Recurrent Glioblastoma Extent of Resection Predicts Postoperative Seizure Freedom in Patients with an Active Seizure History

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Disclosures

• None
Background

• Continued postoperative seizures following glioblastoma (GBM) resection can increase peri-operative morbidity

• Our objective was to identify:
  • Predictors of seizure freedom and
  • An extent of resection (EOR) threshold for seizure freedom following recurrent GBM resection
Methods – 10-year treatment period

- **69** recurrent GBM patients with an active seizure history (seizure within 30 days)

- **Stepwise logistic regression analysis**
  - Determine factors predictive of seizure freedom

- **Receiver operating characteristic curve**
  - Determine the EOR threshold for seizure freedom
Patient and Tumor Characteristics

- Tumor volume: median 20cm$^3$ (range 1-160 cm$^3$)
- Eloquent location: 42%

Seizure Type

- Generalized TC: 51%
- Complex partial: 9%
- Simple partial: 9%

Lobes Involved

- Frontal: 42%
- Temporal: 25%
- Parietal: 59%
Postoperative Seizure Outcome

- Seizure free (Engel I) - 32%
- Not seizure free (Engel II-IV) - 68%

EOR: median 89% (range 38-100%)
Predictors of Seizure Freedom in Recurrent GBM

• Stepwise logistic regression analysis showed that:
  • EOR was an independent predictor of seizure freedom \( (p=0.001) \)
EOR Threshold for Seizure Freedom in Recurrent GBM

• ROC curve generated based on seizure freedom
  • showed a threshold EOR of 78%
Discussion

• Our EOR threshold for seizure freedom (78%) closely matches the EOR threshold for overall survival (80%) in recurrent GBM

• This suggests a minimum volume of cytoreduction is needed to prevent both clinical and disease progression
Summary

• In patients with recurrent GBM and an active seizure history, we found:

  • the EOR to be an independent predictor of seizure freedom

  • an EOR threshold for seizure freedom of 78%