Most Gleason 8 Biopsies are Downgraded on Prostatectomy: Does 4+4=7?

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PURPOSE: Non-representative biopsy sampling of prostate cancers with a biopsy Gleason score of 8 can adversely influence decisions regarding androgen deprivation among men receiving primary radiation therapy. The frequency of and factors associated with downgrading of Gleason 8 biopsies at prostatectomy are not well known.

MATERIALS AND METHODS: Records from the National Cancer Database (a hospital-based registry in the United States) of 72,556 men with prostate cancer diagnosed 2010-2013, including 5,474 with Gleason 8 biopsies and no other high progression-risk criteria (per National Comprehensive Cancer Network guidelines). Prevalence of Gleason 8 downgrading was calculated. Generalized estimating equations multivariable regression models were used to estimate prevalence ratios (PR) and 95% Confidence Intervals (CI) of downgrading by demographic and clinical factors, and to evaluate the association of Gleason 8 downgrading with clinical to pathologic T category upstaging.

RESULTS: Among Gleason 8 biopsies from men lacking other high progression-risk criteria, 60% (3,263/5,474) were downgraded, changing their progression-risk category from high to intermediate. A higher prevalence of Gleason 8 downgrading was significantly and independently associated with decreasing age, black race, lower clinical T category, lower prostate specific antigen quartile, and certain combinations of primary and secondary Gleason grades (3+5>4+4>5+3). Gleason 8 downgrading among men with clinical T category <3 was independently and significantly associated with a lower prevalence of upstaging (PR=0.65; 95% CI=0.61-0.69).

CONCLUSIONS: Downgrading of Gleason 8 biopsies is common, and patient evaluation based on Gleason 8 biopsies often results in overestimation of progression risk and disease extent, which may lead to overtreatment.

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