

Lack of Prognostic Value of Age in Patients with Malignant Gliomas Undergoing Fluorescence-guided Surgery with 5-ALA

CENTRO HOSPITALAR DE LISBOA OCIDENTAL, E.P.E.

Ana Isabel Lopes Luis MD; Miguel Vasconcelos Casimiro MD; Carla Reizinho; Jose Cabral Hospital Egas Moniz, Centro Hospitalar Lisboa Ocidental

Lisbon - Portugal

INTRODUCTION

Old age has been pointed as one of the most important negative outcome predictors for patients with malignant gliomas (MG) (1-3) and extent of resection has been proved to be an important positive prognostic factor for overall survival (4-6).

Use of 5-amminolevulinic acid (5-ALA) provides highly specific intraoperative tumour identification enabling the surgeon a more reliable gross total tumour removal (7-9). We aimed to evaluate the prognostic value of age in patients with MG who underwent fluorescence-guided surgery with 5-ALA (FGS).

METHODS

Retrospective study of all consecutive MG patients submitted to FGS from December 2008 to December 2013. The aim of all surgeries was gross total resection of the MRI, T1/gadolinium identifiable tumour.

Age, Karnofsky Performance Status prior to surgeries, tumour location, histology, number of gross total resection surgeries and extent of resection and volume of residual tumour were accessed. The population was divided into 3 groups according to age at diagnosis: <45, 45-65, >65 years old (yrs). Average overall survival was compared among the three populations, using univariate and multivariate analysis. All patients were submitted to the same radiotherapy and temozolomide standard protocol. Statistical analysis was calculated with Prism6 v.6.0 for Mac OS-X.

RESULTS

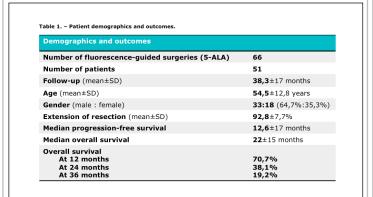
A total of 66 5-ALA-GS were performed on 51 patients, with a median follow-up of 38.3 ± 17 months. Average age of the population was 54.5 ± 12.8 yrs (min.26-max.79) (Table1).

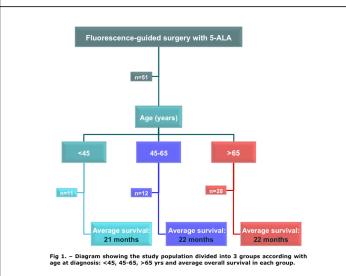
Age distribution was as follows: 21.3% with <45yrs; 55.3% between 45-65yrs; 23.4% >65yrs.

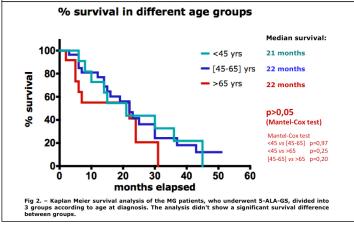
Median survival was 18, 22 and 22 months, respectively (Fig. 1,2).

The median survival was 22±15 months (70.7% patients alive at 12 months and 38.1% at 24) (Table1).

No other statistical significant differences were found between groups regarding the variables studied. No statistically significant correlation between age and survival time was found (Mantel-Cox p>0.50).







DISCUSSION/CONCLUSION

Advanced age has been consistently reported as the most significant independent unfavourable prognostic factor for patients with MG and therefore older patients tend to be offered less aggressive treatment or even palliative care (2,10). However this paradigm has been changing and it appears that more aggressive treatment regimens lead to longer outcome survival (11-13). In our study, the aggressive surgical attitude for treatment of MG, with 5-ALA, allowed median survival of 22 months regardless of patient age at diagnosis. Although we still need studies to properly define standards of care for elderly MG patients, advanced age alone should not preclude optimal resection followed by radiochemotherapy.

References

- 1. Iwamoto FM1, Reiner AS, Panageas KS. Patterns of care in elderly glioblastoma patients. Ann Neurol. 2008;64(6):628-34.
- 2. De Robles P, Cairncross G.Glioblastoma in the elderly: an age-old problem. Ann Neurol. 2008;64(6):597-9.
- 3. Lutterbach J1, Bartelt S, Momm F, et al. Is older age associated with a worse prognosis due to different patterns of care? A long-term study of 1346 patients with glioblastomas or brain metastases. Cancer. 2005 15;103(6):1234-44.
- 4. Chaichana KL, Jusue-Torres I, Navarro-Ramirez R, et al. Establishing percent resection and residual volume thresholds affecting survival and recurrence for patients with newly diagnosed intracranial glioblastoma. Neuro Oncol. 2014;16(1):113-22.
- 5. Sanai N, Polley MY, McDermott MW, et al. An extent of resection threshold for newly diagnosed glioblastomas. J Neurosurg. 2011;115(1):3-8.
- 6. Oppenlander ME, Wolf AB, Snyder LA et al. An extent of resection threshold for recurrent glioblastoma and its risk for neurological morbidity. J Neurosurg. 2014;120(4):846-53.
- 7. Stummer W, Pichlmeier U, Meinel T, et al. Fluorescence-guided surgery with 5-aminolevulinic acid for resection of malignant glioma: a randomised controlled multicentre phase III trial. Lancet Oncol. 2006;7(5):392-401.
- 8. Della Puppa A, Ciccarino P, Lombardi G et al. 5-Aminolevulinic acid fluorescence in high grade glioma surgery: surgical outcome, intraoperative findings, and fluorescence patterns. Biomed Res Int. 2014;2014:232561
- 9. Eljamel S. 5-ALA Fluorescence Image Guided Resection of Glioblastoma Multiforme: A Meta-Analysis of the Literature. Int J Mol Sci. 2015 7;16(5):10443-56.
- 10. Tanaka S1, Meyer FB, Buckner JC et al. Presentation, management, and outcome of newly diagnosed glioblastoma in elderly patients. J Neurosurg. 2013;118(4):786-98.
- 11. Hoffermann M, Bruckmann L, Kariem Mahdy A et al. Treatment results and outcome in elderly patients with glioblastomamultiforme A retrospective single institution analysis. Clin Neurol Neurosurg. 2015;128:60 -9
- 12. Iwamoto FM1, Cooper AR, Reiner AS et al. Glioblastoma in the elderly: the Memorial Sloan-Kettering Cancer Center Experience (1997-2007). Cancer. 2009 Aug 15;115(16):3758-66.
- 13. Zouaoui S, Darlix A, Fabbro-Peray P. Oncological patterns of care and outcomes for 265 elderly patients with newly diagnosed glioblastoma in France. Neurosurg Rev. 2014;37(3)