

oncology tumor board via zoom videoconferencing was established in January 2021. This effort is a collaboration between Washington University School of Medicine, in St. Louis, Missouri, USA and nine international sites. Given the significant contributions of this international effort, it has since grown to include 20 institutions and cancer centers from 12 countries in the Middle East, Europe, Australia and South America. RESULTS: As of January 2022, we have held 11 tumor boards, 35 cases were reviewed, and have had 320 experts attend from several specialties – neuro-oncology, neurology, neurosurgery, neuroradiology and neuropathology. A multidisciplinary team of physicians reviewed each case and recommendations were given accordingly. We also started a quarterly neurofibromatosis (NF) meeting focused to leverage the expertise of dedicated specialists in the NF center. Two NF-focused meetings took place since establishing the program, and total of five cases were discussed. CONCLUSION: Virtual videoconferencing promotes a multi-disciplinary approach for the management of pediatric CNS tumors, and it allows access for medical expertise. We anticipate the current initiative will also provide a platform for future international research collaborations and deliver the optimal medical care for neuro-oncology patients globally. Multiple potential collaborative projects are currently underway.

#### LINC-09. COEXISTING GLIONEURONAL TUMOR AND ADRENAL GANGLIONEUROMA

Ataollah Shahbadi<sup>1</sup>, Saeid Atashpanjeh<sup>2</sup>, Aileen Azari-Yam<sup>3</sup>, Farideh Nejat<sup>1</sup>, Zohreh Habibi<sup>1</sup>; <sup>1</sup>Department of Pediatric Neurosurgery, Children's Medical Center Hospital, Tehran University of Medical Sciences, Tehran, Iran, Islamic Republic of. <sup>2</sup>Neuroscience Program, Biology Department, University of Hartford, West Hartford, Connecticut, USA. <sup>3</sup>Molecular Pathology and Cytogenetics Division, Pathology Department, Children's Medical Center, Tehran University of Medical Sciences, Tehran, Iran, Islamic Republic of

**BACKGROUND:** While both glial/glioneuronal neoplasia and ganglioneuroma have been reported as components of multiple primary neoplasms, no patient has been diagnosed with multiple primary neoplasms of cerebral glial/glioneuronal tumors with oligodendroglioma-like features and adrenal ganglioneuroma up to now. CASE: A previously healthy five-year-old girl was admitted with a two-week history of headaches and vomiting. Brain Magnetic resonance imaging (MRI) showed a massive heterogenous multi-cystic enhancing lesion in the right temporoparietal area with substantial vasogenic edema. The patient underwent craniotomy and tumor gross total resection. The intra-operative histomorphological assessment of the tumor was well-matched with a glial tumor. The patient developed systolic hypertension during postoperative care in the Intensive Care Unit. Subsequent abdominal CT scan unveiled a calcified mass of the left adrenal gland origin. Blood and urine catecholamine tests, vanillylmandelic acid (VMA), were within the normal range. The surgical excision specimen exhibited a clear cell neoplasm with diffuse infiltrative growth. A distinguishing combination of oligodendroglioma-like perinuclear haloes, clear cell appearance and vascular proliferation rendered the diffuse Glioneuronal tumor with Oligodendroglioma-like features. With the combination of oligodendroglioma-like appearance, negative 1p/19q codeletion, Wild IDH, no BRAF mutation, weak GFAP, and positive synaptophysin altogether, the tumor was compatible with the novel diffuse glioneuronal tumor with oligodendroglioma-like features and nuclear clusters (DGONC). The patient underwent laparotomy and tumor resection subsequently. Morphologic histopathological examinations of the adrenal mass were in line with ganglioneuroma. After discharge, no pathological uptake was identified with iodine-131 meta-iodobenzylguanidine scan (MIBG scan). No tumor residue was apparent on postoperative brain MRI. The patient received no adjuvant therapy for brain and adrenal tumors and underwent close surveillance for both tumors. No clinical or radiologic recurrence was recognized after six months of follow-up. CONCLUSIONS: Concurrent glioneuronal tumor and ganglioneuroma can be managed safely when diagnosed timely, leading to favorable outcomes.

#### LINC-10. THE ADEQUATE TREATMENT OF CHILDREN AND ADOLESCENTS WITH PRIMARY CENTRAL NERVOUS SYSTEM GERM CELL TUMORS (CNS GCT) IN A DEVELOPING COUNTRY

Andréa M Cappellano<sup>1</sup>, Natalia Dassi<sup>1</sup>, Bruna Mançano<sup>2</sup>, Sidnei Epelman<sup>3</sup>, Daniela B Almeida<sup>4</sup>, Sergio Cavalheiro<sup>1</sup>, Patricia A Dastoli<sup>1</sup>, Maria Teresa Seixas<sup>1</sup>, Jardel M Nicácio<sup>1</sup>, Marcos D Costa<sup>1</sup>, Frederico A Silva<sup>1</sup>, Simone S Aguiar<sup>1</sup>, Carlos R Almeida Jr<sup>2</sup>, Gustavo R Teixeira<sup>2</sup>, Nasjla S Silva<sup>1</sup>, Jonathan L Finlay<sup>4</sup>; <sup>1</sup>OP/GRAACC/Federal University of São Paulo, São Paulo, São Paulo, Brazil. <sup>2</sup>Hospital do Amor, Barretos, São Paulo, Brazil. <sup>3</sup>Hospital Santa Marcelina/TUCCA, São Paulo, São Paulo, Brazil. <sup>4</sup>The Ohio State University, Columbus, Ohio, USA

**INTRODUCTION:** Primary central nervous system germ cell tumors (CNS GCT) are a heterogeneous group of malignancies that can be divided into germinomas and non-germinomatous GCT (NGGCT), accounting for 2-3% of brain tumors in children/adolescents in the Western hemisphere. The study aim is to report the ability to adequately treat Brazilian patients with CNSGCT through a consortium protocol, reporting their treatment,

response and survival. Methods: Since 2013, 58 patients with histologic and/or tumor marker (TM) diagnosis of germinoma with/without HCG $\beta$  levels  $\leq$ 200mIU/ml (n=43), five of them between 100-200mIU/ml, received carboplatin/ etoposide (4 cycles) and NGGCT (n=15), received carboplatin/ etoposide/cyclophosphamide (6 cycles), all followed by 18Gy ventricular field irradiation and primary site(s) boost. Autologous hematopoietic cell transplant (AuHCT) was undertaken for NGGCT slow responders. Results: Mean age 13.2 years, 42 males. Diagnosis was made by TM (n=19), surgery (n=25) and both (n=12). Two bifocal cases with negative TM and inconclusive biopsy were treated as germinoma. Primary tumor location was pineal (n=30), suprasellar (n=16), bifocal (n=11) and basal ganglia/thalamus (n=1). Eighteen had ventricular/spinal spread. Second-look surgery occurred in seven patients. For the germinoma group, 36 achieved complete responses (CR) after chemotherapy, seven showed residual teratoma/scar. For the NGGCT after 4/6 cycles, six patients showed CR, two failure/progression and seven partial responses (five with negative TM). Two with positive TM underwent AuHCT. Radiotherapy was utilized as described, except in three patients. Four NGGCT patients died (two disease progression, two other causes with no disease). Toxicity was mostly grade 3/4 neutropenia/thrombocytopenia during chemotherapy. At a median follow-up of 40 months, event-free and overall survival was 100% for germinoma and 64.5% NGGCT. Conclusion: The proposed treatment was feasible to be performed in a developing country, with suitable survival even with VFI dose reduction to 18Gy.

#### LINC-11. INTRATHECAL METHOTREXATE IN A YOUNG CHILD WITH MEDULLOBLASTOMA WITH EXTENSIVE NODULARITY. AN ALTERNATIVE TO INTRA-VENTRICULAR ROUTE IN LOW AND MIDDLE INCOME COUNTRIES?

Carlos Leal-Cavazos, Jose Arenas-Ruiz, Oscar Vidal-Gutierrez; Hospital Universitario "Dr. Jose E. Gonzalez", Monterrey, NL, Mexico

**BACKGROUND:** In places where determination of molecular subgrouping of Medulloblastoma is not available, histology remains standard for risk stratification and treatment. Young children with medulloblastoma treated with craniospinal irradiation show a negative impact in neurocognitive functions, thus avoiding radiation in this specific population is encouraged. High dose chemotherapy and stem cell rescue have been internationally used as a strategy to spare radiation in infants and young children with Medulloblastoma. German HIT protocol (SKK) reported a PFS 85 $\pm$ 8 % and good cognitive outcome in patients with Desmoplastic Medulloblastoma treated with intra-ventricular (i.vtr.) methotrexate (MTX). SKK protocol includes 36 i.vtr. administrations of MTX through a subcutaneous reservoir. Complications related to the use of this kind of reservoir could be due to the lack of experienced staff. METHODS: We report a patient with localized Medulloblastoma with extensive nodularity (MBEN) treated as per SKK using intrathecal route instead of i.vtr MTX. A 2.5 year old boy was diagnosed with MBEN, surgery was complete and no shunt was required. Spinal MRI and CSF cytology were negative. Patient received 3 cycles of SKK protocol and 2 cycles of modified SKK. During the first 3 cycles he received one dose of intrathecal MTX 8mg on weeks 1, 3, 5 and 7 (12 doses in all). Patient remains free of disease 2 years after chemotherapy completion and without signs of leukoencephalopathy on T<sub>2</sub> weighted cranial MRI. DISCUSSION: Intrathecal administration of MTX is commonly used for the treatment of Acute Lymphoblastic Leukemia, the most common childhood cancer. Staff in Low and Middle Income Countries (LMIC) may be better trained for such procedure than using a ventricular access device. This strategy could be considered when using SKK protocol in selected young children with Desmoplastic Medulloblastoma and MBEN in LMIC where centers with enough experience with ventricular access device placement and handling are scarce.

#### LINC-12. ENCOURAGING EARLY OUTCOMES WITH IMAGE GUIDED PENCIL BEAM PROTON THERAPY FOR CRANIO-SPINAL IRRADIATION AND UNIQUE CONSIDERATIONS FOR PAEDIATRIC POPULATION – FIRST REPORT FROM INDIA

Utpal Gaikwad, Rishan Thimma Sudarsan, Noufal MP, Sylvia Jacinthlyn, Ashok K Reddy, Pankaj Kumar Panda, Srinivas Chilukuri, Dayananda Sharma, Rakesh Jalali; Apollo Proton Cancer Centre, Chennai, Tamil Nadu, India

**BACKGROUND:** To report our experience with image guided pencil beam proton beam therapy (PBT) for craniospinal irradiation (CSI). MATERIALS AND METHODS: Between January 2019 to Dec 2021, we carried out a detailed audit of the first forty patients treated with PBT. All patients were carefully selected after approval from our institutional multidisciplinary tumour and proton board meetings. Median age of the patient cohort was 8 years, and histologies include 20 medulloblastoma, 7 recurrent ependymoma, 3 pineoblastoma, 3 were germ cell tumors and remaining 7 constituted other diagnoses. Forty percent patients received concurrent chemotherapy. We had recorded acute toxicities on a prospectively main-