

## ABSTRACT

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Palliative Care Effects on Survival in Glioblastoma: Who Receives Palliative Care?

Pando A(1), Patel AM(2), Chaudhry H(2), Eloy JA(3), Goldstein I(2), Liu JK(2).

### Author information:

(1)Department of Neurological Surgery, Rutgers New Jersey Medical School, Newark, New Jersey, USA. Electronic address: alejandro\_pando@alumni.brown.edu.

(2)Department of Neurological Surgery, Rutgers New Jersey Medical School, Newark, New Jersey, USA.

(3)Department of Otolaryngology - Head and Neck Surgery, Rutgers New Jersey Medical School, Newark, New Jersey, USA.

**BACKGROUND:** High grade glioma has a poor overall survival with profoundly negative effects on the patient's quality of life and their caregivers. In this study, we investigate the factors associated with receiving palliative care in patients diagnosed with Glioblastoma (GBM) and the association of receiving or not receiving palliative care with overall survival.

**METHODS:** The National Cancer Database was analyzed for patterns of care in patients  $\geq 18$ -years-old who were diagnosed with histologically confirmed grade IV GBM between 2004 and 2017. All statistical analyses were conducted based on univariate and multivariate regression models.

**RESULTS:** A total of 85,380 patients with the diagnosis of GBM were identified. Of the study population, 2,803(3.28%) patients received palliative therapy. On multivariate logistic regression analysis, age  $\geq 70$  Years (odds ratio[OR]=1.28, 95% Confidence Interval[CI]=1.04-1.58;  $p < 0.001$ ), Medicare (OR=1.348, CI=1.13-1.61;  $p = 0.001$ ), tumor size  $\geq 5$  cm (OR=1.15, CI=1.01-1.31;  $p = 0.036$ ), tumor multifocality (OR=1.69, CI=1.47-1.96;  $p < 0.001$ ), lobe overlapping tumor (OR=2.09, CI=1.13-3.86;  $p = 0.018$ ), Charlson-Deyo score  $> 0$ , receiving treatment at a non-academic/research program, and medium volume of cancers managed at the treatment facility (OR=1.19, CI=1.02-1.38;  $p = 0.026$ ) were independent risk factors associated with an increased chance of receiving palliative care. In contrast, a household income of  $\geq \$40,227$  and high volume of cancer managed at the treatment facility (OR=0.75, CI=0.58-0.96;  $p = 0.02$ ) were independent risk factors associated with decreased palliative care. Patients who received no palliative care had a 2-year overall survival rate longer than those who received palliative care (22% vs. 8.8%;  $p < 0.001$ ). In patients receiving palliative care, those who received recommended treatment had a 2-year overall survival rate longer than those who declined part or whole recommended treatment (9.1% vs. 3.8%;  $p = 0.009$ ).

**CONCLUSION:** In patients with high grade glioma, receiving palliative care is associated with decreased survival. When receiving palliative care, recommended treatment increases the number of patients who survive more than two years approximately threefold when compared to those declining part or whole treatment.

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