

Clinical Outcomes and Prognostic Factors of Multifocal Glioblastoma Multiforme Versus Single Focus Age Matched Controls

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Introduction

Prognostic factors and overall survival of patients with GBM have been well characterized in those with single focus disease, but not well in those with multifocal disease.

Methods

The authors conducted a retrospective review of patients with multifocal GBM. Factors such as age, extent of resection, genetic analysis, and overall survival were included. Patients were then matched to a cohort with solitary GBM on the basis of age. Statistical analysis was done using a two sided t test to compare means and medians, then a F test was used to compare variances in order to obtain p values between the cohorts.

Results

A total of 26 multifocal and 115 single focus GBM patients were included in the study. Overall median survival was 12 months in the multifocal group, and 14 months in the single focus group. The single focus and multifocal groups were further subcategorized into 25-49yo, 50-64yo, and >65yo, with median overall survival of 18 vs 14.5 months ($p=0.0013$), 15.5 vs 10 months ($p=0.0102$), and 11 vs 12.5 months ($p=0.0075$), respectively. In terms of genetic analysis, EGFR was positive in 20 patients (76.9%), MGMT was positive in 19 patients (73.1%), and IDH1 was positive in 12 patients (48%). A greater than 90% resection was obtained in 100% of the multifocal patients, with a gross total resection (>95% resection) achieved in 10 patients (38%). In those patients with gross total resection, median survival was 11 months.

Conclusions

Multifocal GBM continues to pose a significant challenge to effectively treat. Our study found good overall survival compared to reported rates, suggesting improved outcomes from early and aggressive surgical intervention.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of multifocal vs single focus GBMs 2) Discuss, in small groups prognostic factors for multifocal GBMs 3) Identify an effective treatment for surgical pathways for multifocal GBMs