investigate the role of 7T MRI in relation to EEG abnormalities. 7T RI findings show concordance with clinical data. 7T MRI did not reveal anatomical findings to account for EEG abnormalities, suggesting that such changes may be functional rather than anatomical.

P.128

Quantitative EEG Detects REM Sleep Microstructure
D Toutant (Winnipeg)*, M Ng (Winnipeg)

Background: Rapid eye movement sleep (REM) is divided into phasic and tonic microstates. Phasic REM is defined by presence of REMs with reportedly greater antiepileptic effect. We assessed whether quantitative EEG (QEEG) software can detect REM microstates. Methods: We applied artifact reduction and detection trends from QEEG software (Persyst 14) on 18 patients undergoing 30 day-night high density EEG recordings in the epilepsy monitoring unit. We identified phasic REM as 10-second epochs of previously human-scored REM that demonstrated presence of either vertical or horizontal eye movements on the QEEG artifact detection panel. Remaining epochs were identified as tonic REM. Results: Out of 91.2 average minutes of REM (range 24.5-167.5) per recording, a mean of 2.5% (range 0-18.9%) demonstrated presence of eye movements intensive enough for QEEG artifact detection to be identified as phasic REM. On average, only 40% (range 0-500%) of eye movements per recording was flagged as vertical. Conclusions: These findings provide proof-of-concept that QEEG can automatically assess REM microstructure by readily detecting phasic and tonic REM. These findings also confirm that most REMs are horizontal. Having the ability to easily and automatically detect phasic versus tonic REM can help further future studies examining the antiepileptic effect of REM sleep.

NEURO-ONCOLOGY

P.130

Clinical prognostic factors in adult intracranial ependymoma patients – A fifty year multi-institutional experience
JA Zuccato (Toronto)* O Algan (Oklahoma City) V Nair (Ottawa) T Gunter (Oklahoma City) CA Glenn (Oklahoma City) IF Dunn (Oklahoma City) K Fung (Oklahoma City) DB Shultz (Toronto) G Zadeh (Toronto) N Laperriere (Toronto), DS Tsang (Toronto)

Background: Standard of care treatment for adult intracranial ependymoma patients includes maximal safe surgical resection, while the role for adjuvant radiotherapy remains unclear with existing data from small retrospective series’. Accordingly, we built a multi-institutional cohort to assess the prognostic value of adjuvant radiotherapy and other clinical factors in these patients. Methods: Patients managed for adult intracranial ependymomas from 1968 onwards within the University Health Network in Toronto, The University of Oklahoma Health Sciences Center, and The Ottawa Hospital were identified. Multivariate models assessing the prognostic value of clinical factors were built using variables with known prognostic value and/or significance in univariate Cox models. Results: Of 122 ependymomas, 71% were infratentorial, 78% grade two, 55% gross/near-totally resected (GTR/NTR), and 65% treated with adjuvant radiotherapy. Multivariate analyses identified GTR/NTR (vs. subtotal resection; HR=0.2, 95%CI=0.1–0.4, p<0.0001) and cranial (HR=0.5, 95%CI=0.2–1.1) or cerebral (HR=0.2, 95%CI=0.04–0.5) radiotherapy receipt (p=0.01) as independent statistically significant predictors of more favourable PFS. Grade II pathology (vs. grade III; HR=0.2, 95%CI=0.05–0.6, p=0.006) and GTR/NTR (vs. subtotal resection; HR=0.1, 95%CI=0.03–0.3, p=0.001) were independent statistically significant predictors of better OS. Conclusions: This work confirms the importance of maximal safe resection for adult intracranial ependymomas and establishes that adjuvant radiotherapy improves progression-free survival in these patients.