Sexual Medicine
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ORIGINAL RESEARCH—ERECTILE DYSFUNCTION

A Longitudinal Study of Predictors of Sexual Dysfunction in Men on Active Surveillance for Prostate Cancer

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ABSTRACT

Aim. The aim of this study was to examine the relationship between sexual dysfunction, repeat biopsies and other demographic and clinical factors in men on active surveillance (AS).

Methods. Patient-reported outcomes (PROs) measures were administered at enrollment and every 6 months to assess quality of life (QOL), psychosocial and urological health outcomes. Using mixed-effects models, we examined the impact of repeat biopsies, total number of cores taken, anxiety, age, and comorbidity on sexual function over the first 24 months of enrolling in AS.

Main Outcome Measures. PROs included the Expanded Prostate Cancer Index Composite-26 (EPIC-26) Sexual Function (SF) subscale, the American Urological Association-Symptom Index (AUA-SI), and the Memorial Anxiety Scale for Prostate Cancer (MAX-PC).

Results. At enrollment (n = 195), mean age was 66.5 ± 6.8 with a mean EPIC-26 SF score of 61.4 ± 30.4. EPIC-26 SF scores steadily decreased to 53.9 ± 30.7 at 24 months ($P < 0.01$). MAX-PC scores also progressively decreased over time ($P = 0.03$). Factors associated with lower EPIC-26 scores over time included age, unemployed status, diabetes, coronary artery disease, and hypertension (all $P < 0.05$). Higher prostate-specific antigen (PSA) was associated with a more rapid decline in EPIC-26 SF over time ($P = 0.03$). In multivariable analysis, age, diabetes, and PSA × time interaction remained significant predictors of diminished sexual function. Anxiety, number of biopsies, and total cores taken did not predict sexual dysfunction or change over time in our cohort.

Conclusions. Men on AS experienced a gradual decline in sexual function during the first 24 months of enrollment. Older age, PSA × time, and diabetes were all independent predictors of diminished sexual function over time. Anxiety, AUA-SI, the number of cores and the number of biopsies were not predictors of reduced sexual function in men in AS. **Pearce SM, Wang CHE, Victorson DE, Helfand BT, Novakovic KR, Brendler CB, and Albaugh JA. A longitudinal study of predictors of sexual dysfunction in men on active surveillance for prostate cancer. Sex Med 2015;3:156–164.**

Key Words. Prostate Cancer; Erectile Dysfunction; Sexual Dysfunction; Active Surveillance; Quality of Life

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Introduction

Active surveillance (AS) has become a viable alternative to surgery and radiation in the management of men with low risk for prostate cancer (PCa). While it is currently underutilized, with only 9% of eligible men choosing AS [1], one would expect that AS will become a more popular treatment option as more long-term outcomes data become available. One clear advantage of AS is to minimize morbidity such as sexual dysfunction (SD) associated with radical prostatectomy (RP) and radiation therapy (RT). Nonetheless, it has been demonstrated that men on AS also experience some degree of SD [2–5].

As measured by the Sexual Health Inventory for Men (SHIM), 49% of men on AS for low-risk PCa experience erectile dysfunction (ED), the most common form of SD [2]. While not directly comparable with the AS population, the multicenter Prostate Cancer Intervention Versus Observation Trial (PIVOT) study reported SD in 44% of men being observed for PCa compared with 81% of patients undergoing RP at a median of 2 years after diagnosis [3]. It is not surprising that older men with PCa report SD, but 80% of men undergoing watchful waiting describe SD as a major issue compared with 46% of age-matched controls over an average follow-up of 12.2 years in a population-based Scandinavian study [4]. A recent study comparing men on AS with patients undergoing radical therapy (RT or RP) found that men on AS were more often sexually active compared with men who underwent local therapy. Among men who were sexually active, 44–51% of men on AS reported difficulty achieving or maintaining an erection compared with 84–85% of men in the treatment group [5]. Sexually inactive men on AS were also less likely to attribute their inactivity to ED [5]. Taken together, the data shown earlier indicate that while AS has a much more favorable risk profile compared with radical therapy, SD remains a significant problem for men being followed for low risk disease.

A thorough review of the existing literature has revealed a number of potential predictive factors for SD among men on AS including body mass index (BMI), prostate volume, number of cores taken at prostate biopsy (PB), frequency of PB, and psychosocial factors such as the anxiety [6]. However, examination of the association between PB and SD has yielded conflicting results with some data indicating no adverse effect of PB on erectile function [7–9], and other studies suggesting both short- and long-term SD as a result of PB [10–12]. A retrospective study of men on AS found that increased biopsy number correlated with decreased SHIM scores, but age, prostate volume, and prostate-specific antigen (PSA) had no relation to decline in SHIM scores [12]. The psychologic interplay of AS and sexual function is highlighted by the finding that 6% of men experience some degree of SD in anticipation of a PB [13]. There is evidence that that men diagnosed with PCa after PB experience a greater decline in erectile function compared with men with benign biopsy results, indicating a potential psychologic effect of the cancer diagnosis on erectile function [14]. Additionally, there is evidence that increased levels of depression and anxiety are associated with decreased sexual function in men during the first 3 years after RP after controlling for age, cancer characteristics, and receipt of salvage treatment [15]. As most previous studies examining sexual function in men on AS have been cross-sectional, there is limited understanding of predictors of SD over time in this patient population. In order to effectively counsel patients regarding the risks of AS, we need a better understanding of factors that are predictive of SD among men on AS.

Aims

SD over time in men on AS for PCa may be related to specific patient demographics, clinical characteristics and psychosocial parameters. We sought to examine the relationship between SD and demographic, clinical, and patient-reported outcome (PRO) data to determine predictive factors of SD in a longitudinal observation trial of men on AS.

Methods

Study Population

As part of a prospective, longitudinal, observational Institutional Review Board-approved AS protocol, several PROs measures were administered at enrollment and during follow-up. After enrollment a confirmatory biopsy was done on each participant, followed by a PSA and exam at regular 6-month intervals. Subsequent biopsies occur every 2 years unless otherwise indicated by changes in PSA or exam. PROs were used to assess how AS influences quality of life (QOL), psychosocial and urological health outcomes. Informed written consent was obtained from all participants. All men were diagnosed with PCa prior to enrollment. Men considered for AS under our study