Brachytherapy for Prostate Cancer Linked to Higher Risk of Second Pelvic Malignancy

— Risk for any second malignancy, death from any second malignancy not higher versus prostatectomy

by Charles Bankhead, Senior Editor, MedPage Today April 23, 2024

Pelvic second malignancy occurred twice as often after brachytherapy for prostate cancer as compared with radical prostatectomy, a large retrospective review showed.

Second pelvic malignancy -- including bladder and rectum -- rates after brachytherapy were 6.4% at 15 and 9.8% at 20 years. That compared with 3.2% and 4.2% after prostatectomy. The risk of invasive pelvic second malignancy also was higher with brachytherapy, but rates of any second malignancy did not differ between the two treatment modalities.

By multivariable analysis, brachytherapy was an independent predictor for pelvic and invasive pelvic second malignancy, reported Scott Tyldesley, MD, of the BC Cancer Agency in Vancouver, British Columbia, and colleagues in the *Journal of Urology*.

"With a median follow-up of 14 years, we report higher HRs of pelvic and invasive pelvic SMN [second malignant neoplasm] in patients treated for PCa [prostate cancer] with BT [brachytherapy] monotherapy versus radical prostatectomy, suggestive of a higher rate in those patients treated with BT," the authors wrote. "Despite the higher Kaplan-Meier event estimate of bladder cancer and rectal cancer with BT, an increased risk of death from any SMN was not observed, consistent with the finding of absence of different HRs of any SMN between treatment groups. However, mortality after pelvic or invasive pelvic SMN was higher in BT."

"This information should be considered when treating men with localized PCa who have a long life expectancy," they added.

One limitation of the study involved tobacco use, a major cancer risk factor, noted Lannis Hall, MD, of Siteman Cancer Center and Washington University in St. Louis.

"Tobacco use was unknown in more than 60% of the radical prostatectomy group compared to 5% of the brachytherapy group," Hall told *MedPage Today* via email.

"Additionally, there were other potential risk factors that were not balanced between the two groups," said Hall, who is an expert for the American Society for Radiation Oncology (ASTRO).

"Several past studies similar to this review show no inherent difference in risk for pelvic malignancies, but this study does have a longer follow-up than most other studies," Hall added. "Like others, this retrospective series indicates no increased risk of mortality or secondary malignancies. This reinforces the importance of continued screening and education in this patient group as well as potential novel maneuvers to reduce scattered radiation, like hydrogel placement."

SMN following radiation therapy (RT) is an uncommon but important issue, Tyldesley and colleagues noted. SMN after external-beam RT (EBRT) for localized prostate cancer has been reported, but data regarding brachytherapy have been conflicting.

"The risk of SMN is especially important when considering therapeutic options for younger patients with long life expectancies following treatment of their PCa," they stated. "Counseling with adequate knowledge of these potential risks is a key consideration. Furthermore, patients at higher risk of SMN in the pelvis (such as bladder cancer or rectal cancer) may benefit from closer monitoring for early detection."

The authors previously reported no significant difference in the risk of SMN between 2,418 patients treated with brachytherapy and 4,015 treated with surgery and followed for a median of 5.8 years. The current study included 2,378 patients treated with brachytherapy and 9,089 with surgery during 1999 to 2010 and followed for 14 years.

The outcomes of interest included 15- and 20-year estimates of pelvic SMN, invasive pelvic SMN, any SMN, and death from any SMN. The data were adjusted for initial treatment type, age, post-prostatectomy adjuvant or salvage EBRT, and smoking history.

The brachytherapy group had a median age of 66 as compared with 63 for the surgery group. Following radical prostatectomy, 1,706 patients had adjuvant or salvage EBRT

to the prostate bed with or without pelvic nodes.

The multivariate analysis showed that pelvic SMN occurred significantly more often in the brachytherapy group (HR 1.81, 95% CI 1.45-2.26, *P*<0.001). Invasive pelvic SMN occurred more than twice as often after brachytherapy (HR 2.13, 95% CI 1.61-2.83, *P*<0.001).

The 15-year estimates for any SMN were 15.2% with brachytherapy and 11.6% with radical therapy, a difference that did not achieve statistical significance (HR 1.12, 95% CI 0.98-1.27, *P*=0.092). Time to death from any SMN also did not differ between the two treatment modalities.

Both older age and smoking were associated with higher estimates of any SMN (*P*<0.001) but not type of treatment.

Charles Bankhead is senior editor for oncology and also covers urology, dermatology, and ophthalmology. He joined MedPage Today in 2007. Follow

Disclosures

Tyldesley and Hall disclosed no relationships with industry.

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