Phase II Trial of Hypofractionated IMRT With Temozolomide for Patients With Newly Diagnosed Glioblastoma Multiforme.


Department of Radiation Oncology, University of Colorado School of Medicine, Aurora, Colorado.

Abstract

PURPOSE: To report toxicity and overall survival (OS) in patients with newly diagnosed glioblastoma multiforme (GBM) treated with hypofractionated intensity-modulated radiotherapy (hypo-IMRT) with concurrent and adjuvant temozolomide (TMZ).

METHODS AND MATERIALS: Patients with newly diagnosed GBM after biopsy or resection and with adequate performance status and organ or bone marrow function were eligible for this study. Patients received postoperative hypo-IMRT to the surgical cavity and residual tumor seen on T1-weighted brain MRI with a 5-mm margin to a total dose of 60 Gy in 10 fractions (6 Gy/fraction) and to the T2 abnormality on T2-weighted MRI with 5-mm margin to 30 Gy in 10 fractions (3 Gy/fraction). Concurrent TMZ was given at 75 mg/m²/day for 28 consecutive days. Adjuvant TMZ was given at 150 to 200 mg/m²/day for 5 days every 28 days. Toxicities were defined using Common Terminology Criteria for Adverse Events version 3.0.

RESULTS: Twenty-four patients were treated, consisting of 14 men, 10 women; a median age of 60.5 years old (range, 27-77 years); and a median Karnofsky performance score of 80 (range, 60-90). All patients received hypo-IMRT and concurrent TMZ according to protocol, except for 2 patients who received only 14 days of concurrent TMZ. The median number of adjuvant TMZ cycles was 6.5 (range, 0-14). With a median follow-up of 14.8 months (range, 2.7-34.2 months) for all patients and a minimum follow-up of 20.6 months for living patients, no instances of grade 3 or higher nonhematologic toxicity were observed. The median OS was 16.6 months (range, 4.1-35.9 months). Six patients underwent repeated surgery for suspected tumor recurrence; necrosis was found in 50% to 100% of the resected specimens.

CONCLUSION: In selected GBM patients, 60 Gy hypo-IMRT delivered in 6-Gy fractions over 2 weeks with concurrent and adjuvant TMZ is safe. OS in this small cohort of patients was comparable to that treated with current standard of care therapy.

Copyright © 2012 Elsevier Inc. All rights reserved.

PMID: 22483738 [PubMed - as supplied by publisher]