Can we expand active surveillance criteria to include biopsy Gleason 3+4 prostate cancer? A multi-institutional study of 2,323 patients.


Abstract

OBJECTIVE: To test the expandability of active surveillance (AS) to Gleason score 3+4 cancers by assessing the unfavorable disease risk in a large multi-institutional cohort.

MATERIALS AND METHODS: We performed a retrospective analysis including 2,323 patients with localized Gleason score 3+4 prostate cancer who underwent a radical prostatectomy between 2005 and 2013 from 6 academic centers. We analyzed the rates of biopsy downgrading/upgrading and advanced stage in the overall cohort by employing standardized AS criteria (using biopsy Gleason score 3+4).

RESULTS: The final pathologic Gleason score was 3+3 = 6 in 8%, 3+4 = 7 in 67%, 4+3 = 7 in 20%, and 8 to 10 in 5% cases. The overall rate of unfavorable disease (upgrading or advanced stage or both) was 46%. In multivariable analysis, prostate-specific antigen (PSA) level >10ng/ml, PSA density (PSAD) >0.15ng/ml/g, clinical stage >T1, and >2 positive cores were predictors of unfavorable disease. According to the AS criteria used, the risk of unfavorable disease ranged from 30% to 42%. In patients without any risk factor (PSA level ≤10ng/ml, PSAD ≤0.15ng/ml/g, T1c, and ≤2 positive cores), the unfavorable disease rate was 19%. The main limitations of this study are the retrospective design and nonstandardization of pathologic assessment between centers.

CONCLUSIONS: Approximately half of patients with biopsy Gleason score 3+4 cancer have unfavorable disease at final pathology. Nevertheless, expanding AS eligibility to these patients may be acceptable provided adherence to strict selection criteria leading to a<20% risk of unfavorable disease. Future tools for selection such as magnetic resonance imaging, early rebiopsy, and serum markers may be especially beneficial in this group of patients.

Keywords: Active surveillance; Gleason score; Outcomes; Prostate cancer; Radical prostatectomy; Reclassification

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