LINC-28. EPIDEMIOLOGICAL CHARACTERISTICS AND SURVIVAL OUTCOMES OF CHILDREN WITH MEDULLOBLASTOMA TREATED AT THE NATIONAL CANCER INSTITUTE (INCA) IN RIO DE JANEIRO, BRAZIL

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BACKGROUND: Medulloblastoma (MB), the most malignant brain tumor of childhood has survival outcomes exceeding 80% for standard risk and 60% for high risk patients in high-income countries (HIC). These results have not been replicated in low-to-middle income countries (LMIC), where 80% of children with cancer live. Brazil is an upper-middle income country according to World Bank, with features of LMIC and HIC. METHODS: We conducted a retrospective review of 126 children (0–18 years) diagnosed with MB from 1997 to 2016 at INCA. Data on patients, disease characteristics and treatment information were retrieved from the charts and summarized descriptively; overall survival (OS) and event-free survival (EFS) were calculated using the Kaplan-Meier Method. RESULTS: The male/female ratio was 1.42 and the median age at diagnosis was 7.9 years. Headache (79%) and nausea/vomiting (75%) were the most common presenting symptoms. The median time from onset of symptoms to surgery was 50 days. The OS for standard-risk patients was 69% and 53% for high-risk patients. Patients initiating radiation therapy within 42 days after surgery (70.6% *versus* 59.6% p=0.016) experienced better OS. Forty-five patients (35%) had metastatic disease at admission. Lower maternal education correlated with lower OS (71.3% *versus* 49% p=0.025). Patients who lived >40km from INCA fared better (OS= 68.2% *versus* 51.1% p=0.032). Almost 20% of families lived below the Brazilian minimum wage. CONCLUSIONS: These findings suggest that socioeconomic factors, education, early diagnosis and continuous data collection, besides oncological treatment must be adressed to improve the survival of children with MB.

LINC-29. IMPACT OF RELA FUSION ON OUTCOMES OF CHILDHOOD SUPRATENTORIAL EPENDYMOMAS (ST-EPEN)

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BACKGROUND: Ependymomas are heterogenous group of tumours with variable clinical course and diverse molecular features. RELA fusion status has been reported to have prognostic impact in ST-EPEN. Our retrospective study analysed the prevalence and clinical impact of RELA fusion in childhood ST-EPEN at our centre. STUDY METHODS: FFPE tissues of all childhood ST-EPEN diagnosed during 2011–2017 were evaluated for RELA fusion 1/2 by RT-PCR. Children were treated as per guidelines by the Neuro-oncology multidisciplinary team. Outcomes were correlated with RELA fusion, histological features and immunohistochemical parameters(L1CAM expression and Mib-1 index). Only patients with therapy details were included. RESULTS: A total of 37 patients(0–50 years) with ST-EPEN were included(median age-10.2 years; boy:girl ratio-1.4:1)for analysis. Histological grade II, II/III and III was seen in 4(11%),2(5%) and 31(84%) patients respectively. Mib-1 index was assessable in 33 patients of which, 9 patients (24%) had a Mib-1 index >20%. RELA fusion was detected in 13(35%)tumors. The 3-year and 5-year EFS/OS of the overall cohort was 64.2%/83.6% and 60.1%/73.1% respectively. The 3-year/5-year EFS of RELA-positive tumors was inferior compared to RELA-negative tumours (53.8%/36% v/s 62.6%/53.6%; p=0.391). The 3-year/5-year EFS of tumors expressing L1CAM versus negative-expression was comparable (61.1%/55%v/s59.8%/47.9%;p=0.44). Presence of Mib-1>20% correlated with inferior survival (5-year EFS:81.1%vs22.2%; p<0.01). CONCLUSIONS: ST-EPEN with RELA fusion had trend towards increased relapse/progression. High Mib-1 correlated with poor survival. RELA fusion status needs to be studied in a larger cohort prospectively to confirm its clinical impact.

LINC-30. A CLINICOPATHOLOGICAL STUDY OF IMMUNOGENICITY AND IMMUNE EVASION MECHANISMS AMONG MOLECULAR SUBGROUPS OF MEDULLOBLASTOMA

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INTRODUCTION: Medulloblastomas have been well characterised in terms of genomics, epigenomics, transcriptomics and recently proteomics. However, there is limited knowledge regarding immunogenicity, immune-microenvironment and immune evasion mechanisms in different molecular subgroups of medulloblastoma. It is important to analyze these parameters to understand tumor progression, prognostic stratification as well as treatment response to available immunotherapeutic drugs. MATERIALS AND METHODS: Molecular subgrouping performed by immunohistochemistry(IHC), Nanostring and 850k-methylation array. Immune profile by IHC for CD3, 20, CD8 [tumor infiltrating lymphocytes (TILs)], CD163 [tumor-associated macrophages (TAMs)], and PD-L1 and CTLA-4 [immune checkpoint proteins]. RESULTS: A total of 35 cases were analyzed with age-range from 1 to 54 years (77% pediatric and 23% adult). 82% cases were located in midline, while rest in cerebellar hemispheres. On molecular subgrouping, MBs were subdivided into 8 WNT, 10 SHH, 8 Group 3 and 9 Group 4. Twenty four cases had follow up, 12 with no evidence of disease while 12 with progressive disease or death. PD-L1 expression ranged from 0% to 20% and included 5SHH, 2WNT and 1Group 3. CTLA4 positive lymphocytes ranged from 0 to 33 in 4 cases: 1WNT, 3 SHH, 1Group4. TILs ranged from 0–220/mm^2 with a median of 3. TAMs ranged from 0–60/mm^2 with a median of 18. Both TILs and TAMs were significantly higher in SHH subgroup. CONCLUSION: PD-L1 positivity and number of TILs and TAMs were significantly more in SHH-subgroup tumors followed by WNT tumors. CTLA-4 expression did not correlate with subgroups. All parameters showed a positive trend with increasing age.

LINC-31. TREATMENT OUTCOME IN CHILDREN WITH MEDULLOBLASTOMA IN MEDIUM-INCOME COUNTRY: AN EXPERIENCE FROM A SINGLE TERTIARY CENTRE IN KUALA LUMPUR, MALAYSIA

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INTRODUCTION: Medulloblastoma is the most common malignant brain tumour in children. The overall outcome has improved however, this was not translated to developing nations. METHOD: This was a retrospective review of patients from January 2000 to December 2017. Treatment was given using modified SIOP PNET 4 protocol: cranio spinal irradiation (CSI), a total of 54G with vincristine followed by 8 cycles of adjuvant chemotherapy. Prior to year 2007, patients had CSI with or without adjuvant chemotherapy. Those <3 years old received modified UKCCSG/SIOP CNS protocol with 2 weekly chemotherapy for a duration of 392 days followed by CSI when required. All patients had MRI brain and spine, and tissue histopathological examination but without molecular subtype. RESULTS: Medulloblastoma comprised of 30% (n=31) out of total 103 brain tumour cases. Mean age at presentation was 7.6 years old (SD 4.4) with male to female ratio of 2:1. Average time of symptoms was 4.8 weeks. Majority, 77.4% was high risk and 19.4% was standard risk. There was high treatment abandonment rate (35.5%, n=11). Three patients returned and completed treatment after multiple surgeries in an average of 9 months. Three years OS and EF were 69.6% and 74.8%, respectively. Six patients aged < 3years; half had advance disease on palliative care post surgery. Other survivors had severe learning difficulty and two had second malignancy (meningioma and thyroid carcinoma) at average 15.5 years after diagnosis. CONCLUSION: Strategy to reduce treatment abandonment is crucial. Moreover, multidisciplinary management and molecular stratification are important in improving the outcome.

LINC-32. REPORT OF AN INITIAL SITE VISIT TO DETERMINE FEASIBILITY AND IMPLEMENTATION OF A COMPREHENSIVE NEURO-ONCOLOGY PROGRAM IN KENYA

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BACKGROUND: Pediatric central nervous system (CNS) tumors are the leading solid tumors in the United States, but vastly under-reported in the African population. There's limited data on childhood brain tumors as well as the histopathological distribution in Kenya. This report surveys as an initial site visit to determine the feasibility of a comprehensive neuro-oncology program at Kenyatta National Hospital (KNH) in Nairobi, Kenya. DESIGN: This collaboration began with a visit from the director of neuropathology at KNH to our neuro-Oncology program at Riley Hospital for Children at Indiana University Health in May 2019. This report includes recommendations from the May 2019 trip, as well as a reciprocal site visit to Kenya in January 2020. RESULTS: Building off the May 2019 trip, a brain tumor registry has been initiated and maintained. Additionally, the KNH program has many necessary components to forming a comprehensive neuro-oncology program, including capable neurosurgeons with a neurosurgical training program, radiology, intensive care unit, oncology ward, rehab, skilled nursing, and radiation oncology services. Currently, neurosurgery, radiology, and pathology meet weekly to review challenging cases. CONCLUSION: Kenyatta National