Prostate biopsy and radical prostatectomy Gleason score correlation in heterogenous tumors: proposal for a composite Gleason score.

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Abstract

When prostate biopsy cores are separately identified in multiple containers, current recommendations are to grade each specimen individually. For treatment algorithms, the highest Gleason score (HGS) is typically used as the overall score, even if a lower score predominates. This practice has the potential to misrepresent the overall cancer in the entire gland for some patients and place them in a higher-grade group. We compare a novel composite Gleason score (CGS), integrating grade patterns from contiguous positive biopsy sites, with HGS to determine correlation with the radical prostatectomy (RP) Gleason score (GS). One hundred needle biopsy cases from 2008 to 2012 with >2 GSs in a biopsy set (eg, 3+3=6, 3+4=7, and 4+3=7) or more than a 1-step difference in GS (eg, 3+4=7 and 4+4=8 without 4+3=7) were analyzed. Grades were assigned using both methods (HGS and CGS) and compared with RPGS. Grade groups I to V were used to define downgrade and upgrade. Comparing HGS with RPGS, 31% remained the same and 69% had a change in GS (87% downgraded and 13% upgraded). Comparing CGS with RPGS, 59% remained the same and 41% had a change in GS (10% downgraded and 90% upgraded). Of the 2 methods, the CGS showed better overall correlation with RP (P<0.001) and was less likely to be downgraded compared with HGS. CGS correlates better with RPGS than HGS when >2 grades are present in a biopsy set. CGS has a significantly lower rate of downgrade and predicts the RPGS more accurately than HGS.

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