Long-term Prostate Cancer-specific Mortality After Prostatectomy, Brachytherapy, External Beam Radiation Therapy, Hormonal Therapy, or Monitoring for Localized Prostate Cancer

Annika Herlemann, Janet E Cowan, Samuel L Washington 3rd, Anthony C Wong, Jeanette M Broering, Peter R Carroll, Matthew R Cooperberg

Abstract

Background: The optimal treatment of localized prostate cancer (PCa) remains controversial.

Objective: To compare long-term survival among men who underwent radical prostatectomy (RP), brachytherapy (BT), external beam radiation therapy (EBRT), primary androgen deprivation therapy (PADT), or monitoring (active surveillance [AS]/watchful waiting [WW]) for PCa.

Design, setting, and participants: This is a cohort study with long-term follow-up from the multicenter, prospective, largely community-based Cancer of the Prostate Strategic Urologic Research Endeavor (CaPSURE) registry. Men with biopsy-proven, clinical T1-3aN0M0, localized PCa were consecutively accrued within 6 mo of diagnosis and had clinical risk data and at least 12 mo of follow-up after diagnosis available.

Outcome measurements and statistical analysis: PCa risk was assessed, and multivariable analyses were performed to compare PCa-specific mortality (PCSM) and all-cause mortality by primary treatment, with extensive adjustment for age and case mix using the Cancer of the Prostate Risk Assessment (CAPRA) score and a well-validated nomogram.

Results and limitations: Among 11 864 men, 6227 (53%) underwent RP, 1645 (14%) received BT, 1462 (12%) received EBRT, 1510 (13%) received PADT, and 1020 (9%) were managed with AS/WW. At a median of 9.4 yr (interquartile range 5.8-13.7) after treatment, 764 men had died from PCa. After adjusting for CAPRA score, the hazard ratios for PCSM with RP as the reference were 1.57 (95% confidence interval [CI] 1.24-1.98; p < 0.001) for BT, 1.55 (95% CI 1.26-1.91; p < 0.001) for EBRT, 2.36 (95% CI 1.94-2.87; p < 0.001) for PADT, and 1.76 (95% CI 1.30-2.40; p < 0.001) for AS/WW. In models for long-term outcomes, PCSM differences were negligible for low-risk disease and increased progressively with risk. Limitations include the evolution of diagnostic and therapeutic strategies for PCa over time. In this nonrandomized study, the possibility of residual confounding remains salient.

Conclusions: In a large, prospective cohort of men with localized PCa, after adjustment for age and comorbidity, PCSM was lower after local therapy for those with higher-risk disease, and in particular after RP. Confirmation of these results via long-term follow-up of ongoing trials is awaited.

Patient summary: We evaluated different treatment options for localized prostate cancer in a large group of patients who were treated mostly in nonacademic medical centers. Results from nonrandomized trials should be interpret with caution, but even after careful risk adjustment, survival rates for men with higher-risk cancer appeared to be highest for patients whose first treatment was surgery rather than radiotherapy, hormones, or monitoring.