Abstract

Since its initial description in 1966 by Dr Donald Gleason, Gleason grading has become the cornerstone in the management of prostate cancer (PCa). With widespread use of Prostate Specific Antigen (PSA) screening and needle core biopsy, the diagnosis and management of PCa have dramatically evolved. In addition, better understanding of the morphological spectrum of prostate cancer and its clinical significance have prompted the refinement of the grading criteria and reporting guidelines commensurate to contemporary practice. The modification of the Gleason grading system implemented by the International Society of Urological Pathology in 2005 and subsequent revision in 2014 has profoundly impacted how PCa is graded and managed. This review aims to provide a concise update on the refinement of the histological criteria for various Gleason patterns and problem areas of Gleason grading, and provide recommendations on how to improve the grading reproducibility. The new proposal to group Gleason scores into clinically meaningful "grade groups" will also be discussed. Finally, we will discuss how magnetic resonance imaging (MRI)-targeted biopsy and emerging genetic markers may help improve the Gleason grading accuracy and risk stratification currently based on clinicopathological parameters.

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KEYWORDS: Gleason patterns; Gleason score; Grade groups; ISUP Modified Gleason grading system; Intraductal carcinoma of the prostate; Magnetic Resonance Imaging (MRI)-targeted prostate biopsy; PTEN; Prostate cancer; multi-gene assays

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