Underutilization of radiation therapy in patients with glioblastoma: Predictive factors and outcomes.

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Abstract

BACKGROUND: Randomized trials have demonstrated that radiation improves survival in patients with glioblastoma. The purpose of this study was to characterize the risk factors and impact of omission of radiation therapy in such patients.

METHODS: The Surveillance, Epidemiology, and End Results (SEER) program was used to identify 22,777 patients diagnosed with glioblastoma between 1988 and 2007. Multivariable logistic regression was employed to identify predictors associated with omission of radiation. Cox regression was used to characterize the impact of omitting radiation on all-cause mortality.

RESULTS: Among the entire cohort, 16,863 of 22,777 patients (74%) received radiation, whereas 5914 of 22,777 patients (26%) did not. Factors associated with omission of radiation included older age (OR = 1.048 per year increase, 95% CI = 1.046-1.051, P < .001), lower annual income (OR = 0.93 per $10,000 increase, 95% CI = 0.90-0.96, P < .001), African American race (reference = white, OR = 1.19, 95% CI = 1.03-1.37, P = .02), Hispanic race (OR = 1.34, 95% CI = 1.19-1.50, P < .001), Asian American race (OR = 1.24, 95% CI = 1.04-1.48, P < .001), unmarried status (OR = 1.71, 95% CI = 1.60-1.83, P < .001), and subtotal resection/biopsy (OR = 1.82, 95% CI = 1.69-1.96, P < .001). The use of radiation was significantly associated with improved overall survival (2-year survival: 14.6% versus 4.2%, P < .001; adjusted HR = 2.09, 95% CI = 2.02-2.16, P < .001). When the population was restricted to patients < 50 years old, these findings remained largely unchanged.

CONCLUSIONS: Radiation therapy is associated with survival benefit in patients with glioblastoma, and sociodemographic factors play a significant role in the underutilization of radiation. The underlying causes for these disparities in care require further research. Cancer 2013. © 2013 American Cancer Society.

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KEYWORDS: glioblastoma, omission, radiation, risk factors, survival

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