Cigarette smoking is associated with an increased risk of biochemical disease recurrence, metastasis, castration-resistant prostate cancer, and mortality after radical prostatectomy: results from the SEARCH database.


Abstract

BACKGROUND: The current study was conducted to analyze the association between cigarette smoking and metastasis (the primary outcome) as well as time to biochemical disease recurrence (BCR), metastasis, castration-resistant prostate cancer (CRPC), and prostate cancer-specific and overall mortality (secondary outcomes) after radical prostatectomy among men from the Shared Equal Access Regional Cancer Hospital cohort.

METHODS: A retrospective analysis was performed of 1450 subjects for whom smoking status was available from preoperative notes. Analysis of baseline characteristics by smoking status was performed using the chi-square and rank sum tests. The association between smoking status and time to the event was analyzed using Kaplan-Meier plots, the log-rank test, and Cox and competing risk models.

RESULTS: A total of 549 men (33%) men were active smokers and 1121 (67%) were nonsmokers at the time of surgery. Current smokers were younger and had a lower body mass index, higher prostate-specific antigen level, and more extracapsular extension and seminal vesicle invasion (all P<.05). A total of 509 patients, 26 patients, 30 patients, 18 patients, and 217 patients, respectively, experienced BCR, metastasis, CRPC, prostate cancer-related death, and any-cause death over a median follow-up of 62 months, 75 months, 61 months, 78 months, and 78 months, respectively. After adjusting for preoperative features, active smoking was found to be associated with an increased risk of BCR (hazards ratio [HR], 1.25; P=.024), metastasis (HR, 2.64; P=.026), CRPC (HR, 2.62; P=.021), and overall mortality (HR, 2.14; P<.001). Similar results were noted after further adjustment for postoperative features, with the exception of BCR (HR, 1.10; P=.335), metastasis (HR, 2.51; P=.044), CRPC (HR, 2.67; P=.015), and death (HR, 2.03; P=.001).

CONCLUSIONS: Among patients undergoing radical prostatectomy, cigarette smoking was associated with an increased risk of metastasis. In addition, smoking was associated with a higher risk of BCR, CRPC, and overall mortality. If confirmed, these data suggest that smoking is a modifiable risk factor in patients with aggressive prostate cancer.

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KEYWORDS: disease-free survival; metastasis; mortality; prostate cancer; prostate-specific antigen; prostatectomy; smoking; tobacco
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