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Vietnamese-American Men with Prostate Cancer Present with Worse Clinicopathologic Features Compared to the General Population

Tin C Ngo[1]*, Michael T Wu[2], Rajesh Shinghal[2] and Jeffrey H Reese[2]

[1]*Department of Urology, Stanford University School of Medicine, USA*
[2]*Division of Urology, Santa Clara Valley Medical Center, USA*

Abstract

Purpose: Large epidemiologic studies have suggested racial differences in the behavior of prostate cancer in Asian Americans subgroups. We studied the clinical and pathologic features of prostate cancer in Vietnamese American men.

Methods: We retrospectively reviewed our last decade of experience with prostate in Vietnamese American men and compared their baseline demographics and clinical and pathologic outcomes with Asian Americans in general and with a typical university hospital cohort.

Results: We identified 46 Vietnamese American men treated at our institution between 1999-2010. The mean age at diagnosis is 65.4 (IQR 62.8-68). The median PSA was 12.2 (IQR 6.8-19.3). Approximately half had palpable disease on digital rectal examination at the time of presentation and half had Gleason 8 or higher prostate cancer. The PSA density was also relatively high at 1.48 ng/mL^2, driven in part by low prostate volumes. Despite the adverse features within this cohort including a median PSA greater than 10 and a greater proportion of patients presenting with higher clinical T stage and higher grade cancers, only one of these patients progressed to metastatic disease during the follow period and subsequently died.

Conclusions: Vietnamese American men with prostate cancer present with adverse features including higher PSA levels, higher clinical stages, and higher pathologic grades. This may be due to a lack of prostate cancer screening, genetic differences, or environmental factors. Further study is needed to evaluate the causes of these disparities.

Keywords: Prostate; Cancer; Vietnamese; Vietnamese-American

Introduction

Adenocarcinoma of the prostate is the most common malignancy in US men and accounts for 28% of all incident cases of cancer in that population. It is also the second leading cause of cancer mortality and accounts for 32,050 deaths per year [1]. While many studies have examined differences in the natural history and biology of prostate cancer among minority groups, relatively few have focused on Asian Americans and, in particular, Vietnamese Americans.

Analysis of the SEER database has shown that the incidence of prostate cancer among Asian Americans is approximately half that of Caucasians (93.8 cases vs. 170 cases per 100,000) [2]. However, data from the California Cancer Registry showed that Asians often presented with worse prognostic factors [3]. This observation may partially be explained by differences in cancer screening practices in this community. Indeed, disparities in cancer screening for Asian Americans have been established for colorectal, cervical, and breast cancers [4]. Until recently, the data on prostate cancer screening among Asian Americans has been unpublished.

In a study of the California Health Interview Survey, only 15% of Vietnamese American men who were eligible for prostate cancer screening (age 50 or above and no prior diagnosis of prostate cancer) actually underwent PSA testing (data not yet published) [5]. In contrast, eligible Caucasians in the same cohort underwent prostate cancer screening 49% of the time. In their multivariate models, higher levels of education, income, and access to care were positively associated with having undergone prostate cancer screening. These effects were independent of race.

Because of the relative lack of prostate cancer screening within the Vietnamese American community, we sought to characterize the clinical behavior of this cancer in Vietnamese American men. Our *a priori* hypothesis was that the relative under-utilization of prostate cancer screening within this community may lead to delays in diagnosis, worse clinical and pathologic features at the time of diagnosis, and potentially worse oncologic outcomes. We report our experience with prostate cancer among Vietnamese American men over the last decade.

Materials and Methods

Santa Clara Valley Medical Center reports cancer statistics to the California Cancer Registry. Incident cases are ascertained through hospital discharge summaries, clinic documentation, and pathologic diagnoses from biopsy or surgical specimen. These incident cases are filed in an internal cancer registry from which the results are periodically reported. Our own internal review showed that approximately 99% of all incident cases of cancer were captured.

After institutional review board approval, we retrospectively reviewed our internal cancer registry for all Vietnamese American men who were diagnosed with prostate cancer from 1999-2010. This subgroup was then extracted and cross referenced with our pathology database to confirm the diagnosis of prostate cancer. The medical charts of these patients were retrieved and reviewed by trained research associates. Data on the patient's demographics, medical comorbidities, as well as prostate cancer specific characteristics were tabulated.

The outcome variables studied were PSA level, pathologic grade, and

***Corresponding author:** Tin C Ngo, Department of Urology, Stanford University School of Medicine, 300 Pasteur Drive, S-287, Stanford, CA 94305, USA, Tel: 408-813-7049; Fax: 408-503-0050; E-mail: tin.ngo@gmail.com

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Median age, yrs (IQR)	65.4 (62.8-68)
Median PSA, ng/mL (IQR)	11.2 (6.8-19.3)
Comorbid Conditions	
Diabetes Mellitus	27%
Hypertension	64%
Hyperlipidemia	51%
Current Smoker	20%
Current Drinker	42%

Table 1: Demographics of this cohort of Vietnamese men with prostate cancer.

Clinical T Stage	
T1c	48%
T2a	25%
T2b	11%
T2c	2.3%
T3	6.8%
T4	2.3%
Gleason Score	
≤ 6	36%
7	17%
≥ 8	47%
Median TRUS Volume (IQR) mL	29.6 (22.2-45.3)
Median PSA Density (IQR) ng/mL^2	0.33 (0.18-0.57)
Initial Treatment	
Active Surveillance	11%
Radical Prostatectomy	18%
External Beam Radiation	48%
Androgen Deprivation	23%
Cancer Specific Mortality	2%

Table 2: Cancer specific parameters of this cohort of Vietnamese men with prostate cancer.

	Vietnamese American	**Asian American**	**University**	**p-value**
Median PSA	11.2	9.9	6.6	0.0001*
Clinical Stage ≥ T2	52%	44%	45%	0.45
Gleason ≥ 8	47%	29%	10%	0.0001**

Table 3: Comparison of Vietnamese American, Asian American, and University Hospital Patients.

clinical stage. The PSA level was obtained from laboratory data obtained at the time of the patient's diagnosis of prostate cancer. The pathologic grade was obtained from the pathologist grading of prostate biopsy data using the Gleason grading system. Pathologic stage was determined by the clinical stage in patients who did not undergo surgery or pathologic stage in patients who did using the TNM system. Statistical analysis was performed using JMP Statistical Discovery Software (SAS Institute, Cary, NC). Continuous variables were compared using Student's t-test or ANOVA and categorical variables were compared using the chi-square test.

Results

We identified 46 Vietnamese American patients treated at Santa Clara Valley Medical Center between 1999 and 2010. Their baseline demographics are listed in Table 1. The mean age at the time of diagnosis was 65.4 years (IQR 62.8-68). The median PSA in this cohort was 11.2 (IQR 6.8-19.3). The mean follow was approximately 43 months. This relatively short follow up occurred because of patients lost in follow up due to changes in insurance status. The cancer specific parameters of this cohort are listed in Table 2. Approximately half of the men had palpable disease on digital rectal examination at the time of presentation and half had Gleason 8 or higher prostate cancer. The PSA density was also relatively high at 1.48 ng/mL^2, driven in part by low prostate volumes. Eighteen percent of this cohort underwent radical prostatectomy as the initial treatment approach whereas approximately half opted for radiation therapy. Despite the adverse features within this cohort including a median PSA greater than 10 and a greater proportion of patients presenting with higher clinical T stage and higher grade cancers, only one of these patients progressed to metastatic disease during the follow period and subsequently died.

Our cohort had some clinical features that are associated with worse outcomes as shown in Table 3. The median PSA, for instance, was 11.2. Additionally, more than half of our patients had clinical T2 or higher disease on presentation and half had Gleason 8 or higher prostate cancer. In contrast, in a contemporaneous group of patients from the university hospital with which we are affiliated, the median PSA was 6.4, only 37% had clinical T2 or higher disease at presentation, and only 26% had Gleason score of 8 or higher.

Discussion

Since the end of the Vietnam War, immigrants from Vietnam have emigrated to and settled in large communities in California, Texas, and Louisiana. According to the US Census Bureau, Asian Americans account for 13.5 million of the 304 million people in the general population [6]. Vietnamese Americans make up a significant portion of this group, accounting for 1.5 million people. In California, they account for 1.5% of the total population.

Santa Clara Valley Medical Center is funded and operated by the County of Santa Clara and serves uninsured and underinsured patients in the county. Vietnamese Americans make up a significant proportion of the patients we serve. Therefore, our urologic oncology practice made for a convenient setting in which to study prostate cancer within this cohort.

Because of the significantly low rates of prostate cancer screening among Vietnamese American men (15%, the lowest of all the Asian American groups) as demonstrated by Yap [5], we analyzed whether the lack of screening resulted in worse clinical features and oncologic outcomes.

The question becomes whether this difference is due to the lack of regular screening and consequently a delay in diagnosis, environmental factors, or genetic causes. We reviewed our institution's prostate needle biopsy database and found that the prostate cancer characteristics of our Asian patients, excluding the Vietnamese cohort, more closely resembled the cohort at the university hospital. On the other hand, the Vietnamese cohort had worse clinical and pathologic features. Table 3 lists the comparisons of the Vietnamese American patients to patients at the University hospital. There were statistically significant differences in the PSA levels and the percentage of patients with high grade disease, with Vietnamese American patients having higher PSAs and more frequently high grade disease.

Although only 1 person from this cohort has died from his disease, our follow up period has been too short to characterize the rate of biochemical recurrence or progression to metastatic disease. It will be interesting to see how these patients do with another 5 years of follow up and if the aggressive features which with they presented result in poorer outcomes compared to other groups.

There are several weaknesses in this study including its retrospective nature, the short follow up period, and the relatively small number of patients. However, we feel that these data are important because they highlight disparities in the clinical features of prostate cancer in these

patients compared to other ethnic groups, and that these disparities may translate into worse outcomes. Nevertheless, these results should be interpreted with caution in attempting to generalize the findings to populations outside our geographic region. Only time will tell whether these patients do poorly compared to other groups. Although some have questioned the effectiveness of prostate cancer screening, this cohort may be a case study on the importance of screening should we find high rates of biochemical recurrence, metastases, and cancer specific mortality with longer follow up.

Conclusions

Vietnamese American men with prostate cancer present with adverse features including higher PSA levels, higher clinical stages, and higher pathologic grades when compared with other Asian American groups and the general population. This may be due to a lack of prostate cancer screening, genetic differences, or environmental factors. Further study is needed to evaluate the long term outcomes in these patients, to determine the causes of these disparities, and to better understand factors responsible for decreased rates of prostate cancer screening in this population.

Approval

This study was approved by the Santa Clara Valley Medical Center Institutional Review Board (Protocol: 11-017).

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