

Comparative Risk-Adjusted Mortality Outcomes After Primary Surgery, Radiotherapy, or Androgen-Deprivation Therapy for Localized Prostate Cancer

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Treatment alternatives offered to prostate cancer patients include active surveillance, radical prostatectomy, external-beam radiation therapy and brachytherapy. To date, there are no randomized trials comparing the efficacy of these treatment modalities for localized prostate cancer. This study analyzes risk-adjusted, cancer-specific mortality among patients who underwent radical prostatectomy (RP), external-beam radiation therapy (EBRT) and primary androgen-deprivation therapy (PADT).

Materials and methods

Data source: CaPSURE registry

- **CaPSURE is a national disease registry that accrues patients with biopsy-proven prostate adenocarcinoma who receive treatment at any of 40 urology practices across the United States**
 - 7538 men comprised the analytic dataset of this study
 - Treatment of patients included in this study occurred a time from 1987 to 2007
- **Clinical endpoints used: Cancer-specific mortality (CSM) & all-cause mortality (ACM)**
 - CSM is determined if prostate cancer is listed as primary, secondary or tertiary cause of death on the death certificate and if no other malignancy is listed as a higher order cause
 - ACM includes perioperative mortality, death from complications of radiation and/or androgen deprivation
- **Statistical instruments: Kattan score & CAPRA score**
 - Kattan score, a score from 0-100, is calculated from the PSA level, Gleason grade and clinical tumor classification indicates the probability of recurrence-free survival after radical prostatectomy
 - Cancer of the Prostate Risk Assessment (CAPRA) is a score from 0-10 calculated from PSA level, Gleason grade, clinical T stage, age at diagnosis, and percentage of biopsy scores, predicts pathologic stage and biochemical recurrence-free survival
 - Both tools were used to ensure that analyses did not depend on a specific risk-adjustment approach

Results

The hazard ratio for cancer-specific mortality relative to prostatectomy was 2.21 (95% confidence interval (CI) 1.50-3.24) for radiation therapy, and 3.22 (95% CI 2.16-4.81).

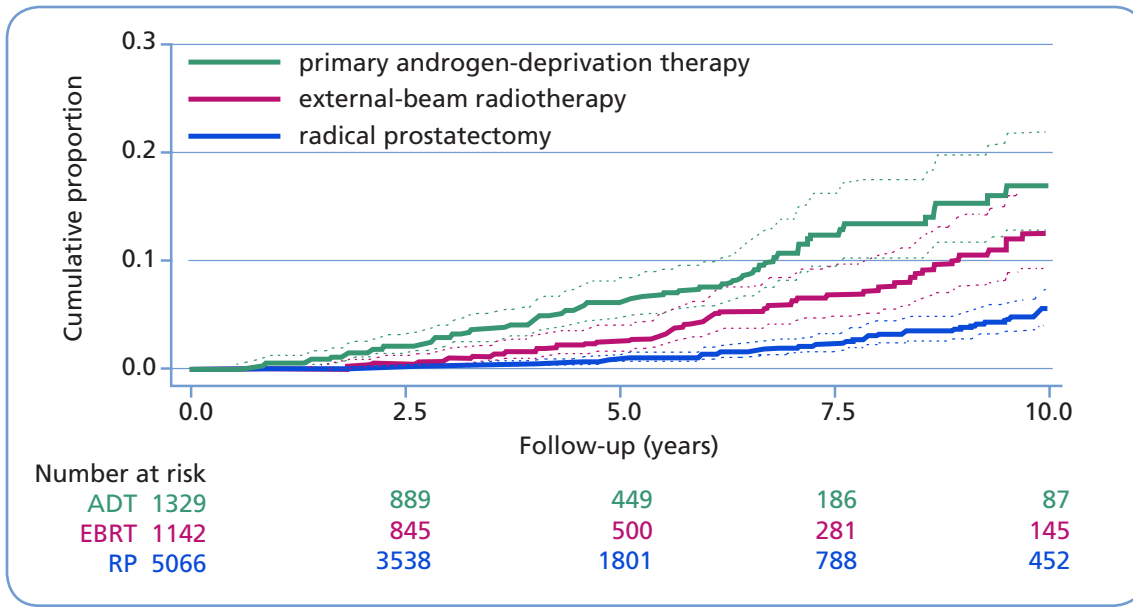
Clinical Data

Survival Analysis for Predicting Prostate Cancer-Specific Mortality

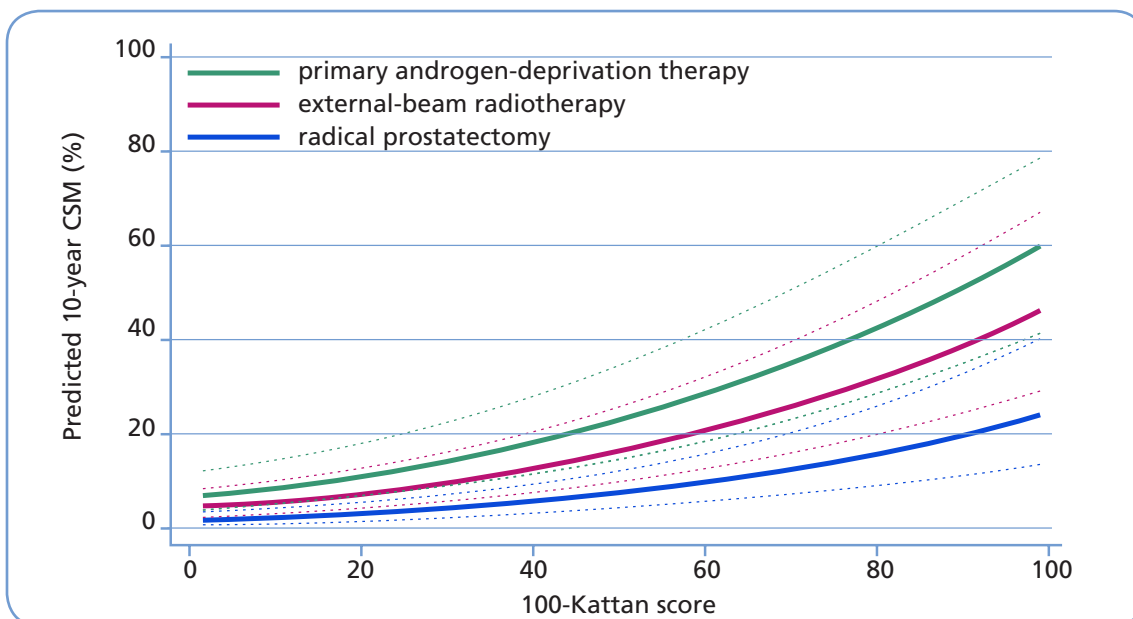
Variable	Kattan Score			CAPRA Score		
	HR	P	95% CI	HR	P	95% CI
Radical Prostatectomy						
			Reference			Reference
External-Beam Radiation Therapy	2.21	<0.001	1.50-3.24	1.63	0.017	1.09-2.45
Primary Androgen Deprivation Therapy	3.22	<0.001	2.16-4.81	2.65	<0.001	1.75-4.01

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Likelihood of Prostate-Specific Mortality According to Primary Treatment (Unadjusted Time-To-Event Curves)



Predicted 10-year Prostate Cancer-Specific Mortality (CSM) After Radical Prostatectomy, External-Beam Radiotherapy, and Primary Androgen-Deprivation Therapy



Conclusion

- Prostatectomy in patients with localized prostate cancer results in reduced mortality compared to radiation and androgen-deprivation therapies. This is not a randomized study. However, adjustments and sensitivity analyses were made to ensure that unmeasured confounding factors do not account for the resulting differences in survival.