Original contribution

Defining the optimal method for reporting prostate cancer grade and tumor extent on magnetic resonance/ultrasound fusion–targeted biopsies☆☆☆

Author links open overlay panelJennifer B. Gordetsky MD=Luciana Schultz MD=Kristin K. Porter MD, PhD=Jeffrey W. Nix MD=John V. Thomas MD=Mariadel Carmen Rodriguez Pena MD=Soroush Rais-Bahrami MD≠

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Highlights

• For MRI-targeted biopsy, an aggregate method better correlates with lesion volume.

• For MRI-targeted biopsy, an aggregate method better correlates with lesional density.

• For MRI-targeted biopsy, an aggregate method better predicts extraprostatic extension.
Summary

Magnetic resonance (MR)/ultrasound fusion–targeted biopsy (TB) routinely samples multiple cores from each MR lesion of interest. Pathologists can evaluate the extent of cancer involvement and grade using an individual core (IC) or aggregate (AG) method, which could potentially lead to differences in reporting. We reviewed patients who underwent TB followed by radical prostatectomy (RP). TB cores were evaluated for grade and tumor extent by 2 methods. In the IC method, the grade for each TB lesion was based on the core with the highest Gleason score. Tumor extent for each TB was based on the core with the highest percent of tumor involvement. In the AG method, the tumor from all cores within each TB lesion was aggregated to determine the final composite grade and percentage of tumor involvement. Each method was compared with MR lesional volume, MR lesional density (lesion volume/prostate volume), and RP. Fifty-five patients underwent TB followed by RP. Extent of tumor by the AG method showed a better correlation with target lesion volume ($r = 0.27$, $P = .022$) and lesional density ($r = 0.32$, $P = .008$) than did the IC method ($r = 0.19$ [$P = .103$] and $r = 0.22$ [$P = .062$]), respectively. Extent of tumor on TB was associated with extraprostatic extension on RP by the AG method ($P = .04$), but not by the IC method. This association was significantly higher in patients with a grade group (GG) of 3 or higher ($P = .03$). A change in cancer grade occurred in 3 patients when comparing methods (2 downgraded GG3 to GG2, 1 downgraded GG4 to GG3 by the AG method). For multiple cores obtained via TB, the AG method better correlates with target lesion volume, lesional density, and extraprostatic extension.

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