Detecting tumor progression in glioma: current standards and new techniques.

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Abstract

INTRODUCTION: The post-treatment monitoring of glioma patients remains an area of active research and development. Conventional imaging with MRI is a highly sensitive modality for detecting and monitoring primary and secondary brain tumors and includes multi-parametric sequences to better characterize the disease. Standardized schemes for measuring response to treatment are in wide clinical use; however, the introduction of new therapeutics have introduced new patterns of response that can confound interpretation of conventional MRI and can cause uncertainty in the proper management following therapy. Areas covered: A summary of current and evolving techniques for assessing glioma response in this era of new therapies that address these challenges are presented in this review. While this review focuses more on clinical and early clinical methodologies for MRI and nuclear medicine techniques some promising pre-clinical techniques are also presented. Expert commentary: While successful single institution results have been widely reported in the literature, any new methodologies must be undertaken in multi-center settings. Additionally, the need for standardization of protocols in quantitative measured are an important area that must be addressed for new and promising techniques to be implemented to a wide array of patients.

KEYWORDS: Glioma; MRI; concurrent radiochemotherapy; glioblastoma; pseudoprogresion; pseudoresponse

PMID: 27661768 DOI: 10.1080/14737140.2016.1240621

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