come long after initial onset. Here, we sought to use a new technology we have previously validated for research – mobile electroencephalography (mEEG) – to measure brain function to see if we could rapidly detect differences in brain activity between people with and without MCI. Methods: Participants (60: mean age 65) were recruited for a control (30) and an MCI group (30). All participants were screened for MCI using standard RBANS and the MOCA assessments. Participants completed a standard n-Back assessment of working memory while mEEG data was recorded. A key feature here is that we used mEEG technology thus application of the device and the n-Back test was completed in under 10 minutes for each participant. Results: Our key finding is that we observed increased frontal mEEG theta power (brain oscillations between 4 and 7 Hz) for MCI participants relative to controls ($p < 0.001$). Conclusions: Importantly, our work demonstrates a potential novel rapid brain-based assessment for MCI that would afford earlier detection of disease onset.

Epilepsy and eeg

P.106

Impact of comorbid sleep disorders in patients with epilepsy on mortality risk

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Background: Pooled mortality has been observed to be almost threefold among people with epilepsy (PWE). Among PWE, epilepsy related deaths (including sudden death in epilepsy (SUDEP)), are commoner than other causes. Among these, around 16-36% are SUDEP, of which 80% events occur during sleep. SUDEP risk is most measured using the SUDEP Risk Inventory. To prevent SUDEP and reduce epilepsy related mortality, we need a better understanding, not only of the components of this screening inventory, but also additional clinical and neurophysiologic parameters that might be commoner among PWE and potentially associated with higher mortality risk. Methods: Patients diagnosed with active epilepsy over the last 3 years will form the study population, categorized into two groups: PWE with a comorbid sleep disorder, and PWE without diagnosis of a sleep disorder. Descriptive statistics will be used to report clinic and neurophysiologic characteristics of subjects enrolled. Results: We hypothesize that there is a significantly increased prevalence of sleep comorbidity among people with epilepsy compared to the general population. Poorer sleep quality could potentially have an association with higher mortality risk among epilepsy patients, Conclusions: We hope to identify and to add sleep factors such as primary sleep disorders and sleep disturbances to already established SUDEP-7 parameters.

MS/Neuroinflammatory Disease

P.107

Personalized prediction of future lesion activity and treatment effect in multiple sclerosis from baseline MRI

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Background: Precision medicine for multiple sclerosis (MS) involves choosing a treatment that best balances efficacy and disadvantages such as side effects, cost, and inconvenience, based on an individual's unique characteristics. Machine learning can be used to model the relationship between a baseline brain MRI and future new and enlarging T2 (NE-T2) lesion count to provide personalized treatment recommendations. Methods: We present a multi-head, deep neural network for making individualized treatment decisions from baseline MRI and clinical information which (a) predicts future NE-T2 lesion counts on multiple treatments and (b) estimates the conditional average treatment effect (CATE), as defined by the predicted suppression of NE-T2 lesions, between different treatment options and placebo. We validate our model on a dataset pertaining to 1817 patients from four randomized clinical trials. Results: Our model predicts favorable outcomes (< 3 NE-T2 at follow-up) with average precision 0.780-0.994 across 5 different treatment arms. It correctly identifies subgroups with different treatment effect sizes and provides treatment recommendations that improve lesion suppression while limiting the need for high efficacy treatments. Conclusions: Our framework provides accurate predictions for future NE-T2 lesion counts and personalized treatment recommendations that improve outcomes while accounting for the disadvantages of different treatment options.

P.108

Use of intravenous immunoglobulin for central nervous system disorders in British Columbia: consensus guidelines

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Background: Intravenous immunoglobulin (IVIG) may benefit many inflammatory central nervous system (CNS) disorders based on multiple immunomodulatory effects. IVIg is being used in inflammatory CNS conditions however robust evidence and guidelines are lacking in many disorders. Over the last 5 years,

the percentage of IVIg used for CNS indications within neurology almost doubled in British Columbia (BC), Canada. Clear local guidelines may guide rational use. Methods: Consensus guidelines for IVIG use for CNS indications were developed by a panel of subspecialty neurologists and the Provincial Blood Coordinating Office, informed by focused literature review. Guidelines were structured similarly to existing BC peripheral nervous system guidelines and Australian Consensus Guidelines. Utilization and efficacy will be monitored provincewide on an ongoing basis. Results: Categories of conditions for Conditionally Approved (N=11) and Exceptional Circumstance Use (N=5) were created based on level of evidence for efficacy. Dosing and monitoring recommendations were made and outcomes measures defined. Rationale for Not Indicated conditions (N=2) was included. Guidelines were distributed to BC neurologists for feedback. This system will be re-evaluated after 1 year. Conclusions: IVIG use in CNS inflammatory conditions has an emerging role. Guidelines for use and monitoring of outcomes will help improve resource utilization and provide further evidence regarding effectiveness.

Neuro-oncology

P.109

Isolated central nervous system lymphoma in the inpatient setting: a case series

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Background: Isolated central nervous system lymphomas (CNS-L) has non-specific clinical presentations causing delays in diagnosis and treatment. This retrospective case series aims to characterize these challenges in the inpatient setting. Methods: Chart review of biopsy-proven CNS-L cases (n=10) presenting to Vancouver General Hospital from 2018-2020: diffuse (8/10) and intravascular (2/10) large B-cell lymphomas were included. Results: Median age was 69 years (31-83); 50% were female; 9/10 immunocompetent, 1/10 had well-controlled HIV. Neurologic symptoms at presentation: ataxia (7/10), paresis (4/10), dysphagia (4/10), dysarthria (2/10), and cognitive decline (4/10). Median time from symptom onset to admission with paresis, ataxia, dysphagia, or dysarthria was 3 days (1-14), compared to 84 days (28-384) with transient/vague symptoms. Median time from admission to biopsy was 25 days (5-148). 4/10 received steroid prior to biopsy. 1/10 had solitary lesion on MRI, 8/10 had ≥2 lesions. Diagnosed on lumbar puncture (0/10), skin biopsy (1/10), vitreous biopsy (1/10), brain biopsy (8/10), autopsy (1/10). 4/10 survived, 6/10 died; median time from admission to mortality was 133 days (61-342). Conclusions: Many factors lead to delays in diagnosis and treatment of CNS-L, including non-specific clinical presentations and time to brain biopsy for definitive diagnosis. Earlier recognition and reducing biopsy delays may help achieve earlier diagnosis.

Neuroimaging

P.111

In vivo hippocampal mGluR5 abnormalities predict MTLE post-surgical outcome

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Background: PET imaging of [^{11}C]ABP688 shows reduced hippocampal mGluR5 availability in mesial temporal lobe epilepsy (MTLE) patients, however the relation with post-surgical outcomes is unclear. Here, we tested whether [^{11}C]ABP688 binding in hippocampal subfields vulnerable to glutamate excitotoxicity is related to post-surgical outcome. Methods: [^{11}C]ABP688-PET was obtained from 31 unilateral MTLE patients and 30 controls. Hippocampal subfields were automatically segmented into 1) CA1-3, 2) CA4/dentate gyrus (DG), 3) Subiculum and manually corrected. Partial volume corrected [^{11}C]ABP688 non-displaceable binding potential (BP_{ND}) was calculated in the subfields and compared between seizure-free and non-seizure-free patients. Results: [^{11}C]ABP688 BP_{ND} was significantly reduced in ipsilateral CA1-3 & CA4/DG ($p<0.001$) compared to controls. No difference was seen in Subiculum. Ipsilateral CA1-3 [^{11}C]ABP688 BP_{ND} was lower in seizure-free ($p=0.012$; Engel Ia, n=13) vs non-seizure- free (Engel Ic-III, n=10) patients, and this effect was independent of subfield volume. In a subset of patients with [^{18}F]FDG-PET, CA1-3 [^{11}C]ABP688 BP_{ND} was significantly lower in seizure-free patients ($p=0.03$), while no difference was found for [^{18}F]FDG uptake. Conclusions: Reduced CA1-3 mGluR5 availability was associated with post-surgical seizure-freedom independent of atrophy and hypometabolism. Thus, [^{11}C]ABP688-PET may offer a potential biomarker for surgical outcomes and may be particularly relevant for pre-surgical workup in MRI- and [^{18}F]FDG-negative MTLE patients.

Neuromuscular Disease and EMG

P.112

Clinical and Electrophysiological characteristics of anti-nodal/paranodal antibodies in chronic inflammatory demyelinating polyradiculoneuropathy patients

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Background: CIDP is an autoimmune polyneuropathy. Antibodies against the Node of Ranvier have been described, NF155, NF140/186 and contactin-1. Methods: A retrospective review of patients with CIDP who tested positive for antinodal/paranodal