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National Trends in The Treatment of Adult Diffuse Midline Gliomas: A Rare Clinical Scenario

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Abstract

Purpose: Diffuse midline gliomas (DMG) include all midline gliomas with a point mutation to the histone H3 gene resulting in the substitution of a lysine with a methionine (K27M). These tumors are classified as World Health Organization grade 4 with a mean survival between 9- and 19-months following diagnosis. There is currently no standard of care for DMG, and palliative radiation therapy has been proven to only extend survival by months. Our current study aims to report current treatment trends and predictors of the overall survival of DMG.

Methods: We searched the National Cancer Database for adult patients treated for DMG from 2016 through 2020. Patients were required to have been treated with primary radiation directed at the brain with or without concurrent chemotherapy. Univariable and multivariable Cox regressions were used to determine predictors of overall survival.

Results: Of the 131 patients meeting the inclusion criteria, 113 (86%) received radiation and chemotherapy. Based on multivariable Cox regression, significant predictors of survival were Charlson-Deyo comorbidity index and race. Patients with a Charlson-Deyo score of 1 had 2.72 times higher odds of mortality than those with a score of 0. Patients not identifying as White or Black had 2.67 times higher odds of mortality than those identifying as White. The median survival for all patients was 19 months.

Conclusions: Despite being considered ineffective, chemotherapy is still administered in most adult patients diagnosed with DMG. Significant predictors of survival were Charlson-Deyo comorbidity index and race.