Limitations in predicting organ-confined prostate cancer in patients with Gleason pattern 4 on biopsy: Implications for active surveillance.


Abstract

PURPOSE: In prostate cancer (PCa), biopsy Gleason score (GS) predicts stage and helps determine active surveillance (AS) suitability. Evidence suggests that small incremental differences in quantitative Gleason pattern 4 (%Gl4) on biopsy stratifies disease extent, biochemical failure following surgery, and eligibility for AS. We explore overall %Gl4 levels and adverse outcomes in low- and intermediate-risk PCa where AS may be offered under expanded criteria.

MATERIALS AND METHODS: Patients with biopsy GS 6(3+3) or 7(3+4) receiving radical prostatectomy (RP) from January 2008 to August 2015 were analyzed. Age, PSA, GS, %Gl4, overall percent positive cores (%PC), clinical stage were explored as predictors of non-organ confined disease and time to failure post-RP.

RESULTS: In 1255 patients, biopsy GS7(3+4) was associated with a higher ≥T3 rate at RP compared with GS6(3+3) (35.0% vs. 19.0%, p<0.001). In multivariate analysis, for every %Gl4 rise, there was 2% higher odds of ≥T3 disease (OR 1.02, 95%CI 1.01-1.04, p<0.001). When stratified, patients with GS7(3+4) only approximated pT3 rates of GS6(3+3) when PSA was <8 and %PC was <15%, with %Gl4 having less effect. Time to failure post RP was worse in GS7(3+4) than GS6(3+3).

CONCLUSIONS: Although %Gl4 helps predict advanced disease and GS7(3+4) is associated with worse outcomes, the impact of %Gl4 on adverse pathologic and clinical outcomes is best used in combination with PSA, age and disease volume, which each have a greater impact on predicting non-organ confined disease. Calculated absolute ≥T3 risk can be used in shared-decision making around PCa treatment for patients and clinicians.

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KEYWORDS: Gleason Score; Prostate Biopsy; Prostate Cancer; Prostatectomy; Recurrence

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