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Evaluation of the interobserver reproducibility of Gleason grading of prostatic adenocarcinoma using tissue microarrays.

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The Gleason system is the internationally recognized standard for grading prostate cancer, due mainly to its strong prognostic capability. However, interobserver reproducibility is variable in the community setting. Herein we present a novel approach to evaluating Gleason grading among pathologists using high-density tissue microarrays (TMAs). A CD-ROM containing 537 different TMA spot images of 0.6-mm diameter was sent to 10 genitourinary pathologists in France. The pathologists were expected to score each TMA spot based on their experience evaluating standard prostate biopsies, transurethral resections, and prostatectomy samples. There was no consensus meeting beforehand to agree on how the group would apply the Gleason grading system for this project. Percentage of agreement and kappa value were used to assess the level of agreement. A short questionnaire was sent to assess pathologists' opinion on this new approach to evaluating Gleason grading. An average of 311 images were analyzed (range, 104 to 537; median, 256.5). Four of the pathologists evaluated all 537 images and assigned Gleason grades to 149 images with an overall kappa for interobserver agreement for the exact score between 0.31 and 0.52 and between 0.45 to 0.69 if 3 Gleason categories (≤ 6 , 7, and > 7) were used. When 2 categories were considered (≤ 7 or > 7), kappa ranged from 0.58 to 0.83. All pathologists analyzed 104 images. Similar results were obtained with an agreement between 0.28 and 0.54 for the 3 Gleason categories. After finishing this test, 90% of genitourinary pathologists considered this approach useful for resident training and 90% for pathology teaching. We conclude that a Gleason score can be easily assigned to each TMA spot of a 0.6-mm-diameter prostate cancer sample. These data also indicated that using TMA spot images may be a good approach for teaching the Gleason grading system due to the small area of tissue.

Publication Types:

- Evaluation Studies

Die Reproduzierbarkeit der exakten Gleason-Gradienzen (2-10) belief sich bei 10 Pathologen auf Kappa 0.3-0.52 Bei Unschärfe deute um nur 3 Gleason grade auf Kappa 0.45-0.69.