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ARTICLE

Pathologic and clinical findings to predict tumor extent of nonpalpable (stage T1c) prostate cancer

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OBJECTIVES--We examined preoperative clinical and pathologic parameters in men with clinical stage T1c disease who underwent radical prostatectomy and correlated these findings with the pathologic extent of disease in the surgical specimen in an attempt to identify a subset of patients with potentially biologically insignificant tumor who might be followed up without immediate treatment. **DESIGN AND PATIENTS**--A case series of 157 consecutive men who underwent radical prostatectomy for clinical stage T1c disease compared with 64 similarly treated clinical stage T1a cancers (incidental minimal cancers found on transurethral resection of prostate) and 439 clinical stage T2 (palpable) cancers. **MAIN OUTCOME MEASURES**--Pathologic stage, grade, and margins; tumor volume; and tumor location. **RESULTS**--Sixteen percent of tumors were insignificant (< 0.2 cm³ and confined to the prostate, with a Gleason score < 7); 10% were minimal (0.2 to 0.5 cm³ and confined to the prostate, with a Gleason score < 7); 37% were moderate (> 0.5 cm³ or capsular penetration, with a Gleason score < 7); and 37% were advanced (capsular penetration, with a Gleason score > or = 7 or positive margins, seminal vesicles, or lymph nodes). These findings are intermediate between those found in clinical stage T1a and stage T2 disease. The following parameters were not predictive of tumor extent: age, reason for evaluation, method of detection, and transrectal ultrasound. The best model predicting insignificant tumor was prostate-specific antigen (PSA) density less than 0.1 ng/mL per gram and no adverse pathologic findings on needle biopsy, or PSA density of 0.1 to 0.15 ng/mL per gram, with a low- to intermediate-grade cancer smaller than 3 mm found in only one needle biopsy core specimen. The positive predictive value of the model was 95%, with a negative predictive value of 66%. We accurately predicted 73% of cases with insignificant tumor. **CONCLUSIONS**--Eighty-four percent of nonpalpable prostate cancers diagnosed by screening techniques are significant tumors and warrant definitive therapy. However, 16% are insignificant. Serum PSA level, PSA density, and needle biopsy pathologic findings are accurate predictors of tumor extent. It may be reasonable to follow up some patients whose tumors are most likely insignificant with serial PSA measurements and repeated biopsies.

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