Tumors of the Choroid Plexus: A Population-Based Analysis of the National Cancer Database

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Introduction

Tumors of the choroid plexus, including choroid plexus papillomas (CPP), atypical choroid plexus papillomas (ACPP), and choroid plexus carcinomas (CPC), are rare tumors infrequently studied in adults. Controversy exists in the literature regarding impact of extent of resection and adjuvant therapies upon survival. We describe the incidence and predictors of survival in the largest series of choroid plexus tumors to date.

Methods

A prospective cohort from The National Cancer Database was used to identify CPP, ACPP, and CPC patients (1998-2011). Kaplan-Meier curves estimated survival of each tumor type. Cox proportional hazards models assessed factors associated with ACPP survival.

Results

1929 patients were identified; 48 (2.5%) had CPP, 1845 (95.6%) had ACPP, and 36 (1.9%) had CPC. Median age was 36.0 for CPP, 44.0 for ACPP, and 41.0 years for CPC (p=.03). 60.0% of patients with CPP received near/gross total resection compared to 36.4% with ACPP and 55.6% with CPC (p=.002). 11.6% of patients with CPP received chemotherapy as opposed to 2.1% with ACPP, and no patients with CPC (p=0.0002). There was no significant difference in average tumor size or radiation treatment status between tumor types. Median overall survival was 35.3 months for patients with CPP, 43.7 months in ACPP, and 27.0 months in CPC (p=.11).

In multivariate analysis, survival in patients with ACPP was only predicted by greater patient age (HR = 1.04; 95% CI: 1.03-1.05). Importantly, gross total resection trended toward significance but was not statistically significant (HR=0.76; 95% CI: 0.57-1.01); adjuvant radiation (0.91; 0.72-1.16) and chemotherapy (1.16; 0.51-2.62) similarly were not statistically significant.

Conclusions

Demographic and survival differences exist between histological subtypes of choroid plexus tumors. Greater extent of resection may not be associated with survival; future exploration of novel adjuvant therapies may be necessary to improve long-term outcomes for these rare tumors.

Learning Objectives

By the conclusion of this session, participants should be able to:

1. Describe the relative incidence and survival of the three major subtypes of choroid plexus tumors.

2. Define significant and insignificant predictors of overall survival in patientswith atypical choroid plexus papillomas, inclusive of patient age but excluding extent of tumor resection.