Percent prostate needle biopsy tissue with cancer is more predictive of biochemical failure or adverse pathology after radical prostatectomy than prostate specific antigen or Gleason score.

Freedland SJ, Csathy GS, Dorey F, Aronson WJ.

Abstract

PURPOSE: Biopsy Gleason score, serum prostate specific antigen (PSA) levels, and clinical stage are known to be independent predictors of adverse pathological features and biochemical failure after radical prostatectomy. We determine whether various prostate needle biopsy parameters were predictive of either adverse pathological findings or disease recurrence after radical prostatectomy.

MATERIALS AND METHODS: A single pathologist reviewed the prostate needle biopsy specimens of 190 men who underwent radical prostatectomy between 1991 and 2000. Biopsy specimens were examined for Gleason score, perineural invasion, number and percent of cores with cancer, and percent of total biopsy tissue with cancer and Gleason grade 4 or 5 cancer. Multivariate analysis was used to determine the prostate needle biopsy parameters and preoperative clinical variables, including serum PSA, clinical stage, patient age and race, that were most significant for predicting positive surgical margins, nonorgan confined disease, seminal vesicle invasion and biochemical failure after radical prostatectomy.

RESULTS: Of the prostate needle biopsy parameters examined percent of tissue with cancer was the strongest predictor of biochemical recurrence in the multivariate analysis (p <0.001). Percent of tissue with cancer was a stronger predictor of biochemical recurrence than either PSA (p = 0.048) or biopsy Gleason score (p = 0.053). It was also a strong independent predictor of seminal vesicle invasion (p = 0.015) and nonorgan confined disease (p = 0.024). Perineural invasion, percent and number of cores with cancer, and percent of tissue with Gleason grade 4 or 5 were not independent predictors of either adverse pathology or biochemical failure.

CONCLUSIONS: Of all the preoperative variables examined, including the standard clinical variables of serum PSA, Gleason score and clinical stage, percent of biopsy tissue with cancer was the strongest predictor of biochemical recurrence, seminal vesicle invasion and nonorgan confined disease. Consideration should be given to reporting percent of total biopsy tissue with cancer in all prostate biopsy results.

Comment in

Prostate biopsy quantitative histology as a staging and prognostic factor. [J Urol. 2002]

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