2388 Active Tobacco Use may Promote Late Genitourinary Toxicity after Radiotherapy for Prostate Cancer

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Purpose/Objective(s): Studies suggest worse local control or late toxicity in tobacco (tob.) users after radiotherapy (RT). We examined the effect of tob. use on freedom from biochemical relapse (FFBR) and late GI and GU toxicity in men treated with RT for prostate cancer.
Materials/Methods: 633 men with known tob. history at consultation were treated with curative-intent RT between 1988 and 2008. None had prostatectomy or brachytherapy. Tob. use was defined as positive (current or prior) or negative (never). Median RT dose was 74 Gy. 54% received Intensity Modulated RT (IMRT); 45% received androgen deprivation therapy (ADT, median 4 mo). Phoenix definition was used for FFBR. RTOG criteria were used to grade late GI and GU toxicity. Univariate analysis (UVA) compared tob. use (positive or negative) and other prognostic factors against FFBR and late toxicity. Multivariable analysis (MVA) included tob. history (current, prior, never) and other covariates associated with outcome on UVA ($p<0.1$).
Results: Median follow-up was 57 months. 418 men had positive and 215 had negative tob. history. There were 124 current, 285 prior, and 176 never smokers. 48 men had unclear tob. history. Age, risk group, and ADT or IMRT use did not differ significantly by tob. history, although tob. users had a trend for lower RT dose ($p = 0.09$). 5-yr FFBR was 76% for current, 81% for previous, and 87% for never smokers ($p=0.02$). Risk group ($p<0.0001$) and dose $\geq$ 74 Gy ($p<0.01$) were significant for improved FFBR. On MVA, risk group ($p<0.01$) and dose ($p<0.01$) were significant; tob. use was not ($p=0.21$). On UVA, factors associated with improved late GU toxicity included lack of IMRT ($p<0.01$), RT dose <74 Gy ($p<0.01$), and negative tob. history ($p=0.04$) for Grade 2+, and prior TURP ($p<0.01$) for grade 3+. Current smokers had a trend towards worse grade 3+ GU toxicity compared to previous or never smokers ($p=0.06$). On MVA for grade 2+ GU toxicity, RT dose ($p=0.03$) and tob. history (RR 1.4; $p=0.02$) were significant, but IMRT was not ($p=0.94$). On MVA for grade 3+, prior TURP ($p=0.01$) and current smokers (RR 3.0 compared to never users; $p=0.05$) did worse. Factors associated with improved late GI toxicity on UVA included lack of ADT use ($p=0.02$) and anticoagulant use (AC; $p<0.01$) for Grade 2+, and AC use ($p<0.01$) for grade 3+. On MVA, AC use ($p<0.01$) and ADT ($p=0.02$) remained associated with grade 2+ GI toxicity, but tob. use was not ($p=0.91$); AC use ($P=0.03$), but not tob. use ($p=0.69$), was associated with Grade 3+ GI toxicity.
Conclusions: Tob. use was associated with inferior FFBR in this cohort treated with RT for prostate cancer, but this disappeared after controlling for RT dose. Current smokers may have higher rates of late grade 2+ and 3+ GU toxicity, suggesting another potential reason to support smoking cessation in post-RT prostate cancer survivors.

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