A multivariate analysis of 416 patients with glioblastoma multiforme: prognosis, extent of resection, and survival.


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Abstract

OBJECT: The extent of tumor resection that should be undertaken in patients with glioblastoma multiforme (GBM) remains controversial. The purpose of this study was to identify significant independent predictors of survival in these patients and to determine whether the extent of resection was associated with increased survival time.

METHODS: The authors retrospectively analyzed 416 consecutive patients with histologically proven GBM who underwent tumor resection at the authors' institution between June 1993 and June 1999. Volumetric data and other tumor characteristics identified on magnetic resonance (MR) imaging were collected prospectively.

CONCLUSIONS: Five independent predictors of survival were identified: age, Karnofsky Performance Scale (KPS) score, extent of resection, and the degree of necrosis and enhancement on preoperative MR imaging studies. A significant survival advantage was associated with resection of 98% or more of the tumor volume (median survival 13 months, 95% confidence interval [CI] 11.4-14.6 months), compared with 8.8 months (95% CI 7.4-10.2 months; p < 0.0001) for resections of less than 98%. Using an outcome scale ranging from 0 to 5 based on age, KPS score, and tumor necrosis on MR imaging, we observed significantly longer survival in patients with lower scores (1-3) who underwent aggressive resections, and a trend toward slightly longer survival was found in patients with higher scores (4-5).

Gross-total tumor resection is associated with longer survival in patients with GBM, especially when other predictive variables are favorable.

Comment in

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MeSH Terms

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