in the spinal cord/cauda equina. For pilocytic tumors located in the cerebellum, 10-year relative survival was similar for the 0–4 year (100%), 5–9 year (100%), 10–14 year (96.4%), and 15–19 year (98.2%) age groups, while survival was significantly lower for the ⩾20 age group (84.3%). Ten-year relative survival estimates did not significantly differ between males and females either overall or by site or age group. Overall, 10-year survival for pilocytic astrocytomas on a population-based level is quite good; however, long-term survival data and quality of life measurements will be necessary to more accurately define the clinical aspects of the disease.

EPI 10. DIFFERENCES IN THE DISTRIBUTION OF BRAIN TUMORS BY PRIMARY SITE IN CHILDREN, YOUNG ADULTS, AND ADULTS

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Pediatric brain tumors are known to differ from adult brain tumors in terms of most common histologies. In addition, pediatric brain tumors occur in specific brain sites with different frequencies than adult brain tumors. In an effort to document the primary site differences among children (0–14 years), young adults (15–29 years), and adults (⩾30 years) in a population-based manner, data on all primary brain tumors from the Central Brain Tumor Registry of the United States for the years 2000–2004 were analyzed. Of 74,825 primary brain tumors, 4,551 tumors (3,510 malignant and 1,041 nonmalignant) were found in children, 5,124 tumors (2,547 malignant and 2,577 nonmalignant) were found in young adults, and 65,150 tumors (27,283 malignant and 37,867 nonmalignant) were found in adults. A difference of greater than 5% in the frequency of all tumors by primary site was found for the meninges (0–14: 1.5%; 15–29: 8.7%; ⩾30: 29.4%), the frontal lobe (0–14: 5.4%; 15–29: 12.1%; ⩾30: 11.6%), the cerebellum (0–14: 18.4%; 15–29: 7.4%; ⩾30: 2.2%), the brainstem (0–14: 14.1%; 15–29: 3.9%; ⩾30: 1.0%), brain NOS (0–14: 14.6%; 15–29: 7.2%; ⩾30: 8.1%), and the pituitary (0–14: 2.0%; 15–29: 18.4%; ⩾30: 8.6%). For malignant tumors, adults had a higher frequency of tumors in the frontal, temporal, and parietal lobes and overlapping brain sites and a lower frequency of tumors in the cerebellum and brainstem than children. Adults had a higher frequency of tumors of the temporal and parietal lobes than young adults. Young adults had a higher frequency of tumors of the temporal lobe and a lower frequency of tumors in the cerebellum and brainstem than children. For nonmalignant tumors, both adults and young adults had higher frequencies of tumors in the meninges and pituitary and acoustic nerve tumors but lower frequencies of tumors in the temporal lobe, ventricles, brain NOS, and craniopharyngeal duct than children. The highest frequency of tumors in the pituitary was found in young adults compared to either adults or children. By histology, the astrocytic tumors were more frequent in children in the cerebrum and brainstem than in adults, but more frequent in the lobes in adults compared to children. Ependymomas were more frequent in the brainstem and brain NOS in children compared to adults, but there was a higher frequency of these tumors in the spinal cord in young adults and adults compared to children. While tumors of the meninges were most frequently reported in the cerebral meninges in all three age groups, children had a greater frequency of these tumors reported in the spinal meninges than adults or young adults. Further differences in brain tumor frequency by primary site will be presented.

EPI 11. EPIDEMIOLOGY AND TREATMENT OUTCOME OF CHILDHOOD EPENDYMOMA: REPORT FROM THE HONG KONG PEDIATRIC HEMATOLOGY ONCOLOGY STUDY GROUP

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Objective: Ependymoma is the fourth commonest childhood brain tumor, but there was little information on its epidemiology and outcome in Chinese children. We reviewed our data and provide some insight in this aspect.

Materials and Methods: Prospective collection of childhood cancer data was performed since early 1990s from the five major public hospitals, which captured almost all children with cancers locally. Standard data accrual was performed by designated data managers. The data was further crosschecked with the Hong Kong Cancer Registry database, which collected all the local pathology reports for cancers. Chemotherapy regimen was baby-POG before 2005 and SIOP-99 after 2004.

Results: From January 1995 to December 2006 (12 years), a total of 20 cases of childhood (⩽18 years) ependymoma were diagnosed. Their median age was 3.4 years (range, 0.5–16.3 years), and male:female ratio was 8:12. Excluding one non-Chinese and one >15 years, the incidence of ependymoma was 1.3/1,000,000 per year for children ⩽15 years. The distribution was fairly even between the cerebral ($n = 9$) and posterior fossa ($n = 9$), and two were in the spinal cord region. Chemotherapy was given to 10 children, mostly for children <3 years in order to delay cranial radiation therapy (RT) ($n = 6$) or for children with incomplete surgical excision ($n = 4$). The 5-year overall survival rate was 69% but was 87.5% for cerebral and 53.3% for posterior fossa location ($p = 0.14$), mainly because seven of nine (77%) children with posterior fossa ependymoma were <3 years (median age, 1.5 years; range, 0.5–5.1 years) and RT was postponed. On the contrary, only two of nine children with cerebral ependymomas were <3 years (median, 5.8 years; range, 2.3–16.3 years). Eight of 10 patients with either cerebral or posterior fossa ependymoma who did not receive upfront cranial RT (<3 years or parents refused) relapsed, irrespective of the completeness of the initial surgical resection or chemotherapy used. The two patients with spinal ependymoma were treated with surgery alone, and one relapsed; he was successfully re-treated with surgery plus local RT.

Conclusion: Ependymoma is less common among Chinese children, and the majority of our children with posterior fossa ependymoma were <3 years. Without upfront cranial RT, 80% of our cerebral or cerebellar ependymomas relapsed. The data managers were supported by the Children's Cancer Foundation of Hong Kong.

EPI 12. EPIDEMIOLOGY OF PEDIATRIC CNS GERM CELL TUMORS: A CALIFORNIA CANCER REGISTRY STUDY

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Background: Pediatric CNS germ cell tumors (GCTs) are reported to comprise 2%–4% of childhood brain tumors, with an even greater prevalence in Asians. In the United States GCTs have historically been separated from other brain tumors when sorted by the International Classification of Childhood Cancer and thus are often neglected in analyses. Past Western studies of GCTs have also been limited by small sample sizes.

Methods: We aimed to perform a rigorous, descriptive analysis of childhood CNS GCTs, using data from the population-based California Cancer Registry.

Results: We obtained data on 4,070 CNS cancers, diagnosed from 1988 through 2004 in children ages 0–14 years; 214 (5.3% of sample) primary intracranial and intraspinal germ cell tumors were identified. Mean age at diagnosis was 9.1 years, and 68% of tumors occurred in males. The most common tumor location was the pineal gland (93 cases, 43%) with 7.5% of cases in the sellar region. Of the cases, 43% were Hispanic children, 35% white, 16% Asian, and 6% African American, compared to general California childhood population ethnic frequencies of approximately 42% Hispanic, 37% white, 10% Asian, and 7% African American. Histologically, 131 cases (61%) were reported as germinomas, with the remainder distributed among various pathologic classifications. The overall frequency of CNS GCTs in our cohort was 5.3%, with 11% of cases occurring between ages 0 and 1 year and 62% between ages 10 and 14 years. Children <1 year most often had malignant teratomas, with more females than males (16 vs. 7, $p \leqslant 0.001$, chi-square test). GCT incidence increased starting at age 7 and continued to rise at age 14. The proportion seen in males was greater than twofold that in females ($p < 0.05$).

Conclusion: With the largest pediatric intracranial and intraspinal germ cell tumor series in the United States to date, our study reveals that CNS GCTs may be more prevalent among Western pediatric brain tumors than initially reported. Overall these tumors were more common among males; however, female infants were affected more than males, a difference that has not been previously reported. While our sample might be influenced by a high proportion of Asian Americans, the patterns observed differ from Asian series.