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In Slovakia, approximately 30–35 children are diagnosed annually. While survival rates have improved, the prognosis remains poor for many patients. Efforts to enhance both survival and quality of life have led to a deeper understanding of the morphological and molecular characteristics of these tumors, improving diagnostics and advancing personalized treatment. One notable outcome of these efforts has been the implementation of DNA methylation analysis in the diagnostic process, in line with the WHO 2021 classification of CNS tumors.

Methods: Implementation of methylation profiling using the Infinium MethylationEPIC BeadChip array: A prospective analysis of patients with CNS tumors, tested for methylation profiles between May 2023 and January 2025 at the Department of Pediatric Hematology and Oncology in Bratislava, Slovakia.

Results: A total of 82 tumor tissue samples were analyzed, including 49 pediatric and 33 adult cases. A calibrated score (cs) >0.8 was achieved in 51 patients. Consistent with published data, a discrepancy between histopathological (HP) and methylation-based diagnoses was observed in 13 patients, with ependymomas being the most frequently affected cases. In 58 patients, the diagnosis was confirmed or refined. Notably, the classifier accurately matched the integrated diagnosis in most cases, regardless of the calibrated score. Diagnosis was unsuccessful in 11 patients due to insufficient material (9 patients) or tumor microenvironment removal (2 patients).

Conclusions: We have been the first in Slovakia to implement DNA methylation-based CNS tumor profiling in clinical practice. Combined with histopathology, we conclude that it enhances diagnostic precision, improves prognosis, and guides optimal treatment selection.

PO519 / #3135 | *AS05 - SIOP Scientific Program / AS05m. Brain Tumours*

Growth Hormone Replacement Therapy Does Not Predict Relapse Across Medulloblastoma Subgroups

Marina Caballero Bellon[1], Mari Wilhelmson[1], Jonathan Wasserman[2], Tara Mckeown[2], Derek S. Tsang[2, 3], Uri Tabori[1], Annie Huang[1], Anthony Liu[1], Anirban Das[1], Julie Bennett[1], Ute Bartels[4], Eric Bouffet[1], Vijay Ramaswamy[1]

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Background and Aims: The current standard of care for medulloblastoma (MB) patients over the age of 3–5 years includes maximal safe surgical resection, followed by craniospinal irradiation (CSI) and multi-agent chemotherapy. While these treatments have significantly improved survival, they are associated with long-term toxicities, particularly endocrine dysfunction. Growth hormone (GH) deficiency is one of the most common late effects, often requiring replacement therapy. However, concerns remain regarding the potential impact of GH therapy on tumor recurrence. Our study aimed to evaluate the safety of GH therapy in MB patients treated under modern, molecularly informed, risk-adapted protocols.

Methods: We conducted a retrospective cohort study at a tertiary pediatric center, including patients under 18 years old diagnosed with MB from January 1999 to December 2022. All patients received CSI and were treated according to contemporary protocols incorporating molecular subgroup classification. We collected comprehensive epidemiological, clinical, and molecular data.

Results: Of the 148 MB patients treated with CSI, the median age at diagnosis was 8.3 years (IQR 5.9–10.8). Molecular subgroups were Group 4 (46.6%), Group 3 (18.2%), WNT (14.2%), and SHH (13.5%). GH deficiency was diagnosed in 79 patients (53.4%), and 73 began GH replacement. There was no significant association between GH therapy and sex, metastasis status, or molecular subgroup. Thirty-four patients (22.9%) experienced relapse, with only 10 of these receiving GH. GH-treated patients had improved progression-free survival (PFS), even when analyzed by subgroup. Among patients disease-free for at least two years post-diagnosis, GH therapy was associated with significantly improved overall survival (OS) and a strong trend toward improved PFS.

Conclusions: GH therapy does not increase the risk of relapse or death in children with MB treated with current protocols. These findings support the safe use of GH replacement in survivors, regardless of molecular subgroup.

PO520 / #1062 | *AS05 - SIOP Scientific Program / AS05m. Brain Tumours*

Management and Follow-Up Experience in Optic Glioma Cases

Deniz Kizmazoglu[1], Dilek Ince[1], Busra Uluyol[2], Ceren Sarioglu[3], Ozlem Fatihoglu[4], Safiye Aktas[5], Ceren Kizmazoglu[6], Handan Ucar[3], Cenk Umay[7], Refik Cecen[1], Hatice And N Olgun[8]

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Background and Aims: To analyze the clinical characteristics, follow-up, and treatment status of patients diagnosed with optic glioma (OPG) at our center.

Methods: The medical records of 22 patients diagnosed with optic glioma between 1985 and 2024 were retrospectively reviewed.

Results: The median age at diagnosis was 57 months (2 months-7 years), M/F:1.2. Neurofibromatosis Type 1NF1) was present in %36 (n = 8) of the patients. The most common symptoms were vision loss (%27), headache (%22), nystagmus (%18), proptosis (%18), strabismus (%13), seizures (%9), and diplopia (%4). Visual field assessment was performed in 14 patients at presentation, visual field defects were detected in 7 patients. Diagnosis was established based on MRI findings in %81 (n = 18), while biopsy was performed in 4 patients. Tumor location was unilateral in %50 of the cases (n = 4 right, n = 7

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left), bilateral in 2 patients, and chiasmatic in 9 patients. Ten patients were followed up without treatment. The decision to initiate treatment was based on rapid clinical and/or radiological progression or tumor location (chiasmatic involvement). Two patients received both chemotherapy and radiotherapy;one due to progressive vision loss and the other due to rapid radiological progression. Seven patients received chemotherapy, initially with vincristine+carboplatin regimen. One patient, after 15 months of chemotherapy-free follow-up following vincristine+carboplatin therapy, experienced progressive disease (PD) and was switched to second-line vinblastine+bevacizumab. Due to radiological and clinical progression, tumor resection was performed, BRAF positivity revealed, and vemurafenib was initiated, leading to disease control. The median progression-free survival was 6 years (r4 months-18 years). The progression-free survival rates were %84 at 1 year, %67 at 5 years, and 54% at 10 years. Three patients died due to disease progression. The overall survival rates were%90 at 1 and 5 years and%81 at 10 years.

Conclusions: Optic glioma is a rare childhood tumor, it is frequently associated with NF1. In addition to visual impairment, endocrine complications may also occur. Although histologically classified as a low-grade tumor, it can exhibit highly aggressive clinical behaviors. Treatment indication is determined based on clinical findings such as progressive vision loss or radiological progression. The progression-free and overall survival rates of our patients were found to be similar to those reported in the literature.

PO521 / #839 | *AS05 - SIOP Scientific Program / AS05m. Brain Tumours*

High-Risk Medulloblastoma in Children Older Than Four Years OLD: A Prospective Analysis of Outcome With Craniospinal Radiation and Metronomic Therapy

Natalia Dassi[1], Nasjla Saba[1], Jessica Rodrigues[1], Patricia Dastoli[1], Sergio Cavalheiro[1], Frederico Silva[1], Daniela Almeida[1], Rui Reis[2], Murilo Bonatelli[2], Andrea Cappellano[1]
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Background and Aims: Patients with high-risk medulloblastoma (HR-MB), characterized by metastatic disease and/or residual tumor >1.5 cm^2, have a survival rate of approximately 60-70%. Aims: To evaluate the outcome of HR-MB in children older than four years of age treated with craniospinal irradiation (CSI), maintenance and metronomic chemotherapy (CT).

Methods: Prospective study -Patients were treated with CSI 36Gy, concomitant carboplatin followed by maintenance CT cisplatin/cyclophosphamide-based and metronomic CT (oral etoposide, cyclophosphamide, fenofibrate and celecoxibe) for one year.

Results: From 2016-2024, 26 patients participated. Mean age was 7.7 years (4.5-15.7), 15 were males. All patients had complete resection or residual tumor <1.5 cm^2. According to Chang staging, eight were M1, three M2, ten M3. Five patients were allocated as HR due to prolonged interval to start CSI (more than 42 days). Twenty-one had classic histology, two desmoplastic/nodular and three anaplastic. Three patients were classified as MB-SHH - two with P53>50% and one with MYCN amplification, five as WNT, nine as group 3 - three with MYC amplification, and nine as group 4. According to molecular subgroups, event-free- (EFS) and overall-survival (OS) rates at 2 and 5 years for SHH were 33.3%, for WNT were 80%, for group 3 EFS were 66.7%/44.4% and OS 66.7%/33.3% and for group 4, EFS 88.9%/61% and OS 89%. Eight patients died (one WNT, two SHH, four Gr3 and one Gr4), but four of them (one WNT, one SHH and two Gr3) from causes unrelated to disease. The EFS at 2 and 5 years for the entire cohort were 76.9% and 55.3%. When censoring deaths due to other causes, EFS improved to 88.1% and 67.6%.

Conclusions: We report the outcome of children with HR-MB treated in an upper middle-income country with CSI, maintenance and metronomic CT highlighting the potential role of metronomic CT in improving survival in this high-risk population.

PO522 / #1086 | *AS05 - SIOP Scientific Program / AS05m. Brain Tumours*

Child Health Book: Enhancing Early Diagnosis of Pediatric Central Nervous System Tumors in An Upper-Middle-Income Country

Natalia Dassi[1], Andrea Cappellano[1], Fabiola Souza[2], Rosana Puccini[2], Nasjla Saba[1], Maria Strufaldi[2]
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Background and Aims: Delayed diagnosis of pediatric central nervous system (CNS) tumors contributes to high morbidity and mortality, posing a public health challenge in Brazil and other low- and middle-income countries. Routine pediatric follow-ups are essential for the early detection of a range of childhood diseases. The "Child Health Book" (CHB) is the primary tool for comprehensive pediatric health surveillance, providing information for parents and health professionals. This study aimed to assess CHB use by parents and health professionals and analyzed its potential of adding childhood cancer information to improve the timely diagnosis of pediatric CNS tumors.

Methods: This cross-sectional study collected data through interviews and virtual questionnaires with participants selected at random from two levels of care.

Results: Between August and November 2023, 200 parents from pediatric and oncology departments and 147 healthcare professionals from primary and tertiary care participated. Most parents in pediatrics (88%) and oncology (91%) used CHB, with over 75% supporting the inclusion of childhood cancer information. Among professionals, CHB use was reported by 94.3% in primary care and 77.4% in tertiary care, with majority recommending parents engage with its content. Professionals overwhelmingly supported adding childhood cancer information to the CHB.

Conclusions: The CHB is a widely accessible resource for parents and healthcare professionals. By providing a practical framework for recognizing warning signs and symptoms of CNS tumors and other childhood cancers, it facilitates timely surveillance during routine care, maximizing opportunities for early diagnosis and intervention and thereby reducing morbidity and mortality among children with cancer.

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