Introduction

- Primary germ cell tumors (GCTs) in the central nervous system (CNS) are rare.
- Incidence rate (IR) = 0.10 per 100,000 population in the United States (US).
- Represent 3-11% of pediatric brain tumors.
- More commonly occur in white males.
- Approximately two-thirds of CNS GCTs are germinomas, which have 5-year survival rates exceeding 90%.
- The other third are non-germinomatous GCTs, which have poorer survival outcomes ranging from 20-76%.
- Study objective: to provide the most up-to-date incidence and survival patterns for CNS GCTs by sex, race, and age at diagnosis in the US.

Materials and Methods

- The Central Brain Tumor Registry of the United States contains the largest aggregation of population-based data on primary CNS tumors in the US.
- These data were used to determine the incidence of GCTs from 2005-2014 by sex, race, and age at diagnosis.
- Survival by radiation status was calculated using data from Surveillance, Epidemiology, and End Results.

Results

- Males had greater IR than females in all GCT histologies examined (Figure 1).
- Overall, males had an IR of 0.113 per 100,000, while females had an IR of 0.041 per 100,000.
- Asian and Pacific Islanders (API) had a significantly greater incidence of GCTs than other races, with an IR of 0.142 per 100,000 (Figure 2).
- This was followed by Whites, with an IR of 0.080 per 100,000, Blacks, with an IR of 0.050 per 100,000, and American Indians/Alaska Natives (AIAN), with an IR of 0.031 per 100,000.
- GCT incidence was greatest for those age 0 years, with an IR of 0.317 per 100,000 (Figure 3).
- This overall incidence peaked again at 0-14 years of age (IR = 0.267 per 100,000) and 15-19 years of age (IR = 0.248 per 100,000), with a continuous drop in incidence following 19 years of age.

Conclusions

- CNS GCTs are rare tumors that occur with highest frequency in males, Asian populations, and children less than 20 years.
- There is significant variation in incidence by sex, race, and age at diagnosis.
- Population-based data are important for clinicians focused on this disease, as well as for patients and their families, and may lead to clues into the etiology of these tumors.