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Urologic Oncology: Seminars and Original Investigations 34 (2016) 58.e1–58.e9

UROLOGIC ONCOLOGY

Original article

Prevalence and management of prostate cancer among East Asian men: Current trends and future perspectives

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Received 6 August 2015; received in revised form 8 September 2015; accepted 11 September 2015

Abstract

Objectives: Previously East Asian men had been considered less likely to develop or die of prostate cancer. Emerging research and the onset of prostate-specific antigen screening in East Asian countries suggests that this may not be the case. We sought to analyze epidemiology and molecular genetic data and recent trends in the management of prostate cancer among East Asian men.

Methods and materials: We performed literature searches using PubMed, Embase, and Google Scholar to examine current literature on prostate cancer in East Asian men. Additionally, articles were searched for further references related to the topic.

Results: Recent studies have reported increasing incidence of prostate cancer identified in East Asian men. Prostate cancer mortality has increased and is currently the fourth leading cause of death among men in Shanghai, China. Although prostate cancer was considered less aggressive among East Asian men, studies suggest that it is similarly aggressive to prostate cancer in Western populations. Molecular markers such as the TEMPRESS:ERG fusion gene and PTEN loss may provide novel methods of screening East Asian men for prostate cancer. National-level guidelines for prostate cancer screening and management are only available in Japan.

Conclusions: The prevalence of prostate cancer in East Asian men is likely similar to that in Western male populations. East Asian men present at higher stages of prostate cancer, likely because of a lack of standardized screening protocols. Urologists in Western countries should screen East Asian men for prostate cancer using the same standards as used for Western men.

Keywords: Prostate cancer; Racial disparity; East Asia; Prostate-specific antigen (PSA) screening; Molecular genetics; Molecular epidemiology

1. Introduction

Prostate cancer is the second most common cancer worldwide, and by 2030, it is estimated that there will be 1.7 million new cases throughout the world [1]. Studies examining the prevalence of prostate cancer among non-Western populations are less common and often are performed in smaller cohorts of men. East Asian men comprise a significant proportion of the world's male population. A recent study examining the international incidence of prostate cancer reported that there has been a steady increase in the rate of diagnosis and in mortality from prostate cancer in the examined East Asian countries [2]. Understanding this significant population's risk of prostate cancer warrants attention and study.

2. Prevalence of prostate cancer

Studies estimating the prevalence of cancers, specifically prostate cancer, are becoming more common but have widely varied methodology and sample sizes. GLOBOCAN 2012 data found that the incidence of prostate cancer among East Asian men is 10.5 per 100,000 men and that mortality is 3.1 deaths per 100,000 men, which is significantly lower than incidence and mortality rates among Western men [1]. The prevalence of incidental prostate cancer is variable (Table, Fig. 1) [3–32].

Most Japanese studies have reported a low prevalence of prostate cancer, ranging from 5% to 12% [14–16]. These studies were performed in populations, ranging from 59 patients to 349 patients, that were considered representative of the population; however, a recent study of autopsy specimens from men who died without a history of prostate cancer found that 35% of Japanese men had undiagnosed

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http://dx.doi.org/10.1016/j.urolonc.2015.09.003
1078-1439/

Table
The incidence of incidental prostate cancer in Asian countries

References	Nations (continent)	Samples	Prostatic carcinoma cases (%)
Zhu et al. [3]	China (Asia)	92	3 (3)
Pan et al. [4]	China (Asia)	504	34 (7)
Liu et al. [5]	China (Asia)	49	4 (8)
Xia [6]	China (Asia)	22	3 (14)
Jin et al. [7]	China (Asia)	264	37 (14)
Shen et al. [8]	China (Asia)	865	235 (27)
Yang et al. [9]	China (Asia)	340	95 (28)
Yang et al. [10]	Taiwan, China (Asia)	49	16 (33)
Lee et al. [11]	Taiwan, China (Asia)	248	10 (4)
Joung et al. [12]	Korea (Asia)	36	18 (50)
Han et al. [13]	Korea (Asia)	29	15 (52)
Kurahashi et al. [14]	Japan (Asia)	251	31 (12)
Yumura et al. [15]	Japan (Asia)	59	3 (5)
Nakagawa et al. [16]	Japan (Asia)	349	91 (5)
Zlotta et al. [17]	Japan (Asia)	100	35 (35)
Kido et al. [18]	Japan (Asia)	196	24 (13)

prostate cancer [17]. Interestingly, the studies examining Korean men reported prostate cancer in up to 50% of specimens [12,13,20]. However, these studies are limited by small sample size.

Previous studies of prostate cancer in Chinese men have offered varying insights into the prevalence of prostate cancer. Studies evaluating prostate cancer in Chinese men have previously suggested that the prevalence of prostate cancer is between 3% and 20% [3,4,7,33–35]. A recent study of 340 Chinese cystoprostatectomy specimens revealed that 28% of specimens had incidental prostate cancer identified, suggesting that the true prevalence of prostate cancer in Chinese men is significantly higher than previously recognized and perhaps comparable to that of Western populations [9,21–23]. Interestingly, the study by Yang et al. [9] also found that the incidence of prostate cancer increased throughout the study period, a finding that was echoed in a study by Park et al. [36] examining prostate cancer among South Korean men. It is unclear if this is a real or observed increase; however, it bears attention, as this would indicate a possible environmental cause for the increase.

Among Indonesian men who were deemed at risk of having prostate cancer (based on elevated prostate-specific antigen (PSA) levels, hypoechoic lesion on transrectal ultrasound, or abnormal findings on digital rectal examination), 11% had a positive finding on biopsy, which is nearly triple the incidence from a previous study that reported an incidence closer to 4% [37,38]. Unfortunately, large population-based studies have not been conducted in Indonesia to provide greater insight.

Autopsy studies have been touted as an ideal method of identifying latent prostate cancer [39]. Recent autopsy studies of Japanese men without evidence of prostate cancer reported that 12% to 35% of the prostate specimens had evidence of prostate cancer [17,18,40]. This is comparable to findings in Western Europe, with recently reported autopsy studies finding prostate cancer in 8% to 19% [40–43]. Similarly, Delongchamps et al. [44] from the Unites States reported on 167 prostate specimens and

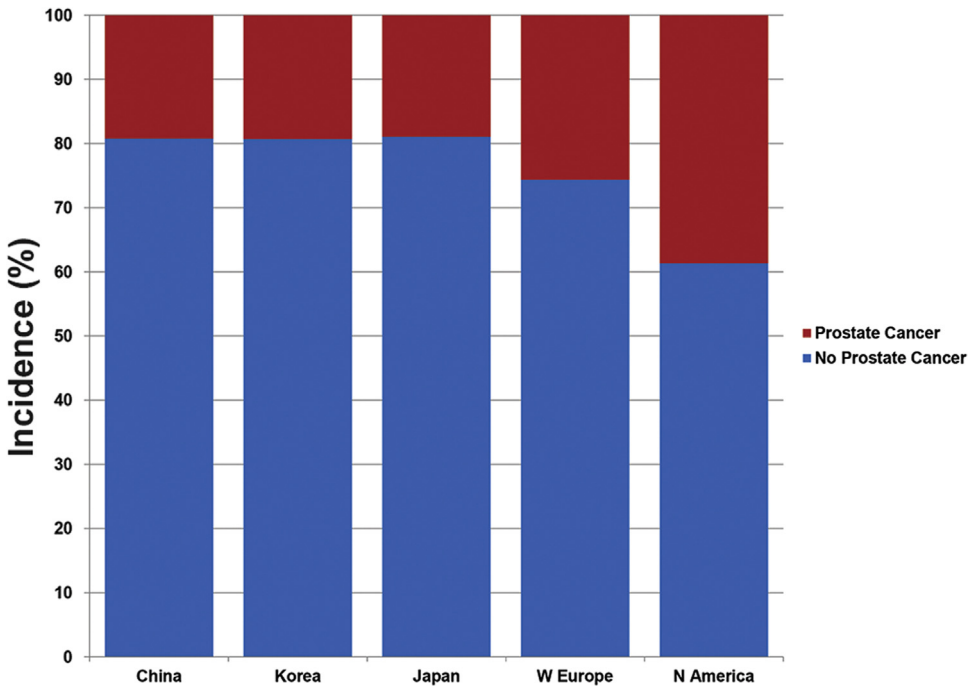

Fig. 1. Proportion of patients found to have incidental prostate cancer on cystoprostatectomy specimens. North American [21–24,30] studies showed a higher prevalence of incidental prostate cancer than did studies from China [3,4,7–9,31,32], Korea [12,13,20], Japan [14–16], and Western Europe [19,25–29].