Considerations on the Application of RANO 2.0 Criteria in Clinical Practice

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The recent article "A Neuroradiologist's Guide to Operationalizing the Response Assessment in Neuro-Oncology (RANO) Criteria Version 2.0 for Gliomas in Adults"[1] provides a valuable overview of updates to the RANO criteria. While these criteria are essential for clinical trials, their direct application in routine clinical practice raises concerns that merit further consideration.

Many centers have begun using the RANO criteria to assess patients with gliomas in routine practice. However, these criteria were primarily developed for research purposes, and their strict application to clinical practice may oversimplify patient assessments. For instance, the thresholds for dimensional changes such as 25% increase in the sum of bidimensional products to define "progressive disease" or a 50% decrease for "partial response" and the definition of "measurable disease" requiring at least 10 mm in 3 perpendicular planes are somewhat arbitrary. While useful for standardizing trial results, such cutoffs can obscure a more nuanced understanding of tumor behavior in individual patients, leading to categorizations that may not fully represent the dynamic and heterogeneous nature of gliomas.

Moreover, the RANO 2.0 criteria have become increasingly complex, possibly leading to variability across different clinicians and institutions. The introduction of new categories, such as "minor response" and evolving definitions can complicate longitudinal assessments, in which a patient might shift between disease states across follow-up examinations, not necessarily due to clinical changes but because of criteria changes. Furthermore, the removal of subjective evaluations of nonenhancing tumor in "predominantly enhancing gliomas," while streamlining the criteria, risks oversimplifying the pathology by failing to capture the full spectrum of tumor behavior. These changes, coupled with the updates to the World Health Organization classification of CNS tumors,[2] might complicate efforts to ensure consistency in diagnosis and treatment. Nevertheless, I acknowledge the commendable effort to unify the criteria for all gliomas, which is a step toward greater standardization across different tumor types.

Another issue is the subjective nature of some of the criteria. Defining "clear margins" for "measurable disease" or differentiating between vasogenic edema and infiltrative tumor can vary among clinicians, leading to potential inconsistencies. These subjective elements make uniform application of the criteria difficult, even within the same neuroradiology department.

In conclusion, while the RANO 2.0 criteria provide a robust framework for research, their direct application in clinical practice may not always be ideal. The use of arbitrary dimensional cutoffs, the increasing complexity, the exclusion of nonenhancing evaluations in some cases, and the subjectivity in interpretation suggest that further refinement may be necessary to better serve individualized patient care. A critical reflection on these aspects could help optimize their use in clinical settings, ensuring that they remain practical and beneficial for both clinicians and patients.

Disclosure forms provided by the authors are available with the full text and PDF of this article at www.ajnr.org.

REFERENCES

1. Ellingson BM, Sanvito F, Cloughesy TF, et al. **A neuroradiologist's guide to operationalizing the Response Assessment in Neuro-Oncology (RANO) Criteria Version 2.0 for Gliomas in Adults**. *AJNR Am J Neuroradiol* 2024 Sep 5. [Epub ahead of print] CrossRef Medline
2. Louis DN, Perry A, Wesseling P, et al. **The 2021 WHO Classification of Tumors of the Central Nervous System: a summary.** *Neuro Oncol* 2021;23:1231–51 CrossRef Medline

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