Original Article

Trajectories and Predictors of Symptom Occurrence, Severity, and Distress in Prostate Cancer Patients Undergoing Radiation Therapy

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Abstract

Context. Radiation therapy (RT) is a common treatment for prostate cancer. Despite available research, prostate cancer patients report that information about side effects is their most important unmet need. Additional research is needed that focuses on specific dimensions of the patient's symptom experience.

Objectives. The study's purposes were to evaluate the trajectories of occurrence, severity, and distress of the six most prevalent symptoms reported by patients undergoing RT for prostate cancer and the effects of selected demographic and clinical characteristics on these trajectories.

Methods. Patients completed the Memorial Symptom Assessment Scale 11 times before, during, and after RT. For problems with urination, pain, lack of energy, feeling drowsy, difficulty sleeping, and diarrhea, the trajectories of occurrence, severity, and distress were evaluated using multilevel generalized linear models.

Results. Across all three dimensions, pain, lack of energy, feeling drowsy, and difficulty sleeping followed a decreasing linear trend. Problems with urination and diarrhea demonstrated more complex patterns of change over time.

Conclusion. Although longitudinal data on pain, lack of energy, feeling drowsy, and difficulty sleeping are limited, they are highly prevalent symptoms in these patients. In addition, diarrhea becomes a significant problem for these patients over the course of RT. A number of demographic and clinical characteristics affect the trajectories of these common symptoms differentially. J Pain Symptom Manage 2012;44:486–507.

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Prostate cancer, radiation therapy, piecewise modeling, symptom trajectories, symptom predictors, occurrence, severity, distress, pain

Introduction

Prostate cancer accounts for one in four new cancers diagnosed in men annually in the U.S., with an estimated 241,740 new cases in 2012.[1] Treatments for prostate cancer include surgery, hormonal therapy, and radiation therapy (RT). Most of the longitudinal studies of side effects have focused on an evaluation of differences in urinary, bowel, and sexual functioning among the various treatments for prostate cancer.[2–7] However, no longitudinal studies have compared multiple symptom trajectories in the same sample of patients who underwent RT for prostate cancer or attempted to determine which symptoms are the most common as well as the most severe and distressing.

Changes in Bowel, Bladder, and Sexual Symptom Occurrence Rates Across Prostate Cancer Treatments

In studies that compared RT with radical prostatectomy (RP), patients who underwent RT had more bowel and bladder problems at the initiation of RT than patients who underwent RP.[2,5,6] However, men who underwent RP had a sharp increase in urinary problems that decreased over time.[3–6] In contrast, the occurrence of urinary problems after RT increased[2,4,5] or decreased and then increased[6] over time. Additional work found that a higher percentage of patients who had an RP reported more urinary incontinence issues than those who had RT. However, a higher percentage of RT patients reported more obstructive and irritative symptoms.[5] In terms of bowel dysfunction, higher occurrence rates were noted after RT compared with RP.[3–5] Both treatments resulted in decreases in sexual function. However, patients who underwent RP reported a more precipitous decline in sexual function.[3,4,6,7]

Changes in Pain and Fatigue Occurrence and Severity Rates During and After RT for Prostate Cancer

Changes in the occurrence and/or severity of pain and fatigue in prostate cancer patients during and after RT were reported in only five studies.[8–12] In one study,[9] pain severity did not change over the course of RT. In contrast, Lips et al.[10] reported that changes in pain intensity after one month of RT were dependent on the type of RT received. In terms of fatigue, in two studies,[8,9] fatigue increased over the course of RT but returned to baseline shortly after completion of treatment. In contrast, Monga et al.[12] found that fatigue scores remained significantly elevated for 12 months or more after RT. Of note, Miaskowski et al.,[11] using hierarchical linear modeling, reported marked individual variability in fatigue severity during and after RT for prostate cancer.

Changes in Symptom Distress During and After RT for Prostate Cancer

Most of the studies of symptom trajectories in patients with prostate cancer have evaluated the dimensions of occurrence or severity. However, an important dimension of the symptom experience is distress.[13] To date, only six studies have reported on the trajectories of distress over the course of RT in patients with prostate cancer.[3,4,7,14–16] All these studies evaluated distress associated with urinary, bowel, and/or sexual symptoms. The findings across these studies are inconsistent and warrant additional investigation.

In a longitudinal study of patients with localized prostate cancer,[15] patients' ratings of distress associated with urinary, bowel, and bladder dysfunction decreased over 48 months. In another study that compared patients who underwent RT with healthy controls,[14] no between-group differences in urinary bother were found at 15 years after treatment. In a third study,[7] no significant changes in urinary or sexual bother were found from baseline to 12 months after treatment. However, Krahn et al.[3] found that urinary and bowel bother increased significantly two months after treatment and remained elevated at one year after treatment. In contrast, Namiki et al.[16] reported an increase in urinary bother at one month post RT that had returned to baseline levels at