ELSEVIER

Urologic Oncology: Seminars and Original Investigations 32 (2014) 34.e9–34.e18

UROLOGIC ONCOLOGY

Original article

Do racial disparities exist in the use of prostate cancer screening and detection tools in veterans?

M'Liss A. Hudson, M.D.[a,b,*], Suhong Luo, M.P.H.[b], Timothy Chrusciel, M.P.H.[b], Yan Yan, M.D., Ph.D.[c], Robert L. Grubb III, M.D.[a,b], Kenneth Carson, M.D.[d], Jeffrey F. Scherrer, Ph.D.[b,e]

[a] *Division of Urologic Surgery, Washington University School of Medicine, St. Louis, MO*
[b] *Clinical Research and Epidemiology Workgroup, John Cochran VAMC, St. Louis, MO*
[c] *Siteman Cancer Center, Washington University School of Medicine, St. Louis, MO*
[d] *Division of Medical Oncology, Washington University School of Medicine, St. Louis, MO*
[e] *Department of Psychiatry, Washington University School of Medicine, St. Louis, MO*

Received 2 October 2012; received in revised form 16 December 2012; accepted 11 January 2013

Abstract

Objective: To determine whether racial disparities exist in the use of prostate cancer screening and detection tools in veterans.

Methods and materials: Administrative data were obtained from the Corporate Data Warehouse on a national cohort of 275,831 veterans (21% African American [AA]) between the ages of 40 and 70 years who were free of heart disease, did not have an elevated prostate specific antigen (PSA) level (>4 ng/ml), did not have other clinical signs of prostate cancer, had not been diagnosed with prostate cancer, and had not received treatment for prostate cancer between January 10, 1998 and September 30, 2000. Subjects were followed up until September 30, 2007. Regular users were defined as those with at least 1 annual visit to the Veterans Healthcare Administration (VHA) between October 1, 1998 and September 30, 2000. We sought to determine if race was significantly associated with PSA testing, the time to elevated PSA detection, the time to prostate biopsy, and the time to diagnosis of prostate cancer. Chi-square tests, logistic regression, and Cox proportional hazard models were used to test for associations between race and prostate cancer variables.

Results: Eighty-four percent of the veterans between the ages 40 and 70 years undergo PSA testing. AA veterans are as likely as white veterans to undergo PSA testing. Screened AA veterans are more likely to have a PSA >4 ng/ml, undergo prostate biopsy, and be diagnosed with prostate cancer than screened white veterans. The time intervals between undergoing a prostate biopsy and being diagnosed with prostate cancer were statistically significantly shorter (although unlikely of clinical significance) for AA veterans with a PSA level >4 ng/ml than that for white veterans with a PSA level >4 ng/ml. When routine care in regular VHA users was compared with that of participants in major screening trials such as Prostate, Lung, Ovarian and Colon Cancer Trial and European Study of Screening for Prostate Cancer, prostate biopsy rates were lower (30% vs. 40%–86%), prostate cancer detection rates/person biopsied were higher (49% vs. 31%–45%), and incidence of prostate cancer was 1.1% vs. 4.9% to 8.3%.

Conclusions: Among regular users of the VHA for healthcare, no disparities toward AA veterans exist in the use of prostate cancer screening and detection tools. Any differences in prostate cancer treatment outcomes are not likely because of inequalities in the use of prostate cancer screening or detection tools.

Keywords: Access to care; African American; Cancer detection; Cancer screening; Prostate cancer; Prostate-specific antigen; Racial disparities

1. Introduction

Prostate cancer disproportionately affects African American (AA) men. AA men with prostate cancer have higher-stage disease at diagnosis than white men in the United States and the highest mortality rate for prostate cancer in the world [1]. The Institute of Medicine has shown that minorities are less likely to undergo recommended cancer screening and that worse outcomes to disease treatment are seen in minorities [2]. One explanation for these findings is that AA men are less likely to have insurance coverage and

* Corresponding author. Tel.: +1-504-402-7945; fax: +1-504-842-2411.
E-mail address: mlhudson@ochsner.org (M.A. Hudson).

1078-1439/$ – see front matter
http://dx.doi.org/10.1016/j.urolonc.2013.01.003

access to healthcare [2]. In non-Veterans Affairs (VA) populations, AA men are less likely to be screened for prostate cancer than whites [3].

Equal treatment is assumed for those using Veterans Healthcare Administration (VHA) services for healthcare. The Systematic Review of VA Healthcare [4] found no evidence of racial disparities in prostate cancer care, but only focused on treatment after prostate cancer diagnosis. Shared Equal Access Regional Cancer Hospital (SEARCH) data, too, showed no disparities in time from diagnosis to surgical treatment of clinically localized prostate cancer within the VHA [5]. Although screening for colon, breast, and cervical cancers are recognized performance measures within the VHA, screening for prostate cancer is not [6]. We believe it is fair to state that in 2000, many urologists were urging primary physicians to do prostate-specific antigen (PSA) testing as part of an annual routine examination and that patients with a PSA >4 ng/ml were recommended to undergo a prostate biopsy. Our purpose is to show how this advice played out among veterans who followed it. We believe this has great meaning to practicing physicians and patients, as we seek to determine the 'real-life' outcomes to prostate cancer screening and detection.

As worse outcomes to prostate cancer treatment including surgical margin positivity [7], and increased biochemical recurrence rates [8] have been reported in AA veterans, we sought to determine whether any racial disparities exist in the use of prostate cancer screening and detection tools in veterans that might predispose them to negative outcomes. Whether prostate cancer screening disparities exist when equal insurance coverage is provided for AA and whites within the VHA is unknown. Worse outcomes of prostate cancer treatment have been reported in AA veterans when compared with white veterans [7,8], which could be due to delayed detection and diagnosis. Thus, it is imperative to determine if disparities exist in the use patterns of prostate cancer screening and detection tools in veterans with equal insurance coverage because survival models are focused on the time to detection not outcomes.

We sought to determine whether any racial disparities exist in the use of prostate cancer screening or detection tools in regular users of VHA healthcare and compared these with usage patterns of PSA testing and prostate biopsies in the largest prostate cancer screening trials [9,10].

2. Methods and materials

Data from the Corporate Data Warehouse were provided by the Veterans Administration Informatics and Computing Infrastructure [11]. VHA administrative records included age, gender, and race [12]. Presence or absence of disease was defined using laboratory data from the Decision Support System and administrative data using International Classification of Diseases, Version 9 (ICD-9-CM) and Physician's Common Procedure Terminology codes [13,14]. The St. Louis VA Institutional Review Board approved this study and waived informed consent.

The St. Louis Clinical Research and Epidemiology Workgroup previously constructed a national cohort of 536,415 veterans free of incidence of heart disease who used VHA healthcare between October 1, 1998 and September 30, 2007 [15] (Fig. 1A). Using a retrospective cohort design, we sampled 40- to 70-year-old men with at least 1 annual visit to the VHA between October 1, 1998 and September 30, 2000 (at least 2 visits in consecutive years during baseline) to determine the frequency of an elevated PSA level (>4 ng/ml), the frequency of prostate biopsy after an elevated PSA level is found, and the incidence of prostate cancer detection after biopsy for an elevated PSA level. Follow-up period was between October 1, 2000 and September 30, 2007. Those without at least 1 visit during the follow-up period were excluded.

Eligible subjects should have been free of an elevated PSA level; an abnormal digital rectal examination; diagnoses of atypia or prostatic intraepithelial neoplasia on a prostate biopsy; prostate cancer; and treatment for prostate cancer as defined by the ICD-9-CM codes, Common Procedure Terminology codes, or decision support system laboratory values during a baseline period (September 30, 1998 to October 1, 2000; Fig. 1B).

Subjects without records confirming race (3%), or those of a race other than AA or white were excluded because of the limited numbers of Asians, Pacific Islanders, and Native Americans. Hispanic ethnicity was not categorized as a race [12]. Race was assigned as the most commonly recorded race within multiple source documents.

Comorbid conditions were identified at first visit between October 1, 1998 and September 30, 2000 using ICD-9-CM codes. We used the Romano adaptation of the Charlson comorbidity index for administrative data to calculate each patient's Charlson-Romano score [16]. We adjusted for clinic visits per month as more frequent contact with the VHA providers could make it more likely that the recommended prostate cancer screening would occur. Total clinic visits were summed for each subject from October 1, 2000 up to the date of the detection of a PSA level >4 ng/ml, to the date of prostate biopsy, and to the date of the diagnosis of prostate cancer, and the mean number of clinic visits per month were included in the models. Veterans with dual insurance eligibility at first visit between October 1, 1998 and September 30, 2000 were identified and separately analyzed to determine whether the option to receive care outside the VHA system had any effect on prostate cancer screening or diagnosis in this cohort.

Bivariate associations between race and PSA testing, elevated PSA, prostate biopsy, and prostate cancer diagnosis were evaluated with Chi-square tests. Logistic regression was used to examine the effect of race on undergoing a PSA test. We computed separate Cox proportional hazard models to examine: (1) the association