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Definitive chemoradiation at high volume facilities is associated with improved survival in glioblastoma.

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Abstract

The standard of care for glioblastoma (GBM) is maximal safe resection followed by concurrent chemoradiation (CRT). For several neoplasms, receipt of radiation treatment at high-volume facilities has been associated with improved overall survival (OS). The purpose of the present investigation was to determine if there was an association between receipt of CRT for GBM at facilities with a higher case volume and improved OS. The National Cancer Data Base was queried for patients with GBM diagnosed between 2006 and 2012 that received full-course CRT. Statistics included Kaplan-Meier analysis to compare OS between patients treated facilities with the highest quartile volume (HVF) to those treated at lower case volume facilities, multivariate logistic regression to determine factors associated with treatment at a HVF, and Cox proportional hazards modeling to determine variables associated with OS. A total of 4892 patients met the specified criteria. Fourteen facilities (9.9%) treated the highest quartile volume of patients, while 69 (48.6%) treated the lowest quartile volume (LVF) of patients. Treatment at the HVF was associated with improved median OS (16.5 vs. 14.1 months, $p < 0.001$).

Treatment at a LVF also independently predicted for worse OS on multivariate analysis, along with age >70 years, and a resection limited to a biopsy. This is the first study to demonstrate that treatment of GBM with CRT at a HVF is associated with improved survival. Major goals of future oncologic care should be to achieve greater standardization of quality of treatment across facilities with different case volumes.

KEYWORDS: Chemotherapy; Glioblastoma; Radiation therapy; Survival

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