Abstracts

influence of family, educational, and hospital supports, and identify areas of unmet need. PARTICIPANTS AND METHODS: PBTS (N=56, M=1 to 81, 12, range=10–25) completed questionnaires on academic accommodations, medical chart reviews provided diagnosis and treatment details. A subset of families, who did not significantly differ from the larger sample on demographics, completed qualitative interviews (N=25). Three coders identified themes separately for parents and survivors and reached consensus (kappa’s > .78) using thematic content analysis. RESULTS: Family size, role, lack of family support, and media were highlighted. A positive effect on school was observed. CONCLUSION: In pediatrics and long-term sequelae, since only 16.7% of estimated deficit from resected region. They related to the long term sequelae. Survivors emphasized the value of informal accommodations. Parents described unmet needs related to connecting with other survivors, navigating community and educational resources, and transmission to adulthood. CONCLUSIONS: PBTS seem to rely on systems-level supports to mitigate neurocognitive effects. Future work should strengthen communication between systems and adult transition services.

QOL-05. TUMOR LOCATION IS LESS INFLUENCE ON COGNITIVE DYSFUNCTION IN CHILDREN

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INTRODUCTION: Though several factors are known to influence on long-term cognitive function in children with brain tumor, the impact of tumor localization to specific cognitive function was not well known. Here we investigated the influence of long-term sequelae by surgery or postoperative cognitive outcome in school-aged children. METHODS: Participants were seven pediatric patients who underwent craniotomy for tumor resection in our hospital (mean age, 13.9 years). Their diagnoses were WHO grade I or 2, glioma (n=6) and hemangiomata (n=1). Tumor were mainly located in following regions: frontal, n=2; parietal, n=2; temporal, n=3 (These lesions included hippocampus or were located very close to it). Temporal assessments for cognitive function of several functional domains were performed according to tumor localization and at 1 year. Before and after surgery, we estimated cognitive dysfunctions and compared them to observational symptoms. RESULTS: Preoperative cognitive function was normal in all patients. Cognitive dysfunctions estimated from resected area were as follows (cumulative total number): memory or working memory disorder, n=4; visuospatial cognitive disorder, n=3; disorder of processing speed, n=2; facial or topographical agnosia, n=2; Gerstman syndrome, n=1. Just after surgery, cognitive function was declined in two functional domains of two patients, which were only 16.7% of estimated deficit from resected region. They recovered completely 5 months postoperatively, and returned home without any deficits. CONCLUSIONS: In pediatric lower-grade tumor, local cognitive symptom was unlikely to be induced by local resection.

QOL-06. QUALITY OF LIFE IN MEDULLOBLASTOMA SURVIVORS IN WESTERN MEXICO

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BACKGROUND: Treatment of children with medulloblastoma (MB) can lead survivors to live with long term sequelae and affect their quality of life (Qol). This study evaluates Qol in long term MB survivors. DESIGN/METHODS: Clinical files of MB survivors from 1997 to 2016 were retrospectively analyzed. Qol was defined by Schipper Criteria in a five dimensional evaluation: clinical data, physic effects of treatment, academic develop, functional state and self welfare report. RESULTS: Clinical data: Twelve (eight survivors were identified, mean age at review was 18 years, median follow up was 106 months). Functional state: Last visit Karmofsky/ Lansky were 90 to 85% in 25% of patients. Physic effects of treatment: Cerebellar Mutism or ataxia were present in 25% of cases. Two patients required external dispositive. Audiometry detected an auditory tonal decrease in 25% of cases. An endocrine disfunction was present in 46% of cases, 32% required hormone replacement and 28% having size. Renal damage without dialysis was detected in 7% and 10% had a transient tubulopathy. One case had bilateral amaurosis and 14% uses glasses. Three patients had a life partner. One female has offspring and two males had azoospermia. Academic develop: While 90% attends to school, 35% complained of learning difficulties and 18% needed special education. Self welfare report: Difficulties in social environment were described in 21% and 14% still feeling sick during years. CONCLUSION: Survivors of MB had adverse physical effects, followed by academic development, functional state and self welfare report and all this has a negative impact in their Qol.

QOL-07. CORTICAL VOLUME AND THICKNESS IN ADULT SURVIVORS OF CHILDHOOD POSTERIOR FOSSA TUMORS

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PURPOSE: A brain tumor treatment including cranial radiotherapy has previously been associated with long-term neurocognitive sequelae. Since underlying neurological mechanisms remain inconclusive, we investigated cortical features in childhood posterior fossa tumor survivors. METHODS: TI-weighted MRI (MPRAGE, resolution=0.9×0.9×1.2mm) was acquired to investigate the cortical structure in adult survivors of childhood infratentorial tumors (n=19, 15 males, 16.4–34.8 years old, 2-years after treatment). These scans were compared to age- and gender- matched controls. Supratentorial cortical volume and thickness were investigated using voxel-based morphometry (VBM) and surface-based morphometry (SBM), respectively. We compared patients and controls, irradiated (n=13) versus non-irradiated patients, and investigated the age at radiotherapy (peak level: p<0.001). RESULTS: Lower GM volumes were encountered in multiple brain areas of patients compared to controls in the largest and right postcentral gyrus and precuneus. Age at radiotherapy was associated with GM volume in the inferior frontal gyrus. SBM yielded larger cortical thickness in patients in the left precuneus, inferior temporal and fusiform gyri. The opposite effect was only marginally significant, in the left temporal lingual gyrus. Age at radiotherapy was not associated with cortical thickness, but radiotherapy was associated with the left angular gyrus and right postcentral gyrus. CONCLUSION: Widespread differences in cortical volumes and thickness were observed in posterior fossa tumor survivors. Both radiotherapy and age at radiotherapy could be suggested as risk factors for long-term cortical development.

QOL-09. WHOLE- BRAIN WHITE MATTER NETWORK CONNECTIVITY IS DISRUPTED BY PEDIATRIC BRAIN TUMOR TREATMENT

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INTRODUCTION: Treatments for pediatric brain tumors (PTB) are neurotoxic and lead to long-term deficits that are driven by the perturbation of underlying white matter (WM). It is unclear if and how treatment may impact connectivity across childhood brain development. METHODS: Magnetic resonance images from 41 PTB survivors (mean age: 13.19 years, 53% M) and 41 typically developing (TD) children (mean age: 13.32 years, 51% M) were analyzed. Image reconstruction, segmentation, and node parcellation were completed in FreeSurfer. DTI maps and probabilistic streamline generation were completed in MRtrix3. Connectivity matrices were based on the number of streamlines connecting two nodes and the mean DTI (FA) index across streamlines. We used graph theoretical analyses to define structural differences between groups, and random forest (RF) analyses to identify hubs that reliably classify PTB and TD children. RESULTS: For survivors treated with radiation, betweenness centrality was greater in the left inter-pial (p < 0.001) but smaller in the right pial region (p < 0.05). For survivors treated without radiation (surgery-only), betweenness centrality was smaller in the right inter-pial sulcus (p < 0.05). RF analyses showed that differences in WM connectivity from the right pial region to other parts of the brain reliably classified PTB survivors from TD children (classification accuracy = 77%). CONCLUSION: The left insular, right pialdium, and right inter-parietal sulcus are structurally perturbed hubs in PTB survivors. WM connectivity from the right pial region is vulnerable to the long-term effects of treatment for PTB.

QOL-11. COMPARISON OF TREATMENT BURDEN RATING SCALES ON NEUROCOGNITIVE OUTCOMES IN A MIXED SAMPLE OF PEDIATRIC BRAIN TUMOR SURVIVORS

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BACKGROUND: Predicting neurocognitive outcomes in pediatric brain tumor (PTB) patients is challenging. Rarity of PTB makes inclusion of detailed risk factors (e.g., treatment modality, intensity, individual complications) difficult when sample sizes are small. The Neurological Predictor Scale (NPS) summarizes complications and treatment factors associated...