**RESEARCH ARTICLE**

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Does Graded Prognostic Assessment outperform Recursive Partitioning Analysis in patients with moderate prognosis brain metastases?

Neil C Estabrook*,1, Stephen T Lutz2, Cynthia S Johnson3, Simon S Lo4 & Mark A Henderson1

**Aim:** To compare the clinical utility of the Recursive Partitioning Analysis (RPA) and Graded Prognostic Assessment (GPA) in predicting outcomes for moderate prognosis patients with brain metastases. **Methods & materials:** We reviewed 101 whole brain radiotherapy cases. RPA and GPA were calculated. Overall survival was compared. **Results:** Sixty-eight patients had moderate prognosis. RPA patient characteristics for increased death hazard were ≤10 WBRT fractions or no surgery/radiosurgery. GPA patients had increased death risk with no surgery/radiosurgery or lower Karnofsky Performance Status. **Conclusion:** The indices have similar predicted survival. Patients scored by RPA with longer radiation schedules had a survival advantage, while patients scored by the GPA did not. This indicates GPA is more clinically useful, leaving less room for subjective assessment in choosing treatment.

Practice points

- Optimal treatment for moderate prognosis patients (Recursive Partitioning Analysis [RPA] II or Graded Prognostic Assessment [GPA] 1.5–2.5) can be unclear.
- Treatment options for brain metastases include surgery, stereotactic radiosurgery, whole brain radiotherapy (WBRT), supportive measures or combinations of these modalities.
- Better prognosis patients are often prescribed longer schedules of whole brain radiation.
- On multivariable analysis among RPA II patients, receiving >10 WBRT fractions or undergoing surgery/stereotactic radiosurgery were significantly associated with increased survival.
- Among patients with GPA 1.5–2.5, better Karnofsky Performance Status or undergoing surgery/stereotactic radiosurgery were significantly associated with increased survival.
- The RPA II and GPA 1.5–2.5 have similar predicted median survivals (4.2 and 3.8 months), and in our patient group those scored by the RPA and assigned a longer radiation schedule had a survival advantage, while patients scored by the GPA did not.
- This could indicate the GPA is more clinically useful, leaving less room for subjective assessment in choosing treatment.
- There are many recently published articles concerning prognostic indices for brain metastases which are succinctly summarized in Tables 5 and 6 of this publication.

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1Department of Radiation Oncology, Indiana University School of Medicine, Indianapolis, IN, USA
2Blanchard Valley Regional Cancer Center, Findlay, OH, USA
3Department of Biostatistics, Indiana University School of Medicine, Indianapolis, IN, USA
4University Hospitals Seidman Cancer Center, Case Western Reserve University, Cleveland, OH, USA
*Author for correspondence: Tel.: +1 317 944 2524; Fax: +1 317 944 2486; ncestab@iu.edu