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Review article

Decreasing suicide risk among patients with prostate cancer: Implications for depression, erectile dysfunction, and suicidal ideation screening

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Abstract

Objective: Prostate cancer is the most common malignancy among males, accounting for 19% of cancers, and the third most common cancer-related cause of death. Suicide rates in the United States have increased among males over the last decade. Further, suicide rates are higher in oncology patients, including patients with prostate cancer, compared to the general population. The objective of this article is to review the current literature and address the relationship between prostate cancer, depression, erectile dysfunction, and suicidal ideation.

Materials and methods: We reviewed the current literature pertaining to prostate cancer and depression, and prostate cancer and suicide. Furthermore, associations were made between erectile dysfunction and depression.

Results: Men with prostate cancer at increased risk for suicidal death are White, unmarried, elderly, and men with distant disease. Time since diagnosis is also an important factor, since men are at risk of suicide >15 years after diagnosis. Approximately 60% of men with prostate cancer experience mental health distress, with 10%–40% having clinically significant depression. Additionally, patients that received androgen deprivation therapy (ADT) are 23% more likely to develop depression compared to those without ADT. Longitudinal studies of prostate cancer patients suggest that erectile dysfunction after curative treatment may have a significant psychological effect leading to depression. Herein, a newly proposed screening algorithm suggests for an evaluation with the expanded prostate cancer index composite-clinical practice, patient health questionnaire-9, and an 8-question suicidal ideation questionnaire to assess for health-related quality of life, depression, and suicidal ideation.

Conclusion: The burden of screening for erectile dysfunction, depression and suicidal ideation lies with the entire health care team, as there appears to be an association between these diagnoses, that is, compounded in patients with prostate cancer. The screening algorithm should assist with guiding timely and appropriate psychiatric referral to optimize outcomes in these high-risk patients.

Keywords: Prostate cancer; Suicidal ideation; Suicide; Erectile dysfunction; Depression; Survivorship; Quality of life

1. Introduction

In 2017 in the United States, there will be an estimated 161,360 new cases of prostate cancer and approximately 26,730 deaths [1]. Prostate cancer is the most commonly diagnosed malignancy among males, accounting for 19% of all cancers, and the third most common cancer-related cause of death [1]. Although localized prostate cancer is highly curable, this is often associated with significant, life-altering side effects including urinary, bowel, and sexual dysfunction [2,3].

According to the World Health Organization (WHO), more than 800,000 individuals worldwide commit suicide

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on a yearly basis [4]. Furthermore, the National Institute of Mental Health has reported that suicide rates in the United States have increased among males, from 19.0 per 100,000 in 2008 to 20.7 per 100,000 in 2014 [5]. Suicide rates have been reported to be higher in oncology patients compared to the general population [6] (31.4 suicides per 100,000 [7]), including patients with prostate cancer [8–10] (48.3 suicides per 100,000 [9]). Together with an estimated 16.1 million American adults suffering from at least one major depressive episode per year [11], these statistics have important implications for the mental health and quality of life of long-term prostate cancer survivors.

A review of the risk factors for repeated suicide attempts by Beghi et al. has shown an association between suicidal ideation and death, white ethnicity, older age, male gender, and living alone [12]. Most prostate cancer patients fit aspects of this demographic profile (white, older age, and male), in addition to potentially having other treatment related side effects, such as erectile dysfunction, incontinence, bowel dysfunction and depression, that may increase their suicide risk. As such, identifying and screening these patients for suicidal ideation is important. To date there has been a paucity of literature highlighting screening methods for depression and erectile dysfunction among patients with prostate cancer. The objective of this article is to provide a narrative review of the current literature and address the relationship between prostate cancer, depression, erectile dysfunction, and suicidal ideation. Further, we propose a screening algorithm for identifying these patients who may be at increased risk for suicidal death.

2. Methods

We conducted a comprehensive literature search using Medline, PubMed, and reviewing references from pertinent articles. A combination of keywords (focusing on an association with prostate cancer) were used, such as "suicide," "depression," "erectile dysfunction," and "screening." For the results (Section 3, I–IV), there were 91 articles that were reviewed, 67 of which were downloaded and 24 identified from references. Among these articles, 76 were excluded (27 secondary to reviews/editorials, and 49 secondary to content deemed outside the scope of this narrative review). The remaining 15 articles were selected with the purpose of providing a narrative review relating depression and erectile dysfunction to suicide risk in prostate cancer survivors, in addition to assessing appropriate screening tools for identifying these clinical entities.

3. Results

3.1. Prostate cancer and suicide

The first population-based study analyzing suicidal death in prostate cancer patients was based on data from the Prostate Cancer Database Sweden (PCBaSe) [9]. The PCBaSe includes 97% of all prostate cancer cases derived from the National Prostate Cancer Register of Sweden from 1997 to 2006. In this cohort study, 77,439 men with prostate cancer were age-matched to Swedish men without prostate cancer. There were 128 suicides with a suicide rate of 48.3 per 100,000 person-years in the prostate cancer population, compared to a suicide rate of 31.9 per 100,000 person-years in the control population (standardized mortality ratio (SMR) = 1.5, 95% CI: 1.3–1.8) [9]. Suicide risk in men with prostate cancer was significantly higher in patients with biopsy Gleason score 8 to 10 disease (SMR = 2.1, 95% CI: 1.4–3.0), locally advanced disease (T3 and T4; SMR = 2.2, 95% CI: 1.6–2.9) and distant metastases (SMR = 2.1, 95% CI: 1.2–3.6) [9]. Further risk of suicide was attributed to modality of prostate cancer detection, specifically men diagnosed after workup for lack of strength, anemia, and pain (i.e., advanced disease; SMR = 2.1, 95% CI: 1.6–2.7) [9]. This study suggested a higher suicide risk in men with advanced prostate cancer compared to the general population.

A subsequent study by our group used the Surveillance, Epidemiology, and End Results (SEER) database to assess factors associated with increased risk of suicide in all genitourinary malignancies [8]. Specific to prostate cancer, patients diagnosed between 1988 and 2010 had suicide rates calculated and matched to the general population based on race and age. There were 1,613 suicides (SMR = 1.37, 95% CI: 0.99–1.86) during the study period. Increased risk of suicide was associated with men over the age of 80 (SMR = 1.35, 95% CI: 1.05–1.69), those that were unmarried (SMR = 2.17, 95% CI: 1.65–2.72), and those of white race (SMR = 1.40, 95% CI: 1.01–1.85) [8]. Men that did not undergo a radical prostatectomy and those with distant disease were also associated with increased risk of suicide (SMR = 1.51, 95% CI: 1.09–2.01 and SMR = 3.56, 95% CI: 2.91–4.37, respectively) compared to the general population. The effect of time from diagnosis and suicidal outcome was also assessed; prostate cancer patients were particularly at risk >15 years after diagnosis (SMR = 1.84, 95% CI: 1.39–2.41). Further, multivariable analysis assessing for predictors of suicidal death found that increasing age (odds ratio [OR] = 1.06, 95% CI: 1.06–1.07), unmarried status (OR = 2.23, 95% CI: 1.99–2.50), nonsurgical treatment (OR = 1.31, 95% CI: 1.10–1.55), and distant disease (OR = 2.82, 95% CI: 2.12–3.75) were associated with increased risk for suicide in men with prostate cancer [8]. African-American race (vs. white OR = 0.34, 95% CI: 0.26–0.44) was not associated with suicidal death [8].

The SEER database was further used to evaluate the risk of suicide in men with prostate cancer compared to other solid organ malignancies (as opposed to the general population), and to assess the effect of different primary treatments [10]. All men diagnosed with prostate cancer from 1988 to 2010 (n = 524,965) were compared to men