

Neurosurgery. 2024 Jun 28. doi: 10.1227/neu.0000000000003072. Online ahead of print.

Clinical Predictors of Overall Survival in Very Elderly Patients With Glioblastoma: A National Cancer Database Multivariable Analysis

Julian Gendreau ¹, Yusuf Mehkri ², Cathleen Kuo ³, Sachiv Chakravarti ⁴, Miguel Angel Jimenez ⁵, Moshe Shalom ⁶, Foad Kazemi ¹, Debraj Mukherjee ¹

Affiliations

PMID: 38940573 DOI: 10.1227/neu.0000000000003072

Abstract

Background and objectives: Surgery for the very elderly is a progressively important paradigm as life expectancy continues to rise. Patients with glioblastoma multiforme often undergo surgery, radiotherapy (RT), and chemotherapy (CT) to prolong overall survival (OS). However, the efficacy of these treatment modalities in patients aged 80 years and older has yet to be fully assessed in the literature.

Methods: The National Cancer Database was used to retrospectively identify patients aged 65 years and older with glioblastoma multiforme (1989-2016). All available patient demographic characteristics, disease characteristics, and clinical outcomes were collected. To study OS, bivariable survival models were created using Kaplan-Meier estimates. A Cox proportional-hazards model was used for final adjusted analyses.

Results: A total of 578 very elderly patients (aged 80 years and older) and 2836 elderly patients (aged 65-79 years) were identified. Compared with elderly patients, very elderly patients were more likely to have Medicare (odds ratio [OR] 1.899 [95% CI: 1.417-2.544], $P < .001$) while less likely to have private insurance status (OR 0.544 [95% CI: 0.401-0.739], $P < .001$). In addition, very elderly patients were more likely to travel the least distance for treatment and have multiple tumors ($P < .001$). When controlling for demographic and disease characteristics, very elderly patients were less likely to receive gross total resection (GTR) (OR 0.822 [95% CI: 0.681-0.991], $P < .041$), RT (OR 0.385 [95% CI: 0.319-0.466], $P < .001$), or postoperative CT (OR 0.298 [95% CI: 0.219-0.359], $P < .001$) relative to elderly counterparts. Within very elderly patients, GTR, RT, and CT all independently and significantly predicted improved OS ($P < .001$ for all). These predictive models were deployed in an online calculator (https://spine.shinyapps.io/GBM_elderly).

Conclusion: Very elderly patients are less likely to receive GTR, RT, or CT when compared with elderly counterparts despite use of these therapies conferring improved OS. Selected very elderly patients may benefit from more aggressive attempts at surgical and adjuvant treatment.

Copyright © Congress of Neurological Surgeons 2024. All rights reserved.

[PubMed Disclaimer](#)