

PROTON VERSUS INTENSITY-MODULATED RADIOTHERAPY FOR PROSTATE CANCER: PATTERNS OF CARE AND EARLY TOXICITY.

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Background Proton radiotherapy (PRT) is an emerging treatment for prostate cancer despite limited knowledge of clinical benefit or potential harms compared with other types of radiotherapy.

We therefore compared patterns of PRT use, cost, and early toxicity among Medicare beneficiaries with prostate cancer with those of intensity-modulated radiotherapy (IMRT).
Methods

We performed a retrospective study of all Medicare beneficiaries aged greater than or equal to 66 years who received PRT or IMRT for prostate cancer during 2008 and/or 2009. We used multivariable logistic regression to identify factors associated with receipt of PRT. To assess toxicity, each PRT patient was matched with two IMRT patients with similar clinical and socio-demographic characteristics.

- The main outcome measures were receipt of PRT or IMRT, Medicare reimbursement for each treatment, and early genitourinary, gastrointestinal, and other toxicity. All statistical tests were two-sided. Results we identified 27,647 men; 553 (2%) received PRT and 27,094 (98%) received IMRT.
- Patients receiving PRT were younger, healthier, and from more affluent areas than patients receiving IMRT. Median Medicare reimbursement was \$32,428 for PRT and \$18,575 for IMRT.
- Although PRT was associated with a statistically significant reduction in genitourinary toxicity at 6 months compared with IMRT (5.9% vs 9.5%; odds ratio [OR] = 0.60, 95% confidence interval [CI] = 0.38 to 0.96, P = .03), at 12 months post-treatment there was no difference in genitourinary toxicity (18.8% vs 17.5%; OR = 1.08, 95% CI = 0.76 to 1.54, P = .66). ***There was no statistically significant difference in gastrointestinal or other toxicity at 6 months or 12 months post-treatment.***

Conclusions:

Although PRT is substantially more costly than IMRT, there was no difference in toxicity in a comprehensive cohort of Medicare beneficiaries with prostate cancer at 12 months post-treatment.