Second primary cancers occurring after I-125 brachytherapy as monotherapy for early prostate cancer.


Abstract

AIMS: Prostate brachytherapy may be associated with a lower risk of radiation-induced second primary cancer (SPC) as a significantly smaller volume of normal tissue is irradiated when compared with external beam techniques. Limited data are available as it has been a routine treatment option for less than 20 years. This study identified cases of SPC in patients who underwent I-125 prostate brachytherapy as monotherapy in a single institution.

MATERIALS AND METHODS: SPC incidence was retrieved by conducting a UK cancer registry search (Northern and Yorkshire Cancer Registry and Information Service) for 1805 consecutive patients with localised prostate cancer who received monotherapy with I-125 brachytherapy from 1995 to 2006 at a single public hospital. Of 1730 UK residents, the completeness of the registry match was 91% (1574 patients). The mean age at treatment (interquartile range) of the cohort was 63 (58-68) years with 1100 patients (70%) over the age of 60 years at treatment. The median (range) follow-up was 8 (6-10) years with 487 patients (31%) having 10 years or more.

RESULTS: In total, 170 patients (10.8%) were diagnosed with second primaries (1 year or more after implant); 20 of these were bladder and 10 rectal cancers. The 10 year cumulative incidences were 14.6, 1 and 0.84% for any second malignancy, bladder and rectal cancer, respectively. Only the standardised incidence rate (SIR) for bladder cancer was higher at 1.54 (95% confidence interval 0.96-2.46) compared with the general population. The SIR for bladder cancer was higher in the first few years after treatment, suggesting that the increased incidence of bladder cancer is due to increased urological surveillance.

CONCLUSIONS: Overall, the incidence of SPC after I-125 is comparable with other published data with no significant excess more than 5 years from treatment. Mortality secondary to SPC of the bladder or rectum is unusual.

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KEYWORDS: Brachytherapy, prostate cancer, second primary cancers

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