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EPR25-138: Glioblastoma Multiforme: A SEER STAT Analysis of Epidemiological, Laterality, and Anatomical Prognostic Indicators

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Background: Glioblastoma multiforme (GBM) is the most common and lethal malignant central nervous system tumor, with an average survival of 15 months and a 5-year survival rate of 7.2%. The tumor's high heterogeneity, infiltrative nature, immunosuppressive microenvironment, and difficulty delivering chemotherapy across the blood-brain barrier make it challenging to treat. **Method:** The data was collected from Surveillance, Epidemiology, and End Result database research plus data, 17 registries, November 2023 Sub (2000-2021). In total, 58,495 cases of GBM in adults aged 20 years or above were extracted using the ICD code 9440/3. We then stratified the data based on age, sex, race and origin, primary site, laterality, and vital status. The analysis was further completed by comparing survival using the log-rank (Mantel-Cox) test (GraphPad Prism). **Results:** Of the total 58,495 reported cases of GBM, 58.01% were males. The observed race distribution was as follows: Caucasians (78.44%), Blacks (5.33%), Hispanics (10.92%), Asians (4.73%), and Alaskans (0.39%). The median age of diagnosis was 65 years. The median overall survival (MoS) was 9 months each for right and left lobe involvement, 3 for bilateral tumors-single primary, 3.5 for paired site-midline origin, 6 for unknown side, and 5 for unpairable site tumors (p-value <0.0001). The median overall survival (MoS) was 9 months for frontal lobe neoplasms, 10 for temporal, occipital, and spinal cord, 8 for parietal, 5 for cerebral cortex, ventricles, optic nerve, and overlapping lesions, 6 for cerebellar, 7 for brain stem, 19 for pituitary, and 21 for pineal gland origin (p-value <0.0001). **Conclusion:** Males were more often affected than females, and Caucasians were significantly more affected than all other ethnicities. Patients with bilateral lobe involvement and midline origin had dramatically reduced survival rates. This could be due to the higher tumor burden and difficulty treating a wider lesion. Patients with pituitary and pineal gland origins had significantly better survival outcomes, possibly due to the relatively smaller size and distinctive location of these glands making them more accessible for surgical resection and targeted treatment. The glandular composition of the cellular microenvironment with less dense glial cells could also be a contributing factor.

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