approach in understanding and particularly predicting postoperative decline in EF in these patients, as our sample was characterized by large heterogeneity in cognitively relevant patient and tumor characteristics.

P01.11.A. PERIOPERATIVE EXECUTIVE FUNCTIONING IN PATIENTS WITH LOW-GRADE GliOMAs NEAR THE FRONTAL ASLANT TRACT

M. J. P. Landers1,2, E. Butterbrod2, W. De Baene2, M. M. Sitkoocoon,1 G. M. Rutten1

1 Elsbeth-TweeëdenSted Hospital, Tilburg, Netherlands, 2 Department of Cognitive Neuropsychology, Tilburg University, Tilburg, Netherlands.

BACKGROUND: A tract potentially involved in important executive cognitive processes is the frontal Aslant tract (FAT). In particular the FAT has been associated with executive functioning (EF). In neurosurgery, it remains unclear if patients with tumors near the FAT demonstrate impairments after resection. This study investigated whether low grade gliomas (LGG) that affect the core white matter and/or structural integrity of the FAT predict preoperative and 3 months postoperative EF, when controlled for tumor volume and the integrity of other nearby tracts (SLF II and SLF III). MATERIAL AND METHODS: Data was analyzed from patients with frontal and parietal LGG who underwent surgery between 2010-2021. Probabilistic tractography was performed prior to surgery to generate preoperative tract masks to the FAT, SLF II and SLF III. Care of the FAT was defined as the white matter between the seed and the target region. Average mean diffusivity for each tract was taken as a measure of structural integrity. EF was assessed one day before and 3 months post-surgery with the following tests: Stroop test, symbol digit coding test (SDC), shifting attention test (SAT), and letter fluency test (LFT). We performed linear mixed models and linear regression analyses to investigate the relationship between preoperative tumor overlap with the core of the FAT and EF integrity with pre- and post-surgical executive functioning performances. RESULTS: Nineteen-five patients were included (left tumor N=39, right tumor N=36). Mean pre-surgical Z-scores were within 0.5 standard deviation from a healthy control group for all tests, but with substantial variance between patients (Z-score range: -3.59 to 2.4). The results demonstrated that core overlap of the right FAT predicted poorer preoperative performance on the SAT (p<.01, β = -.473), Stroop (p<.01, β = -.519), and SDC (p<.01, β = -.519). Right or left core overlap did not significantly predict performance three months after surgery. FAT integrity did not predict EF performance in the corpus callosum, whereas SAT performance increased at three months post-surgical (p<.01, β = .694) when controlled for SLF II, III integrity and tumor volume. CONCLUSION: Although patients with frontal or parietal LGG showed no dysfunction on tests of EF before surgery on g-t level, they demonstrated large variability between patients. Tumor overlap with the core of the right FAT predicted worse presurgical EF performances, but not short-term post-surgical performances. Right FAT integrity predicted short-term post-surgical performance on cognitive flexibility. These results are in line with previous findings that the right FAT is involved in EF and indicate that preoperative FAT integrity might predict which patients will perform worse after surgery.

P01.12.B. ANALYSIS OF SEMI-SPONTANEOUS SPEECH BEFORE, DURING AND AFTER AWAKE CRANIOTOMY: A CASE STUDY

E. C. Guammers1,2, K. E. Collie1, A. J. P. E. Vincent1, E. M. Bos1, C. M. F. Driven1, S. K. Koelkooi1, E. Kruizinga1, D. D. Satoer1, M. J. F. Rutten1, M. D. L. Broekman1,1 Department of Neurosurgery, Erasmus MC- University Medical Center, Rotterdam, Netherlands, 2 Department of Neuroscience, Erasmus MC-University Medical Center, Rotterdam, Netherlands.

BACKGROUND The standard treatment for patients with eloquent gliomas is awake craniotomy (AC) with direct electrical stimulation, which is used to confirm our findings. Future exploration of both the acoustic analysis, which shows potential for real-time feedback, and the manual transcriptions, could possibly lead to a better understanding of intra- and postoperative language performance as a prognostic factor for long-term language outcome, with possible implications for language therapy.

P01.13.A. THE EFFECT OF MUSICALITY ON LANGUAGE RECOVERY AFTER AWARE GLIOMA SURGERY

F. P. Karpen1, J. van den Brink1, J. J. Leeke1, C. M. F. Driven1, M. Satoer1, M. J. F. Rutten1, R. D. S. Nandoe Tewarie1, M. L. D. Broekman1, A. J. P. E. Vincent1,1 Department of Neurosurgery, Erasmus Medical Center, Rotterdam, Netherlands, 2 Department of Neuroscience, Erasmus Medical Center, Rotterdam, Netherlands, 3 Department of Speech and Language Pathology, Haaglanden Medisch Centrum, the Hague, Netherlands, 4 Department of Neurosurgery, Haaglanden Medisch Centrum, the Hague, Netherlands, 5 Department of Speech and Language Pathology, Erasmus Medical Center, Rotterdam, Netherlands.

BACKGROUND: Awake craniotomy is used to resect tumor while preserving language functions in patients with tumours. However, differences between patients in post-operative speech/language outcome are observed despite careful intra-operative monitoring. Literature describes improved performance in language tasks during cognitive tests in musicians. Moreover increased white matter connectivity in the corpus callosum has been described as a predictor for a better language recovery. To our knowledge, no study has investigated the role of musicality in EF in these patients, as our sample was characterized by large heterogeneity. The patients’ musical skill was assessed through questionnaires, and divided in groups based on the Musical Expertise Criterion (MEC) which defines musicality based on the duration and intensity of musical training. Volume measures of the corpus callosum, SLF and FAT were calculated of each included patient based on the pre-operative structural MRI. RESULTS: Forty-six patients, enrolled between June 2015 and September 2019, were followed-up (mean/SD, 240/174 days after craniotomy) and divided in non-musician (41.3%, n = 19), amateur-musician (34.8%, n = 16) and trained-musician (23.9%, n = 11). Overall a decrease in language was observed after craniotomy (mean/SD) of -0.361/0.771. Musical abilities correlated with less decrease in language (mean/SD) when comparing non-musicians (-0.543/0.683) to amateur (-0.272/0.910) and trained (0.176/0.693) musicians. An increased but non-significant trend (p=0.28) between musicality and corpus callosum / brain ratio (mean/SD) was observed in non-musicians (0.763, 0.718; 0.808), amateur musicians (0.792, 0.745; 0.838) and trained musicians (0.835, 0.778; 0.861). CONCLUSION: Musicality seemed to improve language outcome after awake glioma surgery, possibly attributed to a higher white matter connectivity in the corpus callosum. Future studies with larger sample sizes are needed to confirm our findings.

P01.14.B. VISUOSPATIAL SELECTIVE ATTENTION DEFICIT AFTER RESECTION OF RIGHT HEMISPHERE GLIOMAS: A MULTIVARIATE LESION SYMPTOM MAPPING AND DIFFUSION TRACTOGRAPHY STUDY


BACKGROUND: The ability to select relevant information to current behavioural goals despite concomitant distractors (i.e. selective attention) is crucial for daily life. Despite the implication of frontal-parietal network in sustaining visuospatial selective attention has been considered crucial, the role...