Correlation of clinical and pathologic factors with rising prostate-specific antigen profiles after radical prostatectomy alone for clinically localized prostate cancer.

Kupelian P, Katcher J, Levin H, Zippe C, Klein E.
Department of Radiation Oncology, Cleveland Clinic Foundation, OH 44195, USA.

Abstract

OBJECTIVES: To better identify factors affecting prostate-specific antigen (PSA) level elevation after radical prostatectomy alone in men with clinical Stage T1-2 prostate cancer, we have reviewed our experience in the PSA era with 337 cases. The identification of these factors permits better understanding of the impact of case selection on treatment outcome in prostate cancer.

METHODS: The charts of all patients treated with radical prostatectomy alone between 1987 and 1993 were reviewed. Patients with clinical Stage T3 disease, without preoperative Gleason scores or PSA levels, with synchronous bladder cancer, and who received adjuvant or neoadjuvant therapy were excluded. The distribution of cases by pretreatment PSA levels was as follows: 4 ng/mL or less (16%); greater than 4 to 10 ng/mL (48%); greater than 10 to 20 ng/mL (22%); and greater than 20 ng/mL (14%). The median pretreatment PSA level for the entire group was 8 ng/mL. Only 26 patients (8%) had pathologically positive pelvic lymph nodes. The overall margin involvement rate was 43%. Margin involvement rates increased with increasing preoperative PSA levels. One hundred eighty-two patients (54%) had surgical Gleason scores of 7 or higher and 208 (62%) had extracapsular extension. The median follow-up time was 36 months.

RESULTS: The 3- and 5-year relapse-free survival (RFS) rates were 74% and 61%, respectively, with relapse being defined as either a clinically detectable recurrence or detectable/rising PSA levels. Among preoperative factors, PSA level was the only independent factor predicting relapse (P = 0.006); the 5-year RFS was 89% in patients with preoperative PSA levels of 4 ng/mL or less; 62% for PSA level of 4 to 10 ng/mL; 56% for PSA level to 10 to 20 ng/mL; and 26% for a PSA level greater than 20 ng/mL. Among pathologic parameters, margin involvement was the most potent independent factor predicting relapse (P < 0.001), followed by Gleason score (P = 0.002) and capsular penetration (P = 0.006). The 5-year RFS rates for margin-positive versus margin-negative patients were 37% versus 80%, respectively (P < 0.001). With pretreatment PSA levels of 10 ng/mL or less, lymph node involvement was seen in 3%, and margin involvement in 36%; the 5-year RFS rate was 71%. With pretreatment PSA levels of greater than 10 ng/mL, lymph node involvement was seen in 16%, and margin involvement in 57%; the 5-year RFS rate was 42%. However, patients with an initial PSA level greater than 10 ng/mL and positive margins had a 5-year RFS rate of 22% versus 73% in patients with a PSA level of 10 ng/mL or less or negative margins (P < 0.001). All clinical relapses were accompanied by a rise in PSA. In patients manifesting a clinical recurrence, PSA elevations preceded clinical recurrences by an average of 15 months (range 0 to 71). Only 34 cases (10%) had clinical failures within 5 years.

CONCLUSIONS: Pretreatment PSA is the most potent clinical factor independently predicting biochemical relapse. The great range in the relapse-free survival rates predicted by preoperative PSA levels demonstrates the importance of pretreatment PSA levels in case selection. Gleason score,
extracapsular extension, and surgical margin involvement are also independent predictors of biochemical relapse. Achieving negative margins, even in relatively advanced disease, provides excellent long-term local control.

Comment in
Surgery or radiotherapy for prostate cancer: level the playing field.  [Urology. 1997]

PMID: 8753737 [PubMed - indexed for MEDLINE]