cell tumours, cysts and heterotopias (0.85, 95%CI 0.70-0.93) and pilocytic astrocytoma (1.0). We report the most comprehensive and up-to-date data on the pediatric primary CNS tumour survival experience in Canada.

EPID-03. EPIDEMIOLOGY, TREATMENT AND OUTCOMES OF CHILDREN AND YOUNG ADULTS WITH CNS TUMORS IN ARMENIA

Julieta Hoveyan[1,2], Henrik Grigoryan[1,2], Shushan Hovsepyan[1,2], Anna Avagyan[1,2], Eduard Asatryan[3], Gevorg Tamamyan[1,2], Ruzanna Papyan[1,2], Lilit Sargsyan[1,2], Lusine Hakobyan[1,2], Samvel Bardakhchyan[4]; [1]Pediatric Cancer and Blood Disorders Center of Armenia, Hematology Center after Prof. R. H. Yeolyan, Yerevan, Armenia. [2]Yerevan State Medical University after Mkhitar Heratsi, Yerevan, Armenia. [3]Surb Astvatsamayr Medical Center, Yerevan, Armenia. [4]Hematology Center after Prof. R. H. Yeolyan, Yerevan, Armenia

BACKGROUND: CNS tumors are the most common solid tumors in children and the leading cause of cancer related deaths. The incidence of CNS tumors is 1.7-6.21 cases per 100000 children. The aim of current study is to analyze epidemiological data, treatment and outcomes of children and young adults (<25 years) with CNS tumors in Armenia during last 25 years. METHODS: We have collected data of pediatric and young adult patients treated in neurosurgery department, three major chemotherapy clinics and radiation therapy department from 01.01.1995 to 31.12.2020 in Armenia. Incidence by gender, age at diagnosis, the time from first complaints to diagnosis, histopathology results and overall survival rates were calculated. RESULTS: The population-based data revealed 176 patients diagnosed with primary CNS tumors during 25 years. Among them 98 (55.7%) were males. Mean age at diagnosis was 7.07 years and the mean time from the first complaints to diagnosis was 6.55 months. Medulloblastomas and other embryonal tumors (26.7%), low grade gliomas (16.5%), retinoblastomas (12.5%) and high grade gliomas (10.8%) were the most common diagnosed malignancies. Craniopharyngiomas, germ cell tumors and other malignancies were observed in 9.1% of patients. For 24.4% histopathological data was missing. Surgery, chemotherapy and radiation therapy were performed in Armenia for 62.5%, 33.5% and 19.3% patients respectively. Follow up information was available for 119 (67.6%) patients. 5-year overall survival was 76%. **CONCLUSION:** Embryonal tumors and gliomas were the most common diagnosed CNS malignancies in Armenia which is consistent with international data. Multimodal treatment was often not available in Armenia during study period, especially for early cases. We hope recent advances in surgery, chemotherapy, and radiotherapy will help to improve treatment outcomes.

EPID-04. PREDCAP, THE FRENCH REGISTRY OF PREDISPOSITION TO PEDIATRIC CANCERS

Lea GUERRINI-ROUSSEAU[1,2], Pauline HOARAU[1], Gaelle Bougeard[3], Lisa Golmard[4], Chrystelle Colas[4], Marion Gauthier-Villars[4], Claude Houdayer[3], Thierry Frebourg[3], Franck Bourdeaut[5], Laurence Brugieres[1]; [1]Department of Children and Adolescents Oncology, Gustave Roussy, VILLEJUIF, France. [2]Team "Genomics and Oncogenesis of pediatric Brain Tumors", Inserm U981, Gustave Roussy, VILLEJUIF, France. [3]Department of Genetics, Normandy Center for Genomic and Personalized Medicine, Normandie Univ, UNIROUEN, Inserm U1245 "Cancer and Brain Genomics" and Rouen University Hospital, Rouen, France. [4]Department of Genetics, PSL Research University, Institut Curie, Paris, France. [5]SIREDO Paediatric Cancer Center, Institut Curie, Paris, France

A pathogenic or likely pathogenic variant (PV) in a major cancer predisposition gene is identified in almost 10% of children or young adults who developed a cancer, regardless of their family history. This incidence may increase by the development of wide tumor sequencing programs leading to identify germline PVs in cancer patients and new cancer predisposition syndromes (CPS) associated with childhood cancers. Due to the rarity of each CPS, we still lack information about phenotype associated with most CPS especially cancer risks according to age as well as tumor characteristics and response to treatment. Within the French genetic multidisciplinary network involving pediatric oncologists, oncogeneticists and researchers, we have created a clinico-molecular registry for pediatric-CPS according to data protection regulation. The PREDCAP database collects clinical, genetic and molecular data from patients who developed pediatric tumors associated with a CPS, both retrospectively and prospectively. It includes a mandatory set of data on clinical phenotype, tumor characteristics (including treatment and outcome), family data and results of genetic analyses, with annual data updates. Interoperability with existing databases is planned, allowing for pooling of data collection and management. Aims of PREDCAP registry are to obtain reliable clinical and molecular data on pediatric CPS with a simplified and effective access. By collecting all available data on a large number of patients thanks to international collaborations, we hope to improve the knowledge on rare CPS, in particular, to better define the tumor spectrum and the penetrance of PVs, to analyze the specificity of tumors associated with these germline PVs. With this tool, we wish to facilitate future projects using structured and centralized data, associated with a virtual bank of available tumor and constitutional DNA, to evaluate and improve the relevance of management recommendations established for each syndrome.

EPID-05. A NOVEL, CLINICALLY-RELEVANT CLASSIFICATION OF PEDIATRIC CNS TUMORS FOR CANCER REGISTRIES USING A CLUSTERING ANALYSIS

Daniel Moreira[1], Yichen Chen[1], Ibrahim Qaddoumi[1], Gino Cioffi[2,3], Kristin Waite[2,3], Quinn Ostrom[3,4], Carol Kruchko[3], Jill Barnholtz-Sloan[2,3], Meenakshi Devidas[1], Nickhill Bhakta[1]; [1]St. Jude Children's Research Hospital, Memphis, TN, USA. [2]National Cancer Institute, Division of Cancer Epidemiology and Genetics, Bethesda, MD, USA. [3]Central Brain Tumor Registry of the United States (CBTRUS), Hinsdale, IL, USA. [4]Duke University Medical Center, Durham, NC, USA

To accurately evaluate the burden of pediatric central nervous system (CNS) tumors, estimate resources for cancer control, and monitor outcomes, a classification system that segregates tumors into clinically relevant groups is essential. The current classification of CNS tumors included in the third revision of the International Childhood Cancer Classification does not identify key clinical groups, such as low- and high-grade gliomas. To address this need, a novel classification was embarked upon using ICD-O-3 codes, CBTRUS grouping, incidence, survival, and treatment modalities as inputs. For each ICD-O-3 code with >50 new cases/year in CBTRUS from 2000 to 2016, 2 clinicians reached consensus defining the efficacy of three treatment modalities: surgical resection, radiotherapy, and chemotherapy. Then, patient level 5-year overall survival (OS) times were simulated based on total incidence and 5-year OS for each code. Subsequently, 5 factors were included as potential classifiers: tumor behavior, CBTRUS sub-group, and efficacy of the three treatment modalities. A "survival tree" was developed by using partitioning. Starting with the patient cohort (root), univariate cox proportional hazards model was used to identify statistically significant ($P < 0.05$) factors. The factors with the largest hazard ratio were selected manually to create child nodes. Within each child node, the partitioning process was repeated on remaining factors until no statistically significant factor remained. This clustering yielded 4 main groups (low-, intermediate-, high-, and very high-risk tumors) and 11 subgroups, including "embryonal tumors" and "low-risk glial and glioneuronal tumors". Further validation of the classification will be sought through a structured consensus process using multidisciplinary experts. This systematic method to develop a classification for pediatric CNS tumors will allow for more relevant estimations of outcomes and better estimation of resource utilization. Furthermore, this strategy could be replicated for other disease groups.

EPID-06. TRANSFUSION RELATED IRON OVERLOAD IN PEDIATRIC PATIENTS WITH CNS TUMORS

Shelby Winzent-Oonk[1], Amanda Winters[1], Aneisia Pounds[2], Holly Pacenta[3], Jean Mulcahy Levy[1], Christopher McKinney[1]; [1]Department of Pediatric Hematology/Oncology/Bone Marrow Transplant, University of Colorado, Children's Hospital Colorado, Aurora, CO, USA. [2]Children's Hospital Colorado, Aurora, Colorado, USA. [3]Cook Children's Medical Center, Division of Hematology and Oncology, Fort Worth, TX, USA

BACKGROUND: Patients receiving chemotherapy or autologous hematopoietic stem cell transplant (autoHSCT) routinely receive red cell transfusions as supportive care. Each unit of transfused red cells contains approximately 150mg of iron which the body has no natural mechanism for excreting. Transfusion-related iron overload (TRIO) is an under-recognized complication of therapy which left untreated may result in long-term damage to the liver, heart, or endocrine organs. We sought to identify the prevalence of TRIO in patients with pediatric CNS tumors and evaluate specific risk factors. METHODS: A retrospective record review of pediatric CNS tumor patients treated at Children's Hospital Colorado was conducted including patients who completing therapy between 1/1/2014 – 12/1/2021. Patients at high risk for TRIO were defined as having a cumulative transfused blood volume of more than 150mL/kg or 4000mL total. The diagnosis of TRIO was confirmed if patients had a serum ferritin greater than 1000ng/mL or elevated liver iron content of 7mg/g dry weight or greater by MRI. RESULTS: There were 173 evaluable patients (40% embryonal tumors, 15% germ cell tumors, 10% ependymomas, 26% low grade gliomas, 5% high grade gliomas, and 3% other tumors). The mean age at completion of therapy was 8 years (range: 0.67 – 25 years). Patients receiving autoHSCT (24% of cohort) were at higher risk for TRIO based on transfused volumes ($p<0.0001$) than patients not treated with autoHSCT (72% vs 6%, RR 12.0) The prevalence of TRIO in autoHSCT patients was 7.5% (3/40) vs 0.8% (1/121) in patients not undergoing autoHSCT (RR 9.37). For autoHSCT patients at high risk by transfused volume the prevalence of TRIO was 10.3% (3/29). CONCLUSIONS: Pediatric CNS tumor patients who have received an autoHSCT are at higher risk for TRIO than those who have not. Routine screening for TRIO should be offered to patients receiving autoHSCT.