

for all patients for fluid and crystallized intelligence, selective attention, visual-spatial processing (VSP) and verbal short-term memory (median=93-103), but distinctly below for processing speed (PS), and psychomotor speed abilities (PMS) (median=65-84). Higher doses of craniospinal irradiation (>23.4Gy/23.4Gy) resulted in lower scores for most domains for MB-patients compared to LGG-patients (e.g., PS-estimate: >23.4Gy:-27.71, $p=0.026/23.4Gy:-9.93$, $p=0.286$). EP-patients (surgery+54Gy local radiation) scored better than LGG-patients except for PS (estimate:-15.65, $p=0.111$). Impairments were accentuated with higher degrees of hydrocephalus (estimate:-7.64, $p=0.103$) in patients with incomplete resection (estimate:12.23, $p=0.006$) for PMS both hands. **CONCLUSION:** Following age-adapted comprehensive treatment, survivors of a cerebellar tumor show significant impairments of PMS abilities in our trials. Our data suggest that slow growing LGG impair neurocognitive development more than local radiotherapy for ependymoma, while craniospinal irradiation compromises VSP and PS in MB. Initial symptomatic intracranial pressure remains a strong predictor for general neuropsychological impairment.

QOL-05. CARDIORESPIRATORY FITNESS AND HEALTH-RELATED QUALITY OF LIFE AMONGST SURVIVORS OF CHILDHOOD CENTRAL NERVOUS SYSTEM TUMOURS.

Rachael Keating^{1,2}, Sarah Curry³, Juliette Hussey⁴; ¹School of Medicine, Trinity College, the University of Dublin, Dublin, Ireland. ²Physiotherapy Department, Children's Health Ireland at Crumlin, Dublin, Ireland. ³Department of Haematology & Oncology, Children's Health Ireland at Crumlin, Dublin, Ireland. ⁴Discipline of Physiotherapy, School of Medicine, Trinity College, the University of Dublin, Dublin, Ireland

INTRODUCTION: Due to recent advancements in surgical techniques, imaging and adjuvant therapies, survival rates for children with central nervous system (CNS) tumours have improved. Research priorities have now shifted to focus on late-effects and quality of survivorship amongst childhood CNS tumour survivors. Our study aimed to assess levels of cardiorespiratory fitness and health-related quality of life (HRQoL) amongst survivors of childhood CNS tumours. A secondary aim was to investigate potential relationships between cardiorespiratory fitness and HRQoL. **METHODS:** Participants were recruited from the National Children's Cancer Service in CHI Crumlin. Inclusion criteria included: diagnosis of a primary CNS tumour, aged between 6-17 years, between 3 months and 5 years post completion of oncology treatment, independent mobility, deemed clinically appropriate to participate by treating oncologist. Cardiorespiratory fitness was assessed using the six-minute walk test. HRQoL was assessed with the PedsQL Generic Core Scales, Version 4.0, both self-report and parent proxy report forms were used. **RESULTS:** 20 participants (n=9 male) were recruited with a mean age of 12.34 (SD = 3.46) years. Mean time since completion of oncology treatment was 2.31 (SD = 1.38) years. Mean 6-minute walk distance (6MWD) was 482.75 (SD = 50.04) metres, equating to the 5.55th (SD = 6.83th) percentile overall. 6MWD was significantly reduced compared to predicted 6MWD ($t = -12.52$, $p < .001$, 95% CI [-163.52, -116.68]). Parent proxy-reported HRQoL was significantly reduced compared to healthy population norms ($t = -5.82$, $p < .001$, 95% CI [-25.76, -12.17]). A strong positive correlation exists between 6MWD and both parent-proxy (Pearson's $r = 0.533$, $p = 0.015$) and child-reported HRQoL ($r = 0.580$, $p = 0.007$). **CONCLUSION:** Survivors of childhood CNS tumours present with impaired levels of cardiorespiratory fitness and HRQoL compared to healthy population norms. Higher levels of cardiorespiratory fitness are associated with higher levels of HRQoL.

QOL-06. WHAT IMPACT DOES A POSTERIOR FOSSA TUMOR IN CHILDHOOD HAVE ON MOTOR PROCEDURAL LEARNING? GROUP PERFORMANCE DEPENDING ON RADIOTHERAPY STATUS AND INDIVIDUAL DIFFERENCES ON A PERCEPTIVO-MOTOR SEQUENCE LEARNING TASK AND A MOTOR ADAPTATIVE TASK (IMPALA PROSPECTIVE STUDY)

Eloïse BAUDOU^{1,2}, Lisa POLLIDORO^{1,2}, Jessica TALLET¹, Jérémy DANNA³, Jérémie PARIENTE^{1,4}, Yves CHAIX^{1,2}, Anne LAPRIE^{1,5}; ¹Toulouse NeuroImaging Center (ToNIC), INSERM University of Toulouse Paul Sabatier, Toulouse, France. ²Pediatric Neurology Department, Children's Hospital, Toulouse University Hospital, Toulouse, France. ³Aix Marseille Univ, CNRS, LNC, Marseille, France. ⁴Neurology Department, Toulouse University Hospital, Toulouse, France. ⁵Radiology Department, Toulouse University Hospital, Toulouse, France

INTRODUCTION: Procedural memory (PM) is a skill learning system that allows, through training, the automatization of procedures and progressive improvement of performances. The aim of this work was to explore the impact of a posterior fossa tumor (PFT) on PM. We hypothesized that motor adaptation, depending on cortico-cerebellar system, was impaired in PFT survivors treated with and without radiotherapy, and motor sequence learning, depending on cortico-striatal system, was only impaired in PFT treated with radiotherapy. **METHODS:** We investigated PM in 60 participants from the IMPALA study (NCT04324450) divided into three groups: 39 cured from a

PFT in childhood (22 irradiated (PFT+RT group) and 17 non-irradiated (PFT group)) and 21 healthy volunteers (Control group) matched on age, sex and handedness with the PFT+RT group. We used a visuo-motor learning test, the Serial Reaction Time task (SRTT) and a motor adaptation task (MAT) of backwards handwriting. ANOVA and mixed models were used for statistical analysis. **RESULTS:** SRTT performance analysis showed an effect of Block in specific sequence learning ($F(1)48.70$, $p < 0.001$) with a preserved specific learning in the three groups. However individual differences were observed with 7/22 patients in PFT+RT group and 4/17 in PFT group who did not have specific learning. MAT performance analysis showed an effect of interaction between Orientation (forward or backward) and Group for speed ($F(2)15.58$, $p < 0.001$), linearity ($F(2)8.39$, $p < 0.001$) and amplitude standard deviation ($F(2)15.70$, $p < 0.001$) traducing an impairment both in PFT+RT and PFT groups, more marked in the PFT+RT group. **CONCLUSION:** We showed impairment, predominantly on motor adaptation but also, at individual level, in motor sequence learning whose origin requires additional work. This study brings new insights on the long-term impact of a PFT in childhood on a rarely investigated part of memory that is PM.

QOL-07. THE IMPORTANCE OF AN ONCO-FERTILITY PROGRAM FOR PEDIATRIC NEURO-ONCOLOGY PATIENTS

Irene IJgosse¹, Leendert Looijenga¹, Aart Klijn², Ralph Oude-Ophuis², Marry van den Heuvel¹, margreet Veening¹, Annelies Bos², Simone Broer², Jeanette van Leeuwen², Lideke van der Steeg¹, Marianne van de Wetering¹; ¹princess Maxima Center for paediatric oncology, Utrecht, Netherlands. ²Medical university of Utrecht (UMCU), Utrecht, Netherlands

INTRODUCTION: In the Netherlands pediatric oncology care is centralized in one hospital since 2018. 600 new patients a year are seen with 100-120 new neuro-oncology (NO) patients. Of the NO patients 20-25% classify as high risk for infertility (HR) such as patients with medulloblastoma, ependymoma, ATRT and germinoma. An onco-fertility program was started navigated by a nurse-practitioner. The program runs with intense collaboration between the different specialties. All new patients are identified according to the international guidelines on fertility care. The fertility-risk is based on the CED score (cyclofosamide equivalent dose) and radiotherapy dose. Since 2018 awareness was created by teaching sessions among colleagues, nursing staff, and parent association organizations. **METHODS:** All HR children are informed by the nurse-practitioner and can be referred for counseling to gynaecology for OTC (ovarian tissue cryopreservation) or urology for sperm cryopreservation or testicular biopsy. Monthly the onco-fertility working-group members discuss cases and research in the field. **RESULTS:** In 2019, 19% NO cases and in 2020 18% of cases were HR for infertility. In both years 36% of these cases had fertility preservation performed. In 2021, 22% cases HR were identified and in 55% preservation was performed. Reasons for not preserving fertility were diverse, varying from poor prognosis, or too ill to be included. **CONCLUSION:** Awareness of the fertility risk in NO patients who are HR is necessary. These patients need to be informed, and stratified for counseling and offered fertility preservation before start of their treatment. An active onco-fertility program helps to offer the best option for future fertility for these patients

QOL-08. VISUAL MEMORY AND POTENTIAL CLINICAL RISK FACTORS IN LONG-TERM SURVIVORS OF A CHILDHOOD BRAIN TUMOR

Charlotte Sleurs¹, Jurgen Lemiere^{1,2}, Kristien Bullens¹, Sandra Jacobs^{1,2}; ¹KU Leuven, Leuven, Belgium. ²UZ Leuven, Leuven, Belgium

A brain tumor treatment has previously been associated with long-term neurocognitive sequelae. However, clinical profiles differ between certain patient subgroups. We investigated the impact of tumor location, radiotherapy (RT), and age at diagnosis in childhood brain tumor survivors on long-term cognitive outcomes. Adult survivors (n=32) of pediatric brain tumors (n=11 infratentorial, n=21 supratentorial; 14 astrocytomas, 3 craniopharyngiomas, 2 ependymomas, 2 germinomas, 1 hemangioblastomas, 4 medulloblastomas, 6 nervus opticus gliomas) participated in this neuropsychological study (n=11 RT) (16.8-35.1 years old, >2years after treatment, mean age at diagnosis = 9.2 years, 50% male). An extensive neurocognitive test battery was used to assess intelligence scales (n=5), verbal and visual memory (n=2), and language (n=3). In order to investigate the effects of tumor location (infra- versus supratentorial), RT (yes vs. no), and age at diagnosis on the cognitive scores, a multivariate ANCOVA model was tested including the main effects and interaction between age and RT. Of all included scales, only visual memory was significantly associated with the risk factors. More specifically, patients who received RT ($F=10.3$, $p=.004$) and were younger at diagnosis ($F=6.9$, $p=.014$) scored worse on this task. Furthermore, the interaction effect between these factors was also significant ($F=8.8$, $p=.006$). These findings suggest that younger patients could be more vulnerable to the radiotoxic effects to visual memory outcomes. Tumor location (supra- vs. infratentorial) was not significantly associated with any outcome. In this study, only visual memory appeared to be associated with the risk factors of interest. Both radiotherapy and