UROLOGIC ONCOLOGY

Original article

Mental health outcomes in elderly men with prostate cancer

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Abstract

Objective: To examine the burden of mental health issues (MHI), namely anxiety, depressive disorders, and suicide, in a population-based cohort of older men with localized prostate cancer and to evaluate associations with primary treatment modality.

Patients and methods: A total of 50,856 men, who were 65 years of age or older with clinically localized prostate cancer diagnosed between 1992 and 2005 and without a diagnosis of mental illness at baseline, were abstracted from the Surveillance, Epidemiology, and End Results–Medicare database. The primary outcome of interest was the development of MHI (anxiety, major depressive disorder, depressive disorder not elsewhere classified, neurotic depression, adjustment disorder with depressed mood, and suicide) after the diagnosis of prostate cancer.

Results: A total of 10,389 men (20.4%) developed MHI during the study period. Independent risk factors for MHI included age ≥ 75 years (hazard ratio [HR] = 1.29); higher comorbidity (Charlson comorbidity index ≥ 3, HR = 1.63); rural hospital location (HR = 1.14); being single, divorced, or widowed (HR = 1.12); later year of diagnosis (HR = 1.05); and urinary incontinence (HR = 1.47). Black race (HR = 0.79), very high-income status (HR = 0.87), and definitive treatment (radical prostatectomy [RP], HR = 0.79; radiotherapy [RT], HR = 0.85, all $P < 0.001$) predicted a lower risk of MHI. The rates of MHI at 10 years were 29.7%, 29.0%, and 22.6% in men undergoing watchful waiting (WW), RT, and RP, respectively.

Conclusion: Older men with localized prostate cancer had a significant burden of MHI. Men treated with RP or RT were at a lower risk of developing MHI, compared with those undergoing WW, with median time to development of MHI being significantly greater in those undergoing RP compared with those undergoing RT or WW. © 2014 Elsevier Inc. All rights reserved.

Keywords: Anxiety; Depression; SEER; Medicare; Prostate cancer

1. Introduction

Prostate cancer is the commonest cancer in men, with more than 230,000 new cases predicted in the United States in 2014 [1]. Most cases are clinically localized and the 3 main treatment options for such disease—radical prostatectomy (RP), radiotherapy (RT), and watchful waiting (WW)—produce favorable long-term survival [2,3], with approximately 50% of men expected to be alive 15 years after commencement of active treatment [4].

An underrecognized aspect of prostate cancer care is mental health [5]; good-quality evidence suggests that 60%

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of men with prostate cancer experience some form of psychological distress [6], with 10% to 40% meeting criteria for clinically significant depression [7]. Factors leading to this may include the distress associated with a cancer diagnosis; uncertainties about treatment decision; quality-of-life impairment, resulting from treatment; and worries during follow-up, particularly with frequent testing of prostate-specific antigen level. Although long-term data comparing quality-of-life outcomes after RP or RT [8] and RP or WW [9] have recently been published, there is a paucity of evidence on the diagnosed rates of mental illness in localized prostate cancer and, comparisons across treatment modalities are sparse.

We therefore sought to evaluate the burden of diagnosed mental health issues (MHI), namely anxiety, depressive disorders, and suicide, in a large population-based cohort of older men with localized prostate cancer. Additionally, we wished to identify predictors of the development of MHI and to assess its association with the 3 main treatment modalities, RP, RT, and WW. We hypothesized that men receiving definitive treatment (RP or RT) would have a lower risk of developing MHI.

2. Patients and methods

2.1. Data source

The United States Surveillance, Epidemiology, and End Results (SEER)–Medicare–linked database was used to abstract data. SEER regions account for 28% of the US population, and Medicare provides federal health insurance for approximately 97% of individuals who are 65 years of age and older. Linkage to the SEER database is complete for 93% of patients.

2.2. Study cohort

The cohort comprised men who were 65 years of age or older, were diagnosed with clinically localized prostate cancer between 1992 and 2005, had both Medicare Part A and B claims available, and were not enrolled in a health maintenance organization throughout the study period. Those diagnosed at autopsy or death certificate only were excluded, as were those whose original or current reason for Medicare entitlement was listed as a disability or a Medicare status code, including disability. To eliminate confounding effects related to adverse disease outcomes, men with T3-T4 category cancer; high, anaplastic, or unknown tumor grade; unknown stage; and 80 years of age or older at diagnosis were excluded. Men with a baseline diagnosis of erectile dysfunction (ED), urinary incontinence (UI), and depressive or anxiety disorders (i.e., major depressive disorder [International Classification of Diseases {ICD}-9 296.2 and 296.3], depressive disorder not elsewhere classified [ICD-9 311], neurotic depression [ICD-9

300.4], adjustment disorder with depressed mood [ICD-9 309.0], and anxiety states [ICD-9 300.0]) were excluded.

2.3. Patient and sociodemographic characteristics

Age at diagnosis, race (white, black, or other), population density (rural or urban), zip code income, and marital status (married, single, divorced, or widowed) were assigned using SEER data. Comorbidity status was derived using the Klabunde modification [10] of the Charlson comorbidity index (CCI) [11] and categorized as 0, 1, 2, and ≥ 3. Tumor grade was classified as well differentiated (Gleason score 2–4) or moderately differentiated (Gleason score 5–7).

2.4. Primary treatment type

Receipt of active treatment (RP and RT) during the first 6 months after diagnosis was identified through Medicare claim files, as previously described [12,13]. WW was defined as the absence of active treatment codes (RP, external beam RT, radiation implants, brachytherapy, hormonal therapy, and orchiectomy). Men who received concomitant androgen deprivation therapy (ADT), in addition to RP and RT within 6 months of diagnosis were included, but those treated with ADT alone were excluded, as hormonal monotherapy is not an approved treatment option for localized prostate cancer.

2.5. End points

The primary outcome of interest was the subsequent development of MHI, namely depressive or anxiety disorders (as listed earlier) and suicide (ICD-0 E950-959). These disorders were chosen to reflect the most important mental health problems arising in patients with prostate cancer, as per the current literature [14].

2.6. Statistical analysis

Medians and interquartile ranges were generated for continuously coded variables; frequencies and proportions were generated for categorical variables. The Mann-Whitney and chi-square tests were used to assess differences in medians and proportions, respectively. We relied on Kaplan-Meier plots to graphically illustrate survival rates without MHI according to treatment type. Survival rates were then calculated using life tables. Multivariable Cox regression analyses tested the effect of marital status, Gleason grade, treatment type, race, age, income, and the coreceipt of ADT on development of MHI. The date of treatment was used as the starting time of observation. All tests were 2 sided with statistical significance set at $P < 0.05$ (R Foundation for Statistical Computing, v.3.0.1).