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A comprehensive framework for glioma surgery by the PIONEER Consortium and RANO resect group, part 2: perioperative recommendations for neurological, language, functional, and quality-of-life assessment

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Abstract

Historically, the assessment of surgical outcomes in patients with glioma has been focused on technical outcomes, such as volumetric analysis of the residual tumour, progression-free survival, and overall survival. Other outcomes, such as neurological deficits, can be challenging to assess in an objective, quantifiable, and comprehensive manner. As a result, no consensus is available on methods to systematically evaluate perioperative neurological, language, cognitive, and functional outcomes in patients with glioma. This variability contributes to suboptimal outcomes, hinders uniformity across multicentre studies, and limits comparability of reported results. Therefore, standardising key aspects of perioperative outcome assessment is crucial for these patients. The Personalized Interventions and Outcomes in Neurosurgical Oncology Research (PIONEER) Consortium and the Response Assessment in Neuro-Oncology (RANO) resect group are collaborative, multidisciplinary efforts that aim to standardise and enhance research and clinical practices in surgical neuro-oncology. In this Policy Review, both working groups review the evidence and provide recommendations for the standardisation of perioperative assessment of neurological morbidity, language function, overall function, and quality of life in adult patients with glioma. The Policy Review offers, for the first time, a structured framework for perioperative outcome assessment in glioma surgery. It aims to reduce heterogeneity in practice, facilitate multicentre studies, and enhance the methodological quality of these studies through more consistent and reproducible methods. Furthermore, homogeneous data will facilitate advances in personalised surgical care by enabling advanced computational modelling techniques.