ation (CSI) of either 23.4Gy (standard dose; SDCSI) or 18Gy (lower dose; LDCSI). Children aged 8+ received SDCSI. All children were also randomized to receive either a reduced radiation boost to the involved field (IFRT) or a standard boost to the whole posterior fossa (PFRT). Memory functioning was evaluated an average of 0.67(T1), 2.95(T2), and 4.90(T3) years post-diagnosis. RESULTS: Of 464 eligible patients enrolled on ACNS0331, 354 (76%; 65.3% male, 83.1% white) completed some neuropsychological testing. Mean age at diagnosis was 9.1 years (range=3–19). Verbal and visual short-term memory and learning were broadly within the average range for the overall sample at all three timepoints. However, a large percentage of children exhibited scores ≥1SD below the mean on tasks of verbal learning both immediately (43.4%) and after a delay (40.7%) at T3. In addition, 58.6% of children randomized to SDCSI exhibited impairment in verbal learning after a delay compared to 34.8% of children randomized to LDSCI, and 35.0% of those aged ≥8 at diagnosis receiving SDCSI. CONCLUSIONS: Younger children receiving SDCSI have particularly high rates of memory impairment five years after diagnosis of medulloblastoma. Limiting CSI dose and/or volume in young children treated for this diagnosis may improve outcomes for memory functioning.

QOL-21. DEVELOPMENT AND UTILISATION OF A NEURO-ONCOLOGY REHABILITATION TEAM: 2018–2019 UPDATE

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INTRODUCTION: A multi-disciplinary Neuro-Oncology Rehabilitation Team (NORT) was established at our institution in 2014. We reviewed NORT inputs, processes and outputs in 2018 to 2019 compared to our previously presented data from 2015, soon after service inception. METHODS: Retrospective analysis of patients who received NORT input June 2018 - May 2019 compared to 2015 data. Descriptive analysis of changes to NORT operational processes and structure. Complexity of rehabilitation needs was measured using the Rehabilitation Complexity Scale-Extended V13 (RCS). RESULTS: 54 children received NORT input in 2018–2019 (10 children in 2015) with total of 129 outputs. NORT input was highest in children with high grade glioma (median reviews: 3; median RCS: 5) and ependymoma (median reviews: 3; median RCS: 5). Pilocytic astrocytoma formed the largest tumour group (n = 11; median reviews: 2; median RCS: 7). 11% patients were referred to neurologist (9% already known); 17% referred to community services (44% already known); 31% referred to neuropsychology. In 2015, outputs were predominantly referral to occupational therapy and physiotherapy. 6 patients (11% of 54) were discharged in 2018–2019 (40% of 10 patients in 2015). 4 patients died. Between 2015 and 2019, developments included: clarifying referral and discharge pathways, use of screening measures, neuropsychology integration, therapy-led drop-in clinics, use of RCS-E. DISCUSSION: There has been a clear increase in utilisation and scope of work of NORT over last 4 years. The strength of this team is multidisciplinary working and expertise. Further developments planned: multidisciplinary rehabilitation interventions and NORT outcome tools.

QOL-22. MACHINE-LEARNING INFERENCE MAY PREDICT QUALITY OF LIFE SUBGROUPS OF ADAMANTINOMATOUS CRANIOPHARYNGIOMA

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BACKGROUND: Due to disease and/or treatment-related injury, such as hypothalamic, visual, and endocrine damage, quality of life (QoL) scores after childhood-onset Adamantinomatous Craniopharyngioma (ACP) are among the lowest of all pediatric brain tumors. Decision-making regarding management would be aided by more complete understanding of a patients likely QoL trajectory following intervention. METHODS We retrospectively analyzed caregiver and patient-reported QoL-instruments from the first 50 patients (ages 1–17 years at diagnosis) enrolled in the international Advancing Treatment for Pediatric Craniopharyngioma (ATPC) consortium. Surveys included 205 pediatric-relevant questions and were completed at diagnosis, and 1- and 12-months following diagnosis. Using Multiple Correspondence Analysis (MCA), these categorical QoL surveys were interrogated to identify time-dependent patient subgroups. Additionally, custom deep learning classifiers were developed using Google's TensorFlow framework. RESULTS By representing QoL data in the reduced dimensionality of MCA-space, we identified QoL subgroups that either improved or declined over time. We assessed differential trends in QoL responses to identify variables that were subgroup specific (Kolmogorov-Smirnov p-value < 0.1; n=20). Additionally, our optimized deep learning classifier achieved a mean 5-fold cross-validation area under precision-recall curve score > 0.99 when classifying QoL subgroups at 12 month follow-up, using only baseline data. CONCLUSIONS: This work demonstrates the existence of time-dependent QoL-based ACP subgroups that can be inferred at time-of-diagnosis via machine learning analyses of baseline survey responses. The ability to predict an ACP patient's QoL trajectory affords caregivers valuable information that can be leveraged to maximize that patient's psychosocial state and therefore improve overall therapy.

QOL-23. ASSESSING THE IMPACT OF METHYLPHENIDATE ON LATE COGNITIVE EFFECTS IN PAEDIATRIC BRAIN TUMOUR SURVIVORS: A SERVICE-BASED EVALUATION

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OBJECTIVE: One of the most disabling side effects of treatment in survivors of brain tumours is the resultant reduction in level of processing speed and attention. This study aimed to evaluate intellectual and psychological benefit of short-acting methylphenidate to survivors of brain tumour. METHODS: Paediatric BT patients attending a UK specialist treatment centre received assessment of cognitive performance. All patients identified with attentional difficulties were screened for contraindications to methylphenidate. Participants (N=23), mean age 11.09 years, completed a 6-month trial of methylphenidate. Measures of attention (Test of Everyday Attention for Children 2; SNAP-IV), side-effects (Stimulant Side-Effects Rating Scale), Health-Related Quality of Life (PEDS-QL), and experience of methylphenidate questionnaire (purpose-developed semi-structured questionnaire) were administered prior to medication and after six months. RESULTS: Participants showed improvement in selective attention (t(18)=-5.4, p=<.001, d=.93) and processing speed (t(16)=-3.0, p=.01) at follow up. Family ratings of attention were significant (t(17)=14.46, p<.001, d=-1.19). Change in subjective measures of Health-Related Quality of Life (HRQoL) was also statistically significant as reported by children (t(16)=3.91, p=.001, d=-.99), and on a parental-report measure of child HRQoL (t(15)=-8.19, p<.001, d=-1.09). HRQoL measures show improvement to physical, academic, and emotional domains as reported by participants. CONCLUSIONS: Paediatric BT survivors showed benefit from provision of methylphenidate in terms of reduced attentional and processing deficit, and in terms of emotional wellbeing. Treatment was well tolerated. Continued follow-up of the current participants in a longitudinal study aims to evidence longer-term benefit to participants.

QOL-24. DIFFERENTIAL IMPACT OF TUMOR LOCATION, LOCAL AND CRANIOSPINAL IRRADIATION ON NEUROPSYCHOLOGICAL LONG-TERM OUTCOME IN CHILDREN WITH MEDULLOBLASTOMA, EPENDYMOMA AND SUPRATENTORIAL PNET: A LONGITUDINAL MULTICENTER OUTCOME ASSESSMENT OF CHILDREN FROM THE HIT-2000 AND HIT-REZ TRIALS

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