



Characteristics and Outcomes of Patients with Intraventricular Glioblastoma: a population-based analysis

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Introduction

Glioblastoma (GBM) is the most common primary malignant brain tumor in adults and may occur anywhere in the central nervous system. Tumor location significantly influences patient outcomes, with survival generally varying between supratentorial, brainstem, and spinal cord GBMs. Interestingly, there is little data on the outcomes of patients with intraventricular GBMs. The occurrence of GBMs within the ventricular system is exceptionally rare. The description of these tumors is currently limited to case reports and small case series, precluding an understanding of their natural history and prognostic factors. In this study, we have performed a population-based analysis of patients with intraventricular GBMs to characterize patient outcomes and evaluate the efficacy of surgical resection and radiotherapy.

Methods

The Surveillance, Epidemiology, and End Results (SEER) database was utilized to identify adult patients with intraventricular GBMs. Patient, tumor, and treatment characteristics were summarized and analyzed to identify prognostic factors for survival.

Results

A total of 162 patients met the inclusion criteria. The median age was 57 years, with males accounting for 66.7% of patients. The median tumor size was 4.3 centimeters. The majority of patients underwent surgical resection (60.5%) and radiotherapy (57.4%). The median overall survival for all patients was 5 months and was significantly lower than the survival of those with intraparenchymal supratentorial tumors (8 months; $p=0.0047$). Univariate analysis revealed age greater than 40 years (4 vs. 9 months, $p=0.0008$), radiotherapy (9 vs. 2 months, $p<0.0001$), and surgical resection (8 vs. 3 months, $p=0.005$) to significantly affect survival. On multivariate analysis, only age greater than 40 years (HR: 2.20;95%CI:1.37-4.53; $p=0.0011$) and radiotherapy (HR:0.31;95%CI:0.21-0.46; $p<0.0001$) were independent prognostic factors.

Conclusions

Patients with intraventricular GBMs have a poor prognosis which is significantly worse than those with supratentorial tumors. While older age confers a worse survival, radiotherapy provides a significant survival benefit.

Learning Objectives

Patients with intraventricular GBMs have a poor prognosis which is significantly worse than those with supratentorial tumors.