Treatment outcomes for patients with glioblastoma multiforme and a low Karnofsky Performance Scale score on presentation to a tertiary care institution.

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Abstract

Object The object of this study was to determine the benefit of surgery, radiation, and chemotherapy for patients with glioblastoma multiforme (GBM) and a low Karnofsky Performance Scale (KPS) score. Methods The authors retrospectively evaluated the records of patients who underwent primary treatment for pathologically confirmed GBM and with a KPS score ≤ 50 on initial evaluation for radiation therapy at a tertiary care institution between 1977 and 2006. Seventy-four patients with a median age of 69 years (range 19-88 years) and a median KPS score of 50 (range 20-50) were retrospectively grouped into the Radiation Therapy Oncology Group (RTOG) recursive partitioning analysis (RPA) Classes IV (11 patients), V (15 patients), and VI (48 patients). Patients underwent biopsy (38 patients) or tumor resection (36 patients). Forty-seven patients received radiation. Nineteen patients also received chemotherapy (53% temozolomide), initiated concurrently (47%) or after radiotherapy. Results The median survival overall was 2.3 months (range 0.2-48 months). Median survival stratified by RPA Classes IV, V, and VI was 6.6, 6.6, and 1.8 months, respectively (p < 0.001, log-rank test). Median survival for patients receiving radiation (5.2 months) was greater than that for patients who declined radiation (1.6 months, p < 0.001). Patients in RPA Class VI appeared to benefit from radiotherapy only when tumor resection was also performed. The median survival from treatment initiation was greater for patients receiving chemotherapy concomitantly with radiotherapy (9.8 months) as compared with radiotherapy alone (1.7 months, p = 0.002). Of 20 patients seen for follow-up in the clinic at a median of 48 days (range 24-196 days) following radiotherapy, 70% were noted to have an improvement in the KPS score of between 10 and 30 points from the baseline score. On multivariate analysis, only RPA class (p = 0.01), resection (HR = 0.37, p = 0.001), and radiation therapy (HR = 0.39, p = 0.02) were significant predictors of a decreased mortality rate. Conclusions Patients with a KPS score ≤ 50 appear to have increased survival and functional status following tumor resection and radiation. The extent of benefit from concomitant chemotherapy is unclear. Future studies may benefit from reporting that utilizes a prognostic classification system such as the RTOG RPA class, which has been shown to be effective at separating outcomes even in patients with low performance status. Patients with GBMs and low KPS scores need to be evaluated in prospective studies to identify the extent to which different therapies improve outcomes.

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