Elderly Glioblastoma

MGMT promoter methylation is a favorable prognostic marker in astrocytic high grade gliomas and it is predictive for chemotherapeutic response in anaplastic gliomas with wild-type IDH1/2 and in elderly glioblastoma [1].

Outcome

Despite improvements in survival with aggressive chemoradiotherapy, outcomes for patients diagnosed as having glioblastoma multiforme (GBM) remain poor. Survival is further limited in elderly patients, who are often unable to tolerate multimodality therapy. The appropriate treatment approach for elderly patients (aged >65 years) with GBM remains unclear. While the literature supports the use of standard radiotherapy (60 Gy), several recent studies have suggested that treatment with temozolomide monotherapy or short-course radiotherapy may be a reasonable alternative.

To review literature reporting survival data related to treatment of elderly patients with GBM using either temozolomide alone or radiotherapy alone.

In a systematic review to identify articles from the temozolomide era (2005-present) that reported survival data related to treatment of elderly patients with GBM using either temozolomide alone or radiotherapy alone, with consideration of O6 methylguanine DNA methyltransferase gene (MGMT) promoter methylation status. PubMed was searched for articles between January 1, 2005, and August 31, 2013, using the search terms glioblastoma, elderly, temozolomide, radiation, hypofractionated, and survival, and references from relevant articles were searched. Selected articles reported overall survival data associated with either temozolomide alone or radiotherapy alone in elderly patients (aged ≥60 years) with GBM; articles were excluded if they did not report survival data from radiotherapy alone or temozolomide alone, were not restricted to an elderly population, did not report original data, were not restricted to patients with primary GBM, were a subgroup analysis of a prior article, were a case report, or could not be located in entirety. Articles were interrogated as per the criteria designated by the Oxford Centre for Evidence-Based Medicine to determine the level of evidence presented, and data from level 1 and 2 studies were used for analysis. From a review of 185 articles, 23 were selected for inclusion and final analysis. From these, we identified 2 level 1 studies and 1 level 2 study that reported overall survival in elderly patients treated with temozolomide alone, and 4 level 1 studies and 2 level 2 studies that reported overall survival in elderly patients treated with radiotherapy alone. FINDINGS: This review of the literature revealed several limitations. First, there is a paucity of randomized clinical studies comparing temozolomide alone with radiotherapy alone in elderly patients with GBM. Second, there is a lack of coherence in the literature for the definition of elderly. Third, the treatment paradigms used are not consistent from study to study. Regardless, the available data did allow the formulation of a recommendation based on level 1 and 2 data. CONCLUSIONS AND RELEVANCE: The literature supports the use of hypofractionated radiotherapy or temozolomide monotherapy in the treatment of elderly patients with GBM. In patients with MGMT promoter methylation, temozolomide monotherapy may have greater benefit than radiotherapy [2].

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2)
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