Predictors of positive surgical margins and their location in Korean men undergoing radical prostatectomy.

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Abstract

OBJECTIVE: To evaluate preoperative predictors of positive surgical margins and their location in Korean men undergoing radical prostatectomy.

METHODS: A total of 3227 patients who had undergone radical prostatectomy (open, robotic or laparoscopic) for clinically localized prostate cancer at three centers between 2000 and 2010 were analyzed. Patients were stratified by using the D'Amico risk criteria. Positive surgical margins were categorized according to their location. Patients were divided depending on their prostate volume: <29, 29-36, 36-46 and ≥46 mL. All of the patients had a minimum of six. A total of 2041 patients (84.9%) underwent 12-14 core biopsies. In each patient, the number and location of positive cores with cancer were assessed. In the analysis of predictive factors for positive surgical margin locations, regression analysis was carried out using only open and robotic prostatectomy.

RESULTS: The preoperative prostate-specific antigen, prostate volume, biopsy Gleason scores and clinical stage were significantly associated with an increased risk of positive surgical margins. The predictive variables for positive apical margin were small prostate volume (less than 29 mL) and positive apical biopsy. There were no statistically significant predictors for positive posterolateral or basal margin. Positive apical biopsy was the predictor of positive apical margin in open (odds ratio 1.7, P = 0.009) and robotic prostatectomy (odds ratio 2.2, P = 0.041). Small prostate volume was the predictor of positive apical margin in open prostatectomy (odds ratio 1.6, P = 0.012), but for positive basal margin in robotic radical prostatectomy (odds ratio 4.5, P < 0.001). In survival analysis, positive basal margin showed worse prognoses on biochemical recurrence than positive apical margin.

CONCLUSIONS: High prostate-specific antigen and small prostate volume are predictive factors of positive surgical margin in Korean patients undergoing radical prostatectomy. Apical positivity on extended transrectal biopsy represents a predictive factor of positive surgical margin. Small prostate volume is associated with higher risk of positive surgical margins at the apex in open radical prostatectomy and at the base in robotic-assisted laparoscopic radical prostatectomy.


KEYWORDS: prostatectomy; prostatic neoplasms; residual; robotics; size

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