ABSTRACT

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Distinct survival and clinical profile of infantile glioblastoma: insights from a national database.

Lu VM(1), Eichberg DG(2), Luther EM(2), Shah AH(2), Daniels DJ(3), Maher OM(4), Niazi TN(2)(5).

Author information:
(1)Department of Neurological Surgery, University of Miami Miller School of Medicine, 1095 NW 14th Terrace, Miami, FL, 33136, USA. victor.lu@jhsmiami.org.
(2)Department of Neurological Surgery, University of Miami Miller School of Medicine, 1095 NW 14th Terrace, Miami, FL, 33136, USA.
(3)Department of Neurologic Surgery, Mayo Clinic, Rochester, MN, USA.
(4)Department of Hematology/Oncology, Nicklaus Children's Hospital, Miami, FL, USA.
(5)Department of Neurological Surgery, Nicklaus Children's Hospital, Miami, FL, USA.

BACKGROUND: The diagnosis of glioblastoma (GBM) in infants aged ≤ 1 year is extremely rare, and its comparability to the more common adult diagnosis is underexplored. Correspondingly, the objective of this study was to interrogate a national cancer database to elucidate the typical survival and clinical profile of this demographic.

METHODS: All GBM patients aged ≤ 1 year in the U.S. National Cancer Database (NCDB) between 2005 and 2016 were retrospectively reviewed. Data were summarized, and overall survival (OS) was modeled using Kaplan-Meier and Cox regression analyses.

RESULTS: A total of 86 patients satisfied criteria for entry into study, making up 0.08% of all GBM diagnoses in the database. There were 32 (37%) females and 54 (63%) males. Irrespective of treatment, median OS was 67.3 months (95% CI, 46-91), which was distinct from all other ages and pediatric age groups. There were 74 (86%) treated by surgery, 51 (59%) treated by chemotherapy, and 17 (20%) treated by radiation therapy. Multivariable analysis demonstrated that Hispanic status (HR = 3.41, P = 0.02) and the presence of comorbidity (HR = 3.24, P = 0.01) independently predicted shorter OS, whereas treatment with chemotherapy (HR = 0.18, P < 0.01) independently predicted longer OS. Neither extent of surgery nor radiation therapy demonstrated independent statistical significance.

CONCLUSION: Infantile GBM should be viewed as a distinct GBM entity with a longer OS than other pediatric and adult patients. Chemotherapy is a statistically significant component in the treatment of this demographic, and the value of surgical treatment is likely universal. Future studies into understanding the biological and genetic profile of infantile GBM are needed to advance both pediatric and adult fields.

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