

vs. RT arms were 78% vs. 72%, respectively, which did not meet statistical criteria to establish the benefit of maintenance chemotherapy post RT (1-sided log-rank p-value=0.074). Due to significant noncompliance (30.5% in the RT + maintenance vs 4.3% in the RT arm), a planned secondary “as treated” analysis was performed. With median follow-up of 42.6 months among patients without events, the 3 year EFS estimates for patients who received any chemotherapy (n=114) vs. those who received RT only (n=196) were 80% vs. 71%, respectively (1-sided p-value = 0.0121). CONCLUSION: Early results in this randomized trial suggest that there may be some EPN patients who benefit from maintenance chemotherapy. Genomic analyses are ongoing.

## EPIDEMIOLOGY

### EPID-01. TRENDS OF INCIDENCE IN PEDIATRIC BRAIN TUMORS IN KUMAMOTO PREFECTURE, JAPAN

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**BACKGROUND/PURPOSE:** One of the most problematic issues Japan has is a declining birthrate resulting in an aging society. There are some reports on the trends of incidence in brain tumors in the elderly, whereas few reports on those in the children. The aim of this study is to investigate the trends of incidence in childhood primary brain tumors. **METHODS:** The population of children aged <15 years was available from Kumamoto Prefecture's annual census between 1990 and 2017. During the period 301 childhood primary brain tumors (124 gliomas, including astrocytic tumors and ependymomas, 35 embryonal tumors, 34 germ cell tumors, 22 craniopharyngioma, and 86 others) were registered with the Kumamoto Brain Tumor Data Bank, and investigated. **RESULTS:** The average of the annual incidence rate per 100,000 child populations was 3.90 for total brain tumors, 1.63 for gliomas, 0.44 for embryonal tumors, 0.42 for germ cell tumors, 0.26 for craniopharyngioma, and 1.15 for others. Divided into the first half from 1990 to 2003 and the second half from 2004 to 2017, there was no significant difference in the incidence of brain tumors aged <15 years between the two periods. However, the average of the annual incidence rate/100,000 child populations was 3.02 in the first half, while significantly increased in the second half of 4.78 (p=0.00075, t-test). **DISCUSSION & CONCLUSIONS:** The average number of children aged <15 years in Kumamoto Prefecture was 31,2737.9 from 1990 to 2003, while decreased remarkably to 251460.2 from 2004 to 2017. A decrease in the number of children may affect increasing the incidence rate of pediatric brain tumors.

### EPID-03. COMPARISON OF SURVIVAL IN ADULT AND PEDIATRIC PATIENTS WITH MEDULLOBLASTOMA: A 2018 SEER BASED ANALYSIS

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Medulloblastoma (MB) is the most common high-grade primary brain malignancy in children and accounts for 1% of adult brain tumors. Previous studies have compared survival in pediatric and adult MB from the National Cancer Institute Surveillance Epidemiology and End Results (SEER) database finding no difference. However, diagnostic subgroup analyses are limited. We examined survival in children (age 0–19) and adults (20–79) coded as MB in the 2018 SEER database (2000–2016), using Kaplan Meier analysis, log-rank test and Cox proportional hazard ratios (HR) with 95% confidence intervals (CI). MB in SEER-18 is defined as ICD-O-3 histology codes 9470–9474 (n=1,728). ICD 9473, supratentorial PNET (sPNET, n=97) is biologically distinct so was analyzed separately. 5-year survival for MB, excluding sPNET, was similar in children (n = 1,091, 75.3%) and adults (n= 488, 79.1%) (HR=0.97, CI: 0.79 – 1.17, p=0.50). Subtype analyses showed no survival difference comparing adults and children with desmoplastic nodular MB (n=222, p=0.09), large cell MB (n=73, p=0.46), or MB NOS (n=1330, p=0.10). In contrast, children with sPNET had improved survival (n=65, 72.3%) compared to adults (n=29, 51.7%) (HR = 2.0, CI: 1.10 – 3.92; p=0.02). In conclusion, 2018 SEER data for MB continue to show no survival difference between adults and children, suggesting adult patients could appropriately be entered on pediatric MB treatment protocols. Further analyses of the 2018 data are ongoing adjusting for sex, race, and treatment. Comparison of adults and children with MB and sPNET

will be re-evaluated using the new 2016 World Health Organization classification.

### EPID-04. MORBIDITY IN PAEDIATRIC BRAIN TUMOURS: 17 YEARS' EXPERIENCE IN A TERTIARY NEUROSURGICAL UNIT

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The treatment of paediatric brain tumours has shown significant improvement over the last 2 decades. The aim of our study is to evaluate the prevalence of various effects among this population within our institution. 102 patients diagnosed with a brain tumour at the age of 0–18 years between 2002 and 2018 were identified within a single paediatric institution. Data was collected retrospectively based on electronic medical records. Medulloblastoma (20.6%) was the most common subtype followed by pilocytic astrocytoma (18.6%) and craniopharyngioma (11.8%). Overall, the 5-years survival rate was approximately 77%. Endocrine dysfunction was reported in 36% of the population, mainly due to tumour located in suprasellar region and irradiation causing progressive pituitary dysfunction. Neurological disorders such as epilepsy, weakness, cranial nerves palsy, visual and hearing impairment were present in 46% of the population. Importantly, 20.4% of patients who received chemotherapy had some degree of sensorineural hearing loss. 16% of the population suffered from impaired neurocognition which is likely an underestimation as screening could not be performed on all patients. Other significant complications are infections (12%) and ventriculoperitoneal shunt dysfunction (7%). Most of these effects can be attributed to direct injury to the developing brain caused by the tumour or related to its treatment during surgical excision and the long term side effects of chemotherapy and radiation therapy. Morbidities in various domains can pose significant challenges to survivors of paediatric brain tumours. Active screening and surveillance of these effects can help improve the health outcomes of survivors of paediatric brain tumours.

### EPID-05. EVALUATION OF THE INCIDENCE OF CENTRAL NERVOUS SYSTEM TUMORS IN A CHILDHOOD CANCER TREATMENT CENTER AND THE CREATION OF A SPECIFIC GROUP

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Central Nervous System Tumors (CNST) are the main solid neoplasm of childhood, representing 20% diagnosis. Based on this information, a search was carried out at a reference treatment center for childhood cancer in the state of Sao Paulo, belonging to University of Sao Paulo- ITACI/HCFMUSP, and at between 2017 and 2019, 352 new patients, 116 of which were neoplasm of CNS (32.9%). Aiming at an incidence of new cases, in 2019, an institutional group was created, with a team composed of Pediatric Oncologists, Neurosurgeons, Radiologists, Radiotherapists and Pathologists. In this first year, 31.8% of the 132 new patients were diagnosed with CNS tumor. According to WHO 2016, 15 patients were classified as a group that includes Diffuse Astrocytomas, Oligodendroglial Tumors and Other Astrocytic Tumors. Among the other patients, 14.2% were Medulloblastomas, 4.7% Embryonic Tumors and 2.3% ART / RT. Patients diagnosed with diffuse brainstem glioma accounted for 11.9% of the total. The institution had a diagnosis of Angiocentric Glioma, Craniopharyngioma, Plexiform Neurofibroma and Anaplastic Ependymoma. Nonanion-glioma tumors accounted for 9.5% of cases. Choroid plexus tumors represents 5%. Among them, 4.72% had metastatic tumors: Neuroblastoma and Ewing's Sarcoma. Of the total of 42 patients, there were 5 deaths, 4 due to disease progression and one due to clinical complications. With the group, the discussions were carried out, allowing us to analyze that the presence of the Radiotherapy, Neurosurgery and Pathology team from the first moment, optimized the beginning of treatment and increased the patients' survival.

### EPID-06. DIAGNOSTIC INTERVAL TIME OF PEDIATRIC CNS TUMORS: A REPORT OF THE CANCER IN YOUNG PEOPLE IN CANADA (CYP-C) DATABASE

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**INTRODUCTION:** CNS tumors are the second most common neoplasm in children and have historically been associated with longer time to diagnosis. Data on the time-to-diagnosis for Canadian children with CNS tumors