Risk Factors and Long-Term Survival in Adult Patients with Primary Malignant Spinal Cord Astrocytomas

Albert Wong MD; Rishi R Lall MD; Nader S. Dahdaleh MD; Richard G. Fessler MD; Zachary A Smith MD; Sandi Lam MD
[Northwestern Memorial Hospital]

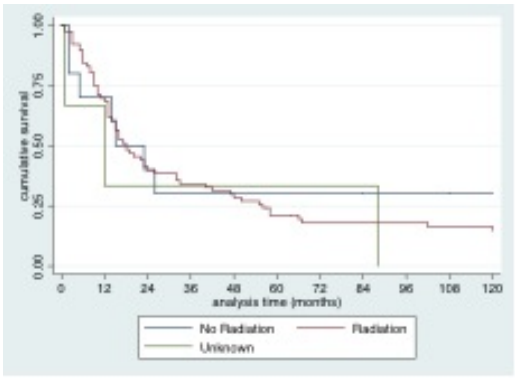
Introduction

Primary intramedullary spinal cord tumors are rare in adult patients. The majority of these tumors consist of ependymomas and astrocytomas. High-grade or malignant lesions are rare with a reported incidence of of 0.22 – 0.24 per 100,000 person-years. Survival and prognostic factors in this population remain poorly understood. The current report presents data on intramedullary spinal cord anaplastic astrocytomas (AA) and glioblastomas (GB) in adults using the national Surveillance, Epidemiology, and End Results (SEER) database (1973 – 2008), and evaluates the impact of demographic and treatment factors on survival.

Methods

Data was obtained from the Surveillance, Epidemiology, and End Results (SEER) program (1973-2008) of the National Cancer Institute. Subjects classified as having histopathologically confirmed AA or GB were included. Categorical age at time of diagnosis, sex, marital status, extent of surgical resection, radiation therapy, and sequence of surgery and radiation treatment were evaluated in this analysis.

Survival by radiation status

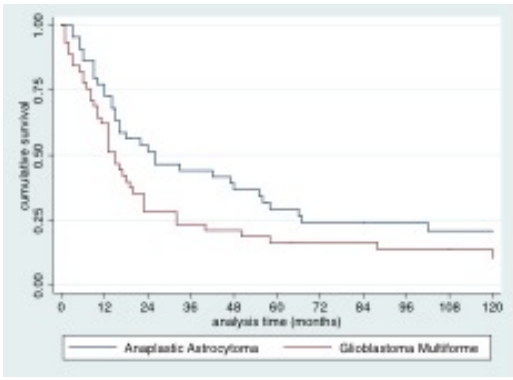


The median survival in patients treated without radiation therapy and those treated with radiation were 19 months and 17 months, respectively

Results

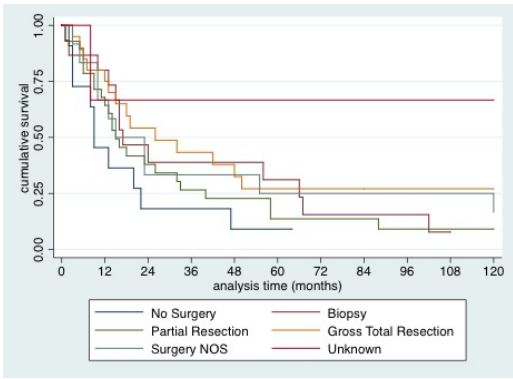
89 adults were evaluated (mean age of 43 years); 49% of patients had anaplastic astrocytoma and 51% of patients had glioblastoma. 88% of patients had surgical intervention and 85% of patients had radiotherapy. The median survival was longer for males compared to females (24 months vs 12 months), anaplastic astrocytoma compared to glioblastoma (26 months vs 15 months), and gross-total resection compared to no-surgery (23 months vs 9 months); median survival for radiotherapy was similar to those treated without radiotherapy (17 months vs 19 months).

Survival by Tumor Grade



The median survival for adult patients with AA and GB was 26 months and 15 months, respectively

Survival by extent of resection



The median survival in patients treated with no surgery, biopsy, partial resection, and gross total resection were 9 months, 17 months, 15 months, and 23 months, respectively

Conclusions

Primary malignant spinal cord astrocytomas are rare in adult patients. Patients who were female, had glioblastoma histology, and lacked gross total resection had statistically significant increased risk of mortality compared to their counterparts. Adjuvant radiotherapy and age at diagnosis did not have a significant influence on survival

Learning Objectives

By the conclusion of this session, participants should be able to 1)Describe demographic factors associated with increased survival in adult patients with malignant spinal cord astrocytoma, and 2) discuss the effect of treatment-related factors including extent or resection, and use/timing of adjuvant radiation on survival in this population.