The Surveillance, Epidemiology and End Results

The Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute works to provide information on cancer statistics in an effort to reduce the burden of cancer among the U.S. population.

Utilizing the SEER database, Kaalid et al., retrospectively assessed survival in histologically confirmed brainstem gliomas in patients aged 17 and younger. Survival was described with Kaplan-Meier curves and multivariate regression analysis.

This analysis of 180 cases showed that age (hazard ratio [HR] 1.04, 95% CI 0.96-1.14, p = 0.34), non-white race (HR 1.00, 95% CI 0.35-2.85 p > 0.99), distant or invasive extension of the tumor (HR 0.4, 95% CI 0.08-2.53, p = 0.37), and radiation therapy (HR 1.27, 95% CI 0.52-3.11, p = 0.61) were not associated with decreased survival. High-grade tumor status (HR 8.64, 95% CI 3.49-21.41, p < 0.001) was associated with decreased survival. Partial resection (HR 0.11, 95% CI 0.04-0.30, p < 0.001) and gross-total resection (HR 0.03, 95% CI 0.01-0.14, p < 0.001) were associated with improved survival.

High-grade brainstem gliomas have a worse prognosis. Early diagnosis and surgery appear to be associated with improved survival, while the role of radiation is unclear [1)].

Secondary glioblastomas (GBs) constitute a small subset of all GBs and tend to arise after a low-grade glioma. Though knowledge regarding this subset has gained traction in recent years, its definition continues to evolve, complicating its clinical management. Investigation of epidemiology and survival patterns may help provide needed insights.

RESULTS: The age at GB diagnosis is significantly lower (46.22 vs 60.25 years) for group B. The distribution among type of GB (glioblastoma, giant cell glioblastoma, or gliosarcoma) was significantly different, with no diagnosis of giant cell GB in Group B. Compared to Group A, Group B exhibited a higher proportion of females, not married, smaller tumors, no GTR, and no radiation (all p < 0.05). GB-related observed survivals were comparable. Cox regression with inclusion of co-variates reveal no significant influence of GB group on observed survival. Regarding group B, mean age was 40.197 for diagnosis of initial lower grade glioma. The most common initial ICD-O-3 pathology was oligodendroglioma, NOS; astrocytoma, NOS; astrocytoma, anaplastic; and mixed glioma.

METHODS: The SEER-18 registry was queried for patients with GBs. Patients were further classified into two GB groups: Group A - those with GB as the only primary tumor, and Group B - those with GB as a 2nd primary or subsequent tumor and with history of lower grade gliomas. Demographics and clinical factors were compared between group A and B. Appropriate statistics were employed to calculate incidences and differences among factors and GB-related survivals between the groups.

CONCLUSIONS: Overall, Group B develops GBs at an earlier age, but observed survival remains similar to those with GBs as the only primary. Moreover, this subset also exhibit different proportions of the types of GBs, and well as differences in other key clinical factors (namely, gender and tumor size at presentation). Prior treatments for lower grade gliomas likely explain some of the differences noted

regarding management course after diagnosis of GB [2].

1)

Khalid SI, Kelly R, Adogwa O, Carlton A, Tam E, Naqvi S, Kushkuley J, Ahmad S, Woodward J, Khanna R, Davison M, Munoz L, Byrne R. Pediatric Brainstem Gliomas: A Retrospective Study of 180 Patients from the SEER Database. Pediatr Neurosurg. 2019 Apr 4:1-14. doi: 10.1159/000497440. [Epub ahead of print] PubMed PMID: 30947221.

2)

Nguyen HS, Best B, Doan NB, Gelsomino M, Shabani S, Awad AJ, Kaushal M, Mortazavi MM. Glioblastoma in the setting of prior lower grade gliomas - insights from SEER database. Oncotarget. 2018 Sep 7;9(70):33271-33277. doi: 10.18632/oncotarget.26014. eCollection 2018 Sep 7. PubMed PMID: 30279958; PubMed Central PMCID: PMC6161794.