Abstract

PURPOSE: The prognostic significance of positive surgical margins (PSM) in radical prostatectomy (RP) specimens remains unclear. While most studies have concluded that a PSM is an independent adverse prognostic factor, others report that surgical margin status has no effect on prognosis. One reason for these discordant conclusions is the variable number of patients with a PSM who receive adjuvant therapy and the differing statistical methods used to account for the effects of the time course of adjuvant treatment on recurrence. We evaluated the prognostic significance of PSMs using multiple methods of analysis accounting for patients who received adjuvant therapy.

MATERIALS AND METHODS: We analyzed 1,389 consecutive patients with clinical stage T1-3 prostate cancer treated with RP by 2 surgeons from 1983 to 2000. Of 179 patients with a PSM, 37 received adjuvant therapy (AT), 29 radiation therapy and 8 received hormonal therapy. Because the method used to account for men receiving AT can affect the outcome of the analysis, data were analyzed by the Cox proportional hazards technique accounting for patients receiving AT using 5 methods: 1) exclusion, 2) inclusion (AT ignored), 3) censoring at time of AT, 4) failing at time of AT and 5) considering AT as a time dependent covariate.

RESULTS: Overall 179 patients (12.9%) had a PSM, including 6.8% of 847 patients with pT2 and 23% of 522 patients with pT3 disease. A PSM was a significant predictor of cancer recurrence when analyzed using methods 1, 3, 4 and 5 (p=0.005, p=0.014, p=0.0005, p=0.002, respectively). However, it was not a predictor of recurrence using method 2 in which AT was ignored (p=0.283). Using method 5 multivariate analysis demonstrated that a PSM (p=0.002) was an independent predictor of 10-year progression-free probability (PFP) along with Gleason score (p=0.0005), extracapsular extension (p=0.0005), seminal vesicle invasion (p <0.0005), positive lymph nodes (p <0.0005) and preoperative serum prostate specific antigen (p <0.0001). Using method 5 the 10-year PFP was 58% +/- 12% and 81% +/- 3% for patients with and without a PSM, respectively (p <0.00005). The relative risk of recurrence in men with a PSM using method 5 was 1.52 (95% confidence interval 1.06-2.16).

CONCLUSIONS: We confirm that a PSM has a significant adverse impact on PFP after RP in multivariate analysis using multiple statistical methods to account for patients who received AT. While prostate cancer screening strategies have resulted in a majority of men having organ confined disease at RP, surgeons should continue to strive to reduce the rate of positive surgical margins to improve cancer control outcomes.

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