results, 3.64 ± 1.655(1-7), Borg fatigue before walking 0.22 ± 0.614(0-3), after walking 1.82 ± 1.870(0-7) and fifth minute recovery 0.34 ± 0.608(0-2) was found. WeeFIM result was 119.08 ± 24.338(82-199), PODCI subscale scores showed that upper extremity 84.76 ± 11.395(58-100), transfer/basic movement 91.68 ± 11.153(59-100), sport/physical function 71 ± 23.518(16-100), pain/comfort 71.8 ± 25.290 (22-100), happiness 83.28 ± 16.739(25-100) and general function 79.68 ± 15.294(48-97). While there was a statistically significant relationship between fatigue of children and sex(r=-0.433; p=0.031), height(r=-0.397; p=0.049), radiotherapy sessions(r=0.610; p=0.001), PODCI upper extremity(r=-0.483;p=0.015), PODCI sport/physical function(r=-0.476; p=0.016), PODCI happiness(r=-0.504;p=0.010); there was no statistically significant difference between WeeFIM score and PODCI pain/comfort(r=-0.396;p=0.050). Fatigue in children with brain tumors is not only a symptom of illness, but also a result of treatment. It also affects DLA and QoL as well as activity. We think that functional capacity should be increased in order for fatigue to occur later.

QOL-23. DEVELOPMENT OF AN INTERACTIVE APP FOR DYNAMIC SCREENING OF BASIC SENSORY, COGNITIVE, AND MOTOR ABILITIES OF PAEDIATRIC PATIENTS WITH BRAIN TUMOURS

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Assessment of basic sensory, cognitive, and motor functions is fundamental for neuropsychological profiling of pediatric patients with brain tumor. Neuropsychological profiling is used to determine extent of functional capacity, pre and post treatment, and in monitoring progression against typical development over time, and in response to intervention. Assessments are usually conducted on an individual basis, with a trained clinical neuropsychologist, using standardized paper and pencil tests, which can take up over an hour to complete. If more than one assessment is required this can result in multiple or lengthy assessment schedules. Standardized assessments are usually normed on typically developing populations from one country, thus limiting their translational utility. Assessments from one publishing house are rarely co-normed with those from another, rendering exploration of associations between assessments/functions unfeasible, without the presence of a typically developing control group. This limits the efficiency and effectiveness of clinical neuropsychology services that are often under-resourced. To address these limitations, we have developed an interactive app, delivered on touch-screen tablets, that has potential to screen for basic sensory, cognitive, and motor abilities of paediatric patients with brain tumours on admission to hospital and to track functional decline or improvements over time, on a self-referenced and/or norm-referenced basis. This could improve the precision of clinical care given to patients, by identifying those most in need of formal clinical neuropsychological assessment and follow up, and directing intervention to targeted domains. In turn, this could enhance the efficiency and effectiveness of service provision within clinical neuropsychology units worldwide.

QOL-24. NEUROCOGNITIVE STATUS IN SUPRATENTORIAL PNET TREATED ON COG ACNS0332 WITHIN THE FIRST 30 MONTHS FROM DIAGNOSIS: A REPORT FROM THE CHILDREN'S ONCOLOGY GROUP

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Supratentorial primitive neuroectodermal tumors (sPNETs) in children are aggressive tumors that require intensive chemotherapy and craniospinal irradiation, but we have little information on long-term neurocognitive outcomes. Eighty-five children were enrolled on ACNS0332 based on histopathological criteria consistent with WHO guidelines; 27 of these (61% female) co-enrolled on the neurocognitive study ALTE07C1, and have complete T1 data (~9 months post-diagnosis); 20 also completed testing at T2 (~30 months post-diagnosis). Mean age at T1 was 9.7 (4.52) years, and 11.6 (4.50) at T2. Tumors with pineal involvement made up 45% of the sample. Memory, intellectual and executive function were analyzed at T1 and T2. At T1, the entire group showed deficits in processing speed (WISC PSI M=79.5, SD=14.86), spatial memory (CMS Dots M=7.4, SD=2.57), and working memory (BRIEF WMI M=64.5, SD=16.45) with average IQ (M=90.4, SD=19.05). There were no T1 differences between patients with pineal versus non-pineal tumors. At T2, a broader range of deficits emerged; areas impaired at T1 worsened at T2, and broader memory dysfunction appeared. By T2, significant group differences were evident in favor of patients with pineal involvement in processing speed (WISC Coding pineal M=6.2 (2.71), non-pineal M=3.4 (1.71)) and working memory (BRIEF WM pineal M=56.8 (11.96), non-pineal M=73.3 (11.81)). Children with sPNETS appear to develop substantial cognitive morbidity within the first 30 months after diagnosis, with worse outcomes in non-pineal tumors. These findings have implications for understanding mechanisms of cognitive late effects in these patients and may provide novel and important opportunities for individualized, patient-centered neuropsychological care.

QOL-25. END-OF-LIFE EXPERIENCES OF CHILDREN WITH BRAIN TUMORS: PERSPECTIVES FROM A PANEL DISCUSSION

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BACKGROUND: Brain tumors (BTs) have the highest mortality rate of all pediatric neoplasms. Patients with BTs have distinct constellations of symptoms including fatigue, headaches, seizures, cognitive impairment, loss of consciousness, speech impairments, swallowing difficulties, paralysis, incontinence, steroid-induced side effects, pain secondary to immobility, psychological effects, and changes to interpersonal interactions. Caring for children and young adults with BTs through the end-of-life (EOL) poses unique challenges for parents, caregivers, and providers alike. PROPOSAL: Using case examples of pediatric patients with high grade malignant tumors with poor prognoses such as diffuse intrinsic pontine glioma, high grade gliomas and recurrent medulloblastoma, we will explore the differing trajectories, decision-making points, and EOL experiences of children and the families who care for them. We will highlight cases where similar clinical scenarios have differing courses and outcomes. An expert panel including parents and clinicians in neuro-oncology, neuro-surgery, developmental therapeutics, palliative care, nursing, and ethics will provide various viewpoints, exhibiting opportunities for collaboration in care planning and debating points of contention. The panel's discussions will focus on (1) shared decision making and ethical challenges around use of chemotherapy, radiation, steroid therapy, and surgical interventions such as resections and shunt placement, (2) early phase trial enrollment (both at one's home institution or at another center), (3) advance care planning and the role of palliative care and/or hospice, (4) the use of complementary and alternative therapies and (5) the EOL experience for children and families choosing differing paths. Audience members will be allotted time to question the panel.

QOL-26. PLAYFUL SENSORIMOTOR TRAINING TO REDUCE THE SYMPTOMS OF CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY IN PEDIATRIC BRAIN TUMOR PATIENTS- A RANDOMIZED CONTROLLED TRIAL (RESET)

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Chemotherapy-induced peripheral neuropathy (CIPN) is a highly prevalent and clinically relevant side-effect of cancer treatment. There are no effective treatment options to reduce the symptoms of CIPN. Promising results have so far been achieved with specific exercise interventions. We would therefore like to conduct a prospective, multicenter, randomized two-armed trial. Patients (n=20) will be recruited. Prior to randomization, all primarily eligible patients that have received a platin derivate or vinca-alkaloid, will be screened for symptoms of CIPN. Eligible patients with a neurologically confirmed CIPN will then be randomized either into an intervention group or a control group. Patients in the intervention group will perform a standardized, age-adjusted, specific playful sensorimotor training program twice a week for 12 weeks in addition to usual care, while the control group receives treatment as usual. Data will be assessed at 3 time points: at baseline, after 12 weeks and after 12 weeks of follow-up. Primary endpoint is the Ped-mTNS score in order to subjectively as well as objectively assess the severity of CIPN symptoms. Additional parameters will be assessed via nerve conduction studies, CIPN related pain, dorsiflexion and knee extension as well as postural control. Furthermore, we will be evaluating patients' level of physical activity, walk to run transition time, lower limb power as well as their integration in physical education in school and sport club activities. We hypothesize that patients in the intervention group will be able to reduce relevant symptoms of CIPN, improving related physical functions and enhancing children's social reintegration.

QOL-27. THE PEDIATRIC BRAIN AND SPINE TUMOR CENTER AT THE UNIVERSITY CHILDREN'S HOSPITAL IN BASEL, SWITZERLAND

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Janine Gutzwiller[1], Marianne Heinzelmann[1], Katja Möschlin[1], Tamara Diesch[1], and Katrin Scheinemann[1]; [1]University Children's Hospital Basel, Basel, Switzerland, [2]University Hospital Basel, Basel, Switzerland

Given the complexity of care for children with a CNS tumor a multidisciplinary team approach seems to be the gold standard. Since January 2017 the pediatric brain and spine tumor center has been established, compromised of a multidisciplinary team including neuropediatrics, pediatric neurosurgery, pediatric radiology, radiation oncology, pediatric endocrinology, physio - and occupational therapy, social work and nursing under the leadership of the pediatric neuro-oncologist. All newly diagnosed pediatric CNS tumors as well as all follow up care independent of the treatment received are done for by this team. The multidisciplinary team approach also includes a preoperative discussion and planning for each individual patient as well as a jointly disclosure. A multidisciplinary follow up outpatient clinic takes place twice a month with a tumor board prior to the clinic to discuss all the patients and their different issues. All patients are seen by the needed disciplines. In total 62 patients were seen over a period of 12 months in this clinic with clear improvement of care as well as satisfaction with the care from patients and parents. The center also offers second opinions for patients and parents as well as advice for colleagues from other centers especially in the entity of low grade gliomas. The center also serves as a research platform for clinical as well as basic research projects. The structured implementation of a multidisciplinary team improves significantly the care of pediatric brain tumor patients and close collaboration between medical experts even in a university children's hospital.

QOL-28. CUTANEOUS REACTIONS TO TARGETED THERAPIES IN CHILDREN WITH CNS TUMORS: A CROSS-SECTIONAL STUDY

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The MAPK and mTOR pathways play important roles in cell proliferation. BRAF, MEK, and mTOR inhibitors are novel therapies that inhibit these pathways and are increasingly utilized in the pediatric population with CNS tumors. While associated cutaneous reactions are common, data in children are sparse. The objective of this cross-sectional study was to investigate the frequency and type of cutaneous reactions in children with brain tumors treated with BRAF, MEK, and mTOR inhibitor monotherapy. Patients less than 21 years of age with CNS tumors on BRAF V600E (dabrafenib), MEK (trametinib), or mTOR inhibitors (everolimus) were enrolled over a one-year period. Twenty-two patients were enrolled, including 11 on MEK inhibitors, 6 on BRAF V600E inhibitors, and 5 on mTOR inhibitors. Median age at study visit was 12 years (3-19 yrs). Ninety-six percent (21/22) of patients had at least one skin finding. In patients on the MEK inhibitors (11), common reactions were follicular eruptions (9), xerosis (8), paronychia (4), and alopecia (2). In patients on the BRAF inhibitors (6), common reactions included follicular eruptions (6), hand-foot syndrome (5), and xerosis (3). In patients on the mTOR inhibitors (5), reactions included xerosis (4), paronychia (1), and follicular eruption (1). Two patients on the MEK inhibitors and one patient on the BRAF inhibitor required therapy cessation due to severe cutaneous reactions. Treatment was recommended for study participants as indicated. The study demonstrates that cutaneous reactions were extremely common but generally well-tolerated, though for a small subset, their reactions were severe and required therapy cessation.

QOL-29. SUPRA- AND INFRATENTORIAL TRACTOGRAM CHANGES IN CHILDHOOD POSTERIOR FOSSA TUMOR SURVIVORS

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INTRODUCTION: Brain tumor survivors frequently suffer from cognitive deficits. However, microstructural reorganization of white matter following treatment remains unclear. Recently, more tract-specific (fixel-based) analysis was introduced to dissociate micro- from macrostructural changes. METHOD: In this study, diffusion-weighted MR-scans were acquired in 21 childhood posterior fossa tumor tumor survivors and 21 matched controls. Mean age at diagnosis = 8.3 years; age range = [16-34] years; >2 years out of treatment, pilocytic astrocytoma (n=8), ependymoma (n=1) or medulloblastoma (n=12) at the University Hospitals of Leuven. An echo-planar, multi-shell diffusion imaging scheme (b=700,1000,2800s/mm2) was applied. P(re-)rocessing was performed using MRtrix3 and FSL. Besides typical diffusion-derived parameters (DTI-derived Fractional Anisotropy (FA) and Apparent Diffusion Coefficient (ADC)), we compared advanced parameters: fixel-based Apparent Fiber Density (AFD) and Fiber Cross-section (FC) to dissociate microstructural from macrostructural white matter properties, respectively. Non-parametric testing was performed for group comparisons. Finally, microstructural AFD values were compared between cranial irradiated and non-irradiated patients, and correlated with WAIS intelligence subscales within the patient subgroup. RESULTS: Differences in DTI-derived parameters and microstructural changes (AFD) were found in both supratentorial and infratentorial regions, whereas lower macrostructural changes (FC) were found only in cerebellar tracts. Microstructural AFD values were lowest in irradiated patients (F=11.181, p=.004), and correlated with working memory (r=.461, p=.047) and processing speed (r=.527, p=.020). DISCUSSION: Macrostructural changes were very specific for cerebellar tracts, probably due to neurosurgery and the remaining cavity. Specific lower microstructural values in supratentorial regions rather suggest systemic treatment or cascade effects, which might highly affect attentional functioning.

QOL-30. LONG-TERM COGNITIVE FUNCTIONING AND TREATMENT-RELATED RISK FACTORS IN CHILDHOOD POSTERIOR FOSSA TUMOR SURVIVORS

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INTRODUCTION: Each constituent of posterior fossa tumor treatment can affect brain development tremendously. We investigated cognition in survivors of childhood posterior fossa tumor. METHOD: Neurocognitive assessments and T1-weighted MRI-images were acquired in 21 survivors (mean age at diagnosis 8.3 years; >2 years post-treatment, pilocytic astrocytoma (n=8), ependymoma (n=1) or medulloblastoma (n=12)); and 21 age- and gender-matched controls. A comprehensive neurocognitive test battery and questionnaires (WAIS-IV, RVDLT, AVLT, ANT, PPVT, COWAT, CFQ, BRIEF, STAI, BDI, PedsQL) were assessed. Based on anatomical scans, cerebellar tissue proportions were analyzed (as indication of atrophy). Scores were compared between patients and healthy controls. Interdependence of treatment-related risk factors (craniospinal radiation dose (0, 23.4, 35-36 and 40 Gy), posterior fossa boost, intraventricular MTX, (sub)total resection, postsurgical mutism, age at diagnosis and time since treatment) and cerebellar tissue was assessed, to predict cognitive scores by independent factors. RESULTS: First, IQ subscales, as well as visual memory and object naming were significantly lower in patients. Second, radiation dose, postsurgical mutism and time since treatment were found to be independent, and used for further analyses. Radiation dose was associated IQ and attentional reaction times, whereas the presence of postsurgical mutism was related to worse perceptual reasoning and emotional regulation. After corrections, only the link between RT and attentional reaction times remained significant. Finally, radiation dose and IV-MTX were associated with reduced current cerebellar tissue. DISCUSSION: Craniospinal irradiation showed the strongest effect on attentional reaction times. The association between decreased cerebellar tissue and RT doses suggests radiation-induced atrophy, which might have additional impact.

QOL-31. QUALITY OF LIFE (QOL) ACCORDING TO RISK GROUPS OF MEDULLOBLASTOMA SURVIVORS

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The aim of the study was to asses QoL in Medulloblastoma (MB) survivors according to risk groups. MATERIAL AND METHOD: Between 2005-2015 132 patients (40 girls, 92 boys aged 2 9/12 – 17 6/12) were treated of MB. 44 patients were standard risk and 88 high risk. Patients in SR group received radiotherapy to CNS 25Gy whereas HR - 36Gy. Age at analysis 6 1/12 to 29. Analysis included 5 year EFS/OS and assessment of: weight/height in percentiles according to risk groups and age at diagnosis, hearing loss, hearing aids, hair loss and occurrence of posterior fossa syndrome(PFS). Psychosocial assessment, including IQ, education, work, physical and social activities, interpersonal relationships was performed and compared in risk groups. RESULTS: 5 years EFS was 83% in SR and 76,6% HR (p=0,112), OS 89,7% and 82,3%. There was no significant difference in hearing loss between risk groups, but there was greater use of hearing aids in the latter (p=0,003), hair loss was markedly worse in HR (p=0,022). SR patients and those older than 10 years at diagnosis were higher as compared to other survivors. PFS occurred more often in HR group (p=0,005). IQ, educational achievements, physical and social activity and interpersonal relationships were significantly better in SR group (p<0,01 for each) as well