EDITORIAL

The Case for Prostate Brachytherapy in the Affordable Care Act Era

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Few oncologic entities are more deserving of national scrutiny than low-risk prostate cancer. Prostate cancer is among the top 5 most costly cancers, with $11.9 billion spent annually in the United States (1). Recent publications have drawn attention to financially driven practices and questionable referral patterns (2, 3). The Congressional Budget Office estimates that half the increase in health care expenditures over the past decades has been driven by expanded capabilities associated with new technologies (4). Intensity modulated radiation therapy (IMRT) and proton therapy come to mind. IMRT now accounts for more than 80% of radiation therapy treatments (5). Brachytherapy, by contrast, has been steadily declining in the United States (6). Payors are taking notice. Blue Shield of California and Aetna have stopped covering proton therapy for prostate cancer. Government and privately administered health insurers cut costs by reimbursing IMRT at a fraction of the billable rate. Treating institutions respond by inflating rates to compensate for aggressive cuts.

Win-Win-Win

In this small corner of cancer care, brachytherapy presents a rare opportunity for a win-win-win for patient, provider, and payor. An estimated 20 million Americans have gained coverage under the Affordable Care Act (ACA) (7). The Congressional Budget Office projects that enrollment through the exchanges will be 13 million in 2015 and 25 million through 2024. An additional 5 million people will enroll in ACA-compliant plans outside of the exchanges through 2024 (8). The potential impact of millions of newly insured men is substantial. These patients will be younger than the Medicare population. The American Cancer Society estimates 233,000 new cases of prostate cancer in 2014. Forty percent are diagnosed in men under the age of 65 (9). Surveillance, Epidemiology, and End Results (SEER) data show an annual incidence of 57.9 prostate cancers per 100,000 under the age of 65 (10). Although these younger patients will have fewer cancers overall, a disproportionate number of them will have early cancers, and they will be candidates for local therapy such as brachytherapy.

Patient

No prospective randomized trials have evaluated the efficacy of external beam radiation therapy, brachytherapy, or radical prostatectomy. Retrospective data show no difference in biochemical failure among low-risk patients (11), though a meta-analysis of 848 published abstracts by the Prostate Cancer Results Study Group found that brachytherapy-based approaches trended toward superior biochemical-free progression (12). The patient is doubly benefited when one considers the productivity that is not lost during a protracted course of IMRT or postoperative recovery. Brachytherapy patients have comparable urinary symptoms, fewer bowel toxicities, and better sexual function than their external beam counterparts (13). In a prospective, nonrandomized quality of life study, erectile
dysfunction was lower with brachytherapy than prostatectomy, although urinary symptoms were higher (14).

**Payor**

Over the next 10 years, population changes alone will drive a 27% increase in oncology spending (1). As an exercise, we estimated the cost of treating all low-risk cases by a single modality. Details on the methods used for these estimates can be found in the supplementary material available online at www.redjournal.org. We project an additional 70,110 cases of early prostate cancers over the next 10 years as a result of implementing the ACA. Treating all cases of low-risk disease with brachytherapy over the next 10 years would amount to $18.3 billion for low-dose-rate (LDR) therapy and $32.2 billion for high-dose-rate (HDR) therapy in four fractions. The cost soars to $54.0 billion when one considers the prospect of treating all cases by IMRT. The cost of active surveillance would be $1.9 billion. The marginal cost of men treated under the ACA is relatively small: $797 million for LDR, $1.4 billion for HDR, and $2.4 billion for IMRT (Fig. 1).

**Treating Institution**

Profit is maximized by billing more and reducing costs. The latter is a key issue for radiation oncologists. The recently released Medicare payment data reveal high overhead cost for radiation therapy facilities, largely resulting from space requirements, expensive equipment, shielding regulations, source replacement, staffing, service contracts, and technical services. When these variables are accounted for, the institutional costs for HDR ($5467) and LDR ($2395) are substantially lower than for IMRT ($23,665) (15). A detailed cost analysis showed economic efficiencies for both payor and provider when brachytherapy was chosen over IMRT (15). Put simply, brachytherapy may be more profitable than IMRT.

**Conclusion**

This exercise in low-risk prostate cancer demonstrates the opportunity to benefit patients, payors, and institutions with the use of brachytherapy. Readers are cautioned that our conclusions are based on many assumptions derived from data of varying quality. Sensitivity analysis is not provided. Estimates for profitability do not account for variability in institutional overhead, economies of scale, and multiple other operational and accounting specifics. Cost projections are for initial treatment only. We do not account for subsequent treatment or management of complications. This cost comparison may differ based on future reimbursement rates. This work is not a cost-effectiveness analysis and should not be interpreted as such. Active surveillance as an initial strategy for low-risk prostate cancer is not included in this comparison, yet is associated with the least initial cost. The lifetime cost for active surveillance is likely higher than brachytherapy because the base-case average lifetime cost of active surveillance is considerably higher, which is especially important when one considers the longer follow-up time and greater conversion to active treatment in younger patients who are good candidates for brachytherapy (16, 17).

Radiation oncologists should be proactive to the reintroduction and expansion of brachytherapy for prostate cancer. Patient-centered outcomes will be a driving force in the era of the ACA. With national scrutiny and negative attention from the Government Accountability Office on the line (2), it is never too early to reexamine and improve the education and practice of brachytherapy in our field.

**References**


