Intraoperative

The benefit of radical surgery in LGG in eloquent areas remains uncertain but is generally accepted that extensive removal potentially lowers tumor recurrence and thereby improves survival, even in the face of high incidence and morbidity. However, the optimal approach to these tumors remains controversial due to the potential for significant postoperative neurological deficits.

Over the last years, the technology available to neurosurgeons, such as awake craniotomy with cortical and subcortical mapping, computer navigation, high-resolution MRI, functional MRI, tractography, intra-operative MRI, and somatosensory evoked potential (SEP), has allowed safer surgery on intrinsic tumors in eloquent areas.

Methods

The purpose of this study is to assess the efficacy, safety, and the quality-of-life outcome of surgical treatment of LGG in eloquent areas. We performed a retrospective study of 20 consecutive patients who underwent surgical removal of LGG in eloquent areas between January 2005 and December 2010 by the senior author. Effectiveness was evaluated by reviewing the pre and post-operative and follow-up MRI data with regard to the use of intraoperative technology and pre/intraoperative brain mapping techniques. Safety was assessed by documenting any intra or post-operative general and neurological complications. Post-operative Karnofsky performance score and modified Rankin Scale were recorded.

Results

- Average post op Karnofsky performance score = 87
- Average post op modified Rankin Scale = 0.4
- Average follow-up = 42.1 months
- All the patients are alive
- 25% complications, no permanent deficits
- No complications since intraoperative technology/mapping techniques introduction (2007)

Conclusions

1. Intraoperative technology and pre and intraoperative brain mapping techniques can allow resections in eloquent areas, minimizing the risk of deficit, and ensuring preservation of quality-of-life.
2. The benefit of radical surgery in LGG in eloquent areas remains uncertain but is generally accepted that extensive removal probably prolongs survival.
3. There may be a role for neoadjuvant therapy before surgical resection.
4. Multivariate investigations are necessary to define the prognostic significance of data from novel imaging techniques and molecular markers of pathogenesis.

Bibliography: