

ABSTRACT

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Accelerated hypofractionated radiation for elderly or frail patients with a newly diagnosed glioblastoma: A pooled analysis of patient-level data from 4 prospective trials.

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BACKGROUND: The standard of care for elderly or frail patients with glioblastoma (GBM) is 40 Gy in 15 fractions of radiotherapy. However, this regimen has a lower biological effective dose (BED) compared with the Stupp regimen of 60 Gy in 30 fractions. It is hypothesized that accelerated hypofractionated radiation of 52.5 Gy in 15 fractions (BED equivalent to Stupp) is safe and efficacious.

METHODS: Elderly or frail patients with GBM treated with 52.5 Gy in 15 fractions were pooled from 3 phase 1/2 studies and a prospective observational study. Overall survival (OS) and progression-free survival (PFS) were defined time elapsing between surgery/biopsy and death from any cause or progression of disease.

RESULTS: Sixty-two newly diagnosed patients were eligible for this pooled analysis of individual patient data. The majority (66%) had a Karnofsky performance status (KPS) score <70. The median age was 73 years. The median OS and PFS were 10.3 and 6.9 months, respectively. Patients with KPS scores ≥70 and <70 had a median OS of 15.3 and 9.5 months, respectively. Concurrent chemotherapy was an independent prognostic factor for improved PFS and OS. Grade 3 neurologic toxicity was seen in 2 patients (3.2%). There was no grade 4/5 toxicity.

CONCLUSIONS: This is the only analysis of elderly/frail patients with GBM prospectively treated with a hypofractionated radiation regimen that is isoeffective to the Stupp regimen. Treatment was well tolerated and demonstrated excellent OS and PFS compared with historical studies. This regimen gives the elderly/frail population an alternative to regimens with a lower BED. Randomized trials are needed to validate these results.

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