QOL-32. PATIENTS TREATED FOR MALIGNANT BRAIN TUMOR IN THE FIRST THREE YEARS OF LIFE: CLINICAL SEQUELAE Simonaetta Gaium., Bartolomeo Rossi, Marta Pillon, Elisa Carraro, Alessandra Biffi, Elisabetta Viscardi; Pediatric Hematology, Oncology and Stem Cell Transplant, Department of Women’s and Children’s Health, University of Padua, Padua, Italy

BACKGROUND: Pediatric Central Nervous System tumors are the most common solid tumors in children with a higher incidence rate in the first years of life. Patients treated for brain tumor are at high risk of sequelae. In the first years of life, brain immaturity increases the risk of developing these complications. OBJECTIVE: The overall goal of this study was to evaluate the medium- and long-term sequelae of malignant brain tumor treatment in patients diagnosed in the first three years of life and to correlate these sequelae with tumor histology, localization and treatment. PATIENTS AND METHODS: Forty - nine children with aggressive brain tumor diagnosed in the first three years of life followed in the Pediatric Hematology and Oncology Department of Padua between January 2000 and December 2020 were enrolled in this study. We evaluated features, such as age at onset, tumor localization, neurosurgical resection, histology, treatment and patient outcome. From May to September 2021 we clinically evaluated 16 of them who survived to treatment and we identified the presence of visual impairment, hearing loss, endocrine dysfunctions and neurological deficits in them. RESULTS: The most common sequelae in our patient population is motor impairment (50.8%), followed by endocrine dysfunction (23%), visual impairment (19.2%), epilepsy (11.6%) and smell nerve palsy (7.7%). In our population, hearing loss (7.7%) and impairment of speech are significantly associated with supratentorial tumors and endocrine dysfunction with high dose chemotherapy. CONCLUSIONS: Our data and recent literature confirm the high incidence of tumor and treatment sequelae in these patients. Therefore, since diagnosis, a multidisciplinary evaluation and management are necessary for improving patients’ prognosis.

QOL-33. ADAPTIVE BEHAVIOUR OF PATIENTS TREATED FOR MALIGNANT BRAIN TUMOR IN THE FIRST THREE YEARS OF LIFE Simonaetta Gaium., Marta Tremolada, Bartolomeo Rossi, Alessandra Biffi, Elisabetta Viscardi; Pediatric Hematology, Oncology and Stem Cell Transplant, Department of Women’s and Children’s Health, University of Padua, Padua, Italy. 2Department of Developmental and Social Psychology, University of Padova, Padua, Italy

BACKGROUND: Adaptive behavior is defined as the effectiveness and degree to which an individual meets social/cultural standards of personal independence and social responsibility. Patients treated for brain tumor are at risk of alteration of adaptive behaviour that, with a reduced intellectual function, makes diagnosis of mental retard. OBJECTIVE: The aim of this study was to evaluate the adaptive behaviour of patients treated for malignant brain tumor in the first three years of life and the variables that may correlate with its alteration. PATIENTS AND METHODS: Twelve survivors of brain tumor diagnosed in the first three years of life followed in the Pediatric Hematology and Oncology Department of Padua between January 2000 and December 2020 were enrolled in this study. We defined the level of the adaptive behaviour by evaluation adaptive behaviour questionnaire (ABAS II) completed by the parents. RESULTS: None of the patients shows a high level of adaptive behavior. Preliminary evidences suggest that the level of adaptive behavior may be influenced by the sex, irradiation and time from the end of treatment. In details, females show a higher level of performance than males, patients not treated with radiotherapy performed better than patients irradiated and long-term survivors have a better level of adaptive behaviour. CONCLUSIONS: This study confirms that patients treated for brain tumor show a lower level of adaptive behaviour than peers. The future objective is to assess adaptive behaviour at many times to recognize the problem early.

QOL-34. THE RELATIONSHIP BETWEEN PSYCHOLOGICAL FLEXIBILITY, QUALITY-OF-LIFE AND PSYCHOLOGICAL HEALTH IN YOUNG PEOPLE WHO HAVE EXPERIENCED A BRAIN TUMOUR Jac Airidriu1, Chloe Geagan2, Nicholas Davies3, Katie Powera4, Ingram Wright1,4, Heather Borrelli, Faith Gibson5,6, Steve Clifford7, Stephen Louis8,6, Simon Bailey, Jennifer Limond9, Ray Owen, Richard Grundy, James Lemon, Louise Bailey1,2, Sam Malma1,1, Sophie Thomas10,11, Ingram Wright1,4, Heather Borrelli, Faith Gibson5,6, Steve Clifford7, Stephen Louis8,6, Simon Bailey, Jennifer Limond9, Ray Owen, Richard Grundy, James Lemon, Louise Bailey1,2, Sam Malma1,1, Sophie Thomas10,11, Ingram Wright1,4, Heather Borrelli, Faith Gibson5,6, Steve Clifford7, Stephen Louis8,6, Simon Bailey, Jennifer Limond9, Ray Owen, Richard Grundy, James Lemon, Louise Bailey1,2, Sam Malma1,1, Sophie Thomas10,11, Ingram Wright1,4, Heather Borrelli, Faith Gibson5,6, Steve Clifford7, Stephen Louis8,6, Simon Bailey, Jennifer Limond9, Ray Owen, Richard Grundy, James Lemon, Louise Bailey1,2, Sam Malma1,1, Sophie Thomas10,11, Ingram Wright1,4, Heather Borrelli, Faith Gibson5,6, Steve Clifford7, Stephen Louis8,6, Simon Bailey, Jennifer Limond9, Ray Owen, Richard Grundy, James Lemon, Louise Bailey1,2, Sam Malma1,1, Sophie Thomas10,11, Ingram Wright1,4, Heather Borrelli, Faith Gibson5,6, Steve Clifford7, Stephen Louis8,6, Simon Bailey, Jennifer Limond9, Ray Owen, Richard Grundy, James Lemon, Louise Bailey1,2, Sam Malma1,1, Sophie Thomas10,11, Ingram Wright1,4, Heather Borrelli, Faith Gibson5,6, Steve Clifford7, Stephen Louis8,6, Simon Bailey, Jennifer Limond9, Ray Owen, Richard Grundy, James Lemon, Louise Bailey1,2, Sam Malma1,1, Sophie Thomas10,11

Despite increasing survival rates in young people who have experienced a brain tumour, this patient group have the poorest reported quality-of-life (QoL) of all cancer survivors. QoL is defined as an individual’s perception of their position in life in relation to their goals, expectations and standards. QoL can be influenced by physical functioning but one of its strongest predictors is psychological health – a concept that has a large impact on psychological health is Psychological Flexibility (PF). PF refers to the ability to recognise and adapt to situations, shift cognitive and behavioural reper- toires which are impacting negatively on personal and social functioning and complete behaviours that are in line with strongly held values. This study has demonstrated a relationship between PF and QoL in other patient populations such as chronic pain and breast cancer survivors. In this study we explored the relationship between PF and QoL at baseline in a sample of young people who enrolled in a randomised controlled trial of Acceptance and Com- mitment Therapy (ACT) for young people who have experienced a brain tumour. We found that higher PF was associated with higher QoL in both 11-15 year olds (R2 = .69, p < .05) and 16 – 24 year olds (R2 = .29, p < .01). We also found higher PF was associated with lower levels of mental health difficulties (R2 = .24, p < .05) which was also associated with higher levels of QoL (R2 = .49, p < .01). The results suggest assessing and providing sup- port to increase PF is important for young people who have experienced a brain tumour. It highlights that interventions that increased PF, such as ACT, could be helpful in improving psychological health in this population.

QOL-35. SCHOOL REENTRY OF CHILDREN AND ADOLESCENTS WITH A BRAIN TUMOR: CAN WE IMPROVE FAMILY-SCHOOL-HOSPITAL COOPERATION? AN ANALYSIS OF SUPPORTIVE AND INHIBITING FACTORS AS A RESULT OF A PILOT PROJECT Ulrike Leiss1,2, Kerstin Krottendorfer1,2, Thomas Pietzschko1,2, Andrea Bift4, Karoline Wickerle1,2, Andrea Kutschera; 1Department of Pediatrics and Adolescent Medicine, Medical University of Vienna, Vienna, Austria. 2Comprehensive Center for Pediatrics, Medical University of Vienna, Vienna, Austria. 3Department of Clinical Psychology and Psychotherapy, University Hospital Vienna, Vienna, Austria

OBJECTIVE: School reentry support focusing on providing information to schools and communication between patient/family-hospital-school is de- fined as a psychosocially significant care in pediatric oncology (Thompson et al., 2015). This is critical for students with brain tumors (BT) - although it is not yet universally implemented - especially during follow-up, as they are a risk group for later effects. Due to long distances between family/hospital- school, limited personnel capacities and since 2020 Covid-19 restrictions, an online-event (OE) for teachers from external schools was designed, with the aim of: (1) strengthening cooperation, (2) breaking down barriers and (3) increasing level of knowledge. METHODS: 54 teachers participated in each of two OEs. Content was presented by an interdisciplinary team (clinician, clinical/neuropsychologist, social worker, teacher), followed by time for sharing experience. Two months after event 2, participants were asked to complete an evaluation in an anonymous online survey. Supportive and inhibiting factors for successful school reintegration were included in the survey and statistically analyzed. RESULTS: 54% of 23 respondents (70% teaching > 10 years) felt that their training before the event did not pre- pare them adequately for a teaching setting with seriously ill patients (1-3 points on a 10-point Likert-scale). 92% rated their knowledge greater after the event. All interdisciplinary inputs were rated very useful and practical (79-88%: 8-10 points). 38% felt relieved to got to know contact persons. 83% rated cooperation BT as fundamental for being more confident after the event. CONCLUSION: The results of this pilot project indicate that an online-information-event can increase knowledge and cooperation. Resulting promoting and inhibiting factors for school reinte- gration will be incorporated into future concept improvement. The findings further highlight the great importance of ongoing support in the form of a reintegration teacher and interdisciplinary input for schools to appropriately support students with BT.

NEUROSURGERY

SURG-01. THE TENTATIVE APPLICATION OF EN BLOC CONCEPT IN THE PEDIATRIC BRAIN TUMOR: A RETROSPECTIVE STUDY OF 171 CASES FROM A LARGE PEDIATRIC CENTER IN CHINA Hualiang Liang2, (university), yang zhou1, baosheng wang1, jiaja wang1, xie MA1, Xinhu hospital Affiliated to Shanghai Jiao Tong University School of medicine, shanghai, China. 2Xinhu hospital Affiliated to Shanghai Jiao Tong University School of medicine, shanghai, China

BACKGROUND: The less allowable blood loss and tolerance of intraoperative blood loss of children lead to the high rate of massive blood transfusion. The surgical concepts of en bloc resection may contribute to the improvement of brain tumor resection. OBJECTIVE: To investigate the effects of en bloc concept on short outcomes of pediatric brain tumor and factors associated with the application of en bloc concept. METHODS: Ac-
cording to the surgical concept involved, the patients were divided into three subgroups-complete en bloc concept, partial en bloc concept and piecemeal concept. The matching-comparison(en bloc group consisting of the first two subgroups) was compared with the results of the en bloc concept on the short-term outcomes. Then the patient data after January 2018, when the en bloc concept was routinely integrated into brain tumor surgery in our medical center, were reviewed and analyzed to find out whether the concept associated with complete resection of en bloc was superior.

RESULTS: In the en bloc group, the perioperative outcomes, including hospital stay(p=0.001), PICU stay(p=0.003), total blood loss(p=0.015), transfusion rate(p=0.005) and complication rate(p=0.039), were all significantly improved. The minimaximal logistic regression analysis showed that tumor volume, bottom vessel, and imaging features, like encasing nerve or pass-by vessel, finger-like attachment, ratio of “limited line” and ratio of “clear line” remained independent predictors for the application of en bloc concept in our medical center. CONCLUSION: The application of en bloc concept based on the imaging features can improve the short-term outcomes.

SURG-02. THE SITE OF ORIGIN OF MEDULLOBLASTOMA: DOES THE NEUROSURGICAL PERSPECTIVE SUPPORT THE CURRENT CONCEPT FROM MOLECULAR DATA?
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BACKGROUND: Medulloblastoma (MB) are the most common malignant brain tumors in childhood. Developmental gene expression data supported by neuroradiological studies suggest that Wingless (WNT)-MB originate from the lower rhombic lip (LRL), Sonic-Hedgehog (SHH)-MB from the cerebellar hemispheres, and Group 3 and Group 4 MB from the cerebellar vermis. However, there is still insufficient evidence from a neurosurgical perspective supporting this proposed concept. METHODS: Clinical and molecular data from patients aged under 18 years at time of diagnosis who were operated on a histologically confirmed MB at the Department of Neurosurgery of the Medical University of Vienna between 1990 and 2021 were retrospectively analyzed. The location of the tumor origin was defined based on operative reports, surgical videos and preoperative imaging data by an experienced neuroradiologist blinded to the subgroup information. RESULTS: Sufficient data were available in 53 patients. In 28.6% (2 / 7) WNT-MB, 66.7% (6 / 9) SHH-MB and 70.3% (26 / 37) Group 3 and Group 4 MB, the intraoperatively defined site of origin corresponded well with the cellular origin suspected from the molecular subgroup. Within the WNT-subgroup, 57.1% (4 / 7) originated from the vermis, 28.6% (2 / 7) from the cerebellar hemisphere, and 14.3% (1 / 7) from the LRL. The origin of SHH-MB was predominantly located in cerebellar hemispheres (66.7% (6 / 9)), while 33.3% (3 / 9) originated from the vermis. Of Group 3 and Group 4 MB, 70.3% (26 / 37) had their origin in the vermis and 29.7% (11 / 37) in the LRL. CONCLUSION: Our results indicate that there is a considerable level of inconsistency between the intraoperatively observed site of origin and the expected cellular origin based on the molecular subgroup, especially in WNT-MB. This discrepancy needs to be discussed when it comes to surgical decision-making accounting for risk stratification.

SURG-03. DURABILITY OF AN EARLY MANAGEMENT STRATEGY FACILITATING ENDOCUTANEOUS REMOVAL OF RECURRENT CHOROID PLEXUS CARCINOMA
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BACKGROUND: Choroid plexus carcinoma (CPC) is a rare, primarily intraventricular neoplasm with a dismal prognosis. Extent of surgical removal is correlated with improved outcomes but is frequently limited due to tumor vascularity and size. Information related to surgical management and molecular drivers of tumor recurrence is currently limited. Here we characterize a case of multiply recurrent CPC treated solely with sequential endoscopic tumor removals over a 10-year period and highlight its genomic properties. METHODS: We performed a retrospective review of a 16-year-old patient with CPC with local and distal recurrences, all treated with repeat excision with minimally invasive neuro-endoscopy. We describe the clinical nuances associated with neuro-endoscopic intervention, mean hospital stay, complications, and perioperative MRI. Whole exome sequencing (WES), targeted sequencing, and methylation profiling results over time are reviewed. RESULTS: Five years after standard treatment, the patient was evaluated for a distant intraventricular recurrence. A total endoscopic resection was performed given the local, non-disseminated recurrence pattern. WES results included NF1, PER1, and GLI3 mutations as well as FGFR3 truncation, which was significant for the typical 6q disruption phenotype. Additional WES results included NF1, PER1, and GLI3 mutations as well as FGFR3 truncation, which was significant for the typical 6q disruption phenotype. Additional WES results included NF1, PER1, and GLI3 mutations as well as FGFR3 truncation, which was significant for the typical 6q disruption phenotype.

SURG-04. ROBOTIC ALIGNMENT SYSTEM CIROQ (BRAINLAB) FOR NAVIGATED BRAIN TUMOR BIOPSIES IN CHILDREN
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BACKGROUND: With the incorporation of the robotic alignment system Cirom (Brainlab, Munich, Germany) into our neurosurgical armamentarium, we deemed it important to study application accuracy of this new device. As a baseline for our retrospective review, we retrospectively reviewed our medical center. CONCLUSION: The application of en bloc concept based on the imaging features can improve the short-term outcomes.

SURG-05. SURVIVAL AND FUNCTIONAL OUTCOMES IN PEDIATRIC THALAMIC AND THALAMOPEDUNCULAR LOW GRADE GLIOMAS
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