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REVIEWER'S REPORT

Manuscript No.: IJAR-54125 Date: 29/09/2025

Title: Diagnostic Accuracy of Magnetic Resonance Perfusion Imaging in Intracranial Brain Tumours

Recommendation:
Accept as it is .....
✓ Accept after minor revision.....
Accept after major revision .....
Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance	✓			

Reviewer Name: Dr. S. K. Nath Date: 29/09/2025

Reviewer's Comment for Publication:
The authors conclude that DSC perfusion MRI, particularly rCBV, is a valuable, non-invasive tool for brain tumor vascularity assessment and grading. This is supported by their findings and aligns with existing literature, reinforcing the modality's role in clinical practice. However, further studies with larger cohorts and multiparametric approaches including molecular profiling are recommended to validate and enhance these findings.

Reviewer's Comment / Report

Strengths

- **Clinical Relevance:** The study addresses a significant clinical challenge—improving non-invasive tumor grading using DSC perfusion MRI, which can influence treatment planning and prognosis.
- **Methodology:** Use of both conventional MRI and advanced perfusion parameters (rCBV and rCBF), along with histopathological correlation, enhances diagnostic accuracy.
- **Data Analysis:** Implementation of ROC analysis to determine cutoff values adds robust statistical validation.
- **Regional Focus:** The study fills a regional data gap by providing insights from a South Indian population, adding contextual relevance.

Weaknesses

- **Sample Size:** The relatively small cohort (35 patients) limits the generalizability of the findings and the statistical power to detect subtle differences.
- **Incomplete Molecular Profiling:** Lack of incorporation of molecular markers such as IDH mutation status and 1p/19q co-deletion reduces the comprehensiveness of tumor characterization.
- **Artifacts and Variability:** Perfusion measurements can be affected by susceptibility artifacts, tumor heterogeneity, and blood-brain barrier status. Standardization of ROI placement is crucial, but details on how this was achieved are limited.
- **Limited Pediatric Data:** While pediatric tumours are mentioned, the sample size (4 pediatric patients) is small, making conclusions about this subgroup tentative.
- **Formatting and Clarity:** Certain sections would benefit from clearer headings and more polished organization for better readability.

Recommendations for Improvement

1. **Expand the sample size** in future studies to strengthen statistical validity.
2. **Include molecular profiling data** such as IDH mutation and 1p/19q status to improve tumor classification.

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3. **Detail ROI selection protocols** to enhance reproducibility and reduce measurement bias.
4. **Address potential artifacts** explicitly, possibly through the use of leakage correction algorithms.
5. **Refine writing style** for clarity avoid run-on sentences, ensure consistent use of terminology, and verify formatting.
6. **Proofread for typographical and grammatical errors**, e.g., correct "neoulding" to "modeling" if present; check consistency of abbreviations (rCBV, rCBF).

Remarks on Language and Formatting

- The manuscript contains some minor typographical issues, such as inconsistent spacing, punctuation, and formatting of references.
- Ensure all headings are clearly differentiated.
- Figures and tables are referenced well, but figure legends should be detailed enough to stand alone.
- Maintain consistency in font, size, and citation style throughout the manuscript.