, prostate biopsy pathology reports, and cancer stages were recorded. Our country does not have specific prostate cancer guidelines; because of its geographical features, the EAU guidelines used in Europe are also used in our country. The patient's data were compared with the EAU Prostate Cancer Guidelines.

### **Statistical Analysis**

In the data analysis, the SPSS 20.0 package (Statistical Package for the Social Sciences, Version 20.0 SPSS Inc. Illinois, USA) program was used. In summarizing numerical data, arithmetic mean $\pm$ standard deviation, median (1st Quarter-3rd Quarter), minimum and maximum values, numbers, and percentages were used in summarizing categorical data. The conformity of the data to the normal distribution was examined using visual (histogram and probability graphs) and analytical methods (Kolmogorov-Smirnov/Shapiro-Wilk tests). Relationships between categorical data were evaluated with the Chi-square test. In order to evaluate the relationship between the numerical data determined to be normally distributed and the categorical data, the independent-samples t-test was used when the categorical data were in two categories. One-Way ANOVA test was used if the categorical data were in three or more categories. Appropriate post hoc tests were performed to determine which group

caused the significant difference in the One-Way ANOVA test. The Man-Whitney U test was used when the categorical data were two categories to evaluate the relationship between the numerical data determined not to be normally distributed and the categorical data. The Kruskal Wallis H test was used when categorical data were in three or more categories. Posthoc Man-Whitney U test and Bonferroni correction were performed for pairwise comparisons between groups with significant Kruskal Wallis test results. Statistically,  $p < 0.05$  cases were considered significant.

### **RESULTS**

The mean age (mean  $\pm$  std) of 270 patients diagnosed with prostate cancer was  $67.42 \pm 8.64$  (43-91). BMI (mean  $\pm$  std) was  $27.20 \pm 3.96$  (17.96-39.64). The PSA value (median  $\pm$  IQR) at diagnosis was  $9.58 \pm 19.43$  (1.83-3437) ng/ml.

**Table 1:** Demographic Characteristics of the Patients

Decades of life	Cancer frequency n (%)
Between 40-50 years old	5 (1.8)
Between 50-60 years old	44 (16.1)
Between 60-70 years old	111 (40.7)
Between 70-80 years old	214 (79.3)
> 80 years	24 (8.8)

When the cutoff value for age at diagnosis was set to 50 years, 9 (3.3%) patients before age 50 and 261 (96.7%) patients after 50 years of age were diagnosed with cancer. When taking the age threshold of 60, 56 (20.7%)

patients were diagnosed with cancer before age 60, and 214 (79.3%) were diagnosed after age 60. For the age limit of 70 years, 175 (64.8%) patients were diagnosed before age 70 and 95 (35.2%) after age 70. When the distribution of cancer according to different decades of life was examined, there were 5 (%1.8) patients in the 40-50 age range, 44 (16.1%) in the 50-60 age range, 111 (40.7%) in the 60-70 age range, 86 (31.5%) in the 70-80 age range, and 24 (8.8%) after the age of 80.

**Table 2:** Distribution of cancer incidence by decades of life

Decades of life	Cancer frequency n (%)
Between 40-50 years old	5 (1.8)
Between 50-60 years old	44 (16.1)
Between 60-70 years old	111 (40.7)
Between 70-80 years old	214 (79.3)
> 80 years	24 (8.8)

One hundred thirty-eight patients (51.1%) had local and benign tumor characteristics, and 59 (21.9%) patients had signs of metastasis. For local and locally advanced PCa, 35.4% (96) of the patients were in the high-risk group according to the EAU biochemical recurrence risk classification. In other words, if 35.4% of patients were treated, a biochemical recurrence would develop. 9.9% of patients (27/75) had a family history of prostate cancer. 51.1% of patients (120/235) were taking prostate-related drugs. While a specific urologist regularly followed up only 31.3% (61/195) of patients, 68.7% (134/195) were randomly followed by more than one physician. The age of onset of

symptoms in the lower urinary system (LUTS) was  $62.52 \pm 8.29$  (40-83) years, and the age at first urological examination was  $63.14 \pm 8.31$  (40-91). Of the patients, 61% (152/249) had the habit of smoking, and 15.3% (38/249) of the patients had the habit of using alcohol. The distribution of heart disease (CVD), diabetes mellitus, and hypertension in the group was found to be 23.4% (60/256), 14.5% (37/256), and 41.4% (106/256), respectively.

## DISCUSSION

This study has the feature of being the first study in our region to determine whether male patients are followed in accordance with prostate cancer guidelines. As a result of the study, it was determined that male patients were not followed up by the rules specified in the guidelines. Accordingly, the diagnosis of cancer was delayed. This situation may cause a delay in treatments, sometimes loss of the chance of treatment, worsening prognosis, and fatal complications.

Prostate cancer is the most common malignancy in men and the second most common cause of cancer-related mortality (8). It is detected with a frequency of roughly 15-20% in autopsy studies. In a systematic review on this subject, the incidence of incidental PCa was 5% in men aged <30 years. The frequency increased 1.7 times per decade of life, reaching 59% after age 79 (9).

We have treatment options with a high chance of success in early-stage PCa. During

this stage, patients who reach appropriate treatment have a cancer-specific survival of close to 99%. Life expectancy is measured in months in patients diagnosed at an advanced stage. A significant portion of the cases (20%) present with advanced stage or metastasis at the time of diagnosis. That is, they are diagnosed late (10). Furthermore, recurrence develops in about one-third of cases with definitive treatment in the early stages (such as radical prostatectomy or radiotherapy) (11). Early detection of these patients and access to appropriate treatment are essential for survival.

In a study on this subject, patients with PCa were randomized to active treatment (RP) and Watchful Waiting arms and followed for 23.6 years. As a result of the study, RP provided superior CSS (cancer-specific survival), OS (overall survival), and PFS (progression-free survival) to the follow-up group. The 10-year CSS rates were reported as 99%, especially in patients with early diagnosis and good tumor characteristics (12). As seen in this study, delay potentially carries adverse risk factors for the patient. Metastasis and associated adverse events increase in patients with delayed or advanced stages. In a study, in patients diagnosed at a late stage, the mean survival was reported as 42 months despite all efforts (drug therapy) (13).

All efforts are directed towards early diagnosis, as there is currently no recommendation or medicine to protect men

from this disease worldwide. In this regard, international urology associations have assembled and prepared a standard guideline for diagnosing and treating PCa. Prostate cancer panels; consist of an international multidisciplinary team that includes urologists, radiation oncologists, medical oncologists, radiologists, a pathologist, a geriatrician, and a patient representative. This panel meets annually, reviews recently published research and prepares a guide for professionals working on the issue. EAU guidelines, which are among them, are widely used in our country. We also follow this guide in our clinic. These guidelines ask men to be screened for prostate cancer after a certain age. With these scans, it is aimed to reduce the death associated with PCa, as well as to protect the patient's quality of life associated with the disease. The guidelines indicate that men aged >50 years with a life expectancy of more than 10-15 years, men aged >45 years with a family history of PCa, and men of African descent are at risk for the disease. Therefore, these groups should be screened (14,15). In most patients, 10-15 years are required for the lethal effects of cancer. For this reason, PCa screenings should not be performed on every patient. In the meantime, the patient should be informed about the screening, and his consent should be obtained (16). This is because some patients do not accept this screening or subsequent procedures. It is essential to distinguish these

patients from the beginning and to protect them from unnecessary processes. Our study results determined that the rate of informing patients about the process (for example, during PSA requests) was <1%. This can cause significant legal problems.

We have highly effective and easily accessible markers for prostate cancer screening. PSA had discovered during forensic studies, and it revolutionized the diagnosis of PCa. It began widely used worldwide in the late 1980s and early 1990s. PCa, which was previously detected incidentally only during surgery for prostate enlargement (TURP), is now being understood with simple tests. While the number of prostate cancers diagnosed during TURP decreased with the use of PSA, the number of new patients increased. For example, between 1986 and 1992, the overall number of prostate cancer doubled in the USA. The widespread use of this marker has brought some negative aspects, such as the increase in the number of cancer patients. It was associated with PCa in patients who died from other causes. Despite all the negativities, PSA caused a significant change in survival. In a study conducted on this subject, the effect of PSA screening on mortality in the USA was observed and compared to the period 1950-1970, which was the pre-PSA period. Mortality was reduced by 37% (17). The cancer screenings have reduced metastatic disease incidence (approximately 28 cases to

11 cases per 100000 men). It was more effective than screening tests such as mammography, which is used for breast cancer screening. Despite the widespread use of mammography, it did not decrease (18). In summary, the literature shows that the discovery of PSA has made an essential shift in the diagnosis, treatment, and follow-up of PCa. It became an example of new markers to be used in cancer screening.

Considering the results of our study, the median age at diagnosis of PCa was 67.4 years. Also, the average PSA value was 64.9ng/ml. Considering that the critical PSA value is 2.5-3ng/ml and the screening age is 45-50 in the EAU guidelines, it is understood that our patient group was not followed according to the recommendations specified in the guidelines. This means a later diagnosis age and cancer diagnosis at a more advanced stage. Especially when the age of 60 was taken as the limit, it was observed that 79.3% of the patients in our group were diagnosed after 60. This delayed age is a significant problem not only for our country but also for the whole world (19). These patients could have been diagnosed earlier if the guidelines had been appropriately applied. This delay resulted in 21.9% (59/270) patients being diagnosed in the metastatic stage, as seen in the results. The EAU guidelines also support this by predicting biochemical recurrence after treatment (7). According to this classification, 35.4% of

patients will experience biochemical recurrence despite any treatment. Another striking problem in our study was the irregular follow-up of the patients and the lack of regular follow-up of a urology doctor. These unnecessary PSA requests potentially carry serious problems, such as missed follow-ups of risky patients. A previous study we conducted on this subject supports these results (20).

As the results of our study show, PSA levels were not checked in the majority of patients in the age range specified in prostate cancer guidelines. As a result, the patient's diagnosis was delayed. Among the reasons for this, there may be many reasons such as patient-related factors, intense working conditions in our country, ignorance and lack of education on this subject, and insufficient preventive measures in primary care. Whatever the reason, it cannot explain the late diagnosis of these patients and the risks of losing the chance of treatment. We think it is crucial for public health that the guidelines, where everything is clearly defined, are widely used in our country and that the follow-up is strictly regulated. It should be kept in mind that this disease has a severe burden, such as job loss, mental health problems, deterioration in the quality of life, and financial loss. As it is known, the most important tool in the treatment of cancers is early diagnosis and treatment. For this reason, it is vital to inform

the public about these screening programs and raise awareness among health professionals and the media.

This study has some limitations. Among these, the unknown treatment outcome and follow-ups, the results from a single center, and the study's retrospective nature are the first ones that come to mind. In addition, our sample size was low in our study. However, despite the limitations of the study, we think that this study is important because it is the first study to our knowledge that examines whether patients diagnosed with PCa are followed in accordance with the guidelines and the results of the study are remarkable.

We think multicenter, prospective studies with more patients are needed on this subject. In future studies on this subject, it may be helpful to compare the survival and quality of life results of patients diagnosed randomly, which was missing in our study, and those diagnosed according to the guidelines.

## CONCLUSIONS

Early prostate cancer diagnosis, an important public health issue in aging men, is vital for the treatment process. The use of prostate cancer guidelines enables early detection of patients with PCa. Therefore, it can positively affect patients' survival and quality of life. Our study found that men were not followed up according to the UAE PCa guidelines. It was observed that the patients'

diagnoses shifted to older age, and some patients lost the chance of curative treatment. We think it is essential to inform health professionals and men about this issue at specific intervals through the media and keep this disease in mind.

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