ketogenic diet and vagal nerve stimulation. Treatment with anterior corpus callosotomy started to show improvements at 18-24 months after the procedure with less severe drop attacks. *Conclusions:* Corpus callosotomy usually works few months after surgery. This is a very atypical case in whom callosotomy had a delayed response. This is rarely reported and we do not have a clear explanation. Delayed re-organization of the pathways associated with the seizure initiation may be a potential explanation.

# P.016

## Understanding the natural history of adult temporal lobe epilepsy

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Temporal lobe epilepsy (TLE) is the most common type of epilepsy in adults. The literature in this field supports the notion than many patients become candidates for surgery and little is known about the group of patients who do not require surgical treatment. This is a retrospective cohort study that included all patients with TLE assessed and followed by the Saskatchewan Epilepsy Program since 2007. Mild course was defined as patients not having seizures, using or not AEDs at last follow up. Severe course of TLE was considered in patients with continuous seizures and patients who had epilepsy surgery. Descriptive statistics were used. OR and CI were calculated. One hundred and fifty nine patients were included. Age of patients at last follow up was 46.04 + 14.4 (range 19-88) years. Mean follow up of patients was 43.46+ 22.6 (6 to 84) months. Fourth six patients (29%) were seizure-free with AEDS (mild course TLE) and 113 (61%) had severe course of TLE. Patients with mild course of TLE were older (p 0.002), with a late onset of epilepsy ($p< 0.001$) and their epilepsy evolution was shorter ($p<0.001$). Our study shows that not all the patients with TLE require surgery and that a fair percentage of patients can be controlled with medication.

# P.017

## EEG in asymptomatic relatives of idiopathic epilepsy; a prospective study

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*Introduction:* The mainstay of diagnosis in Idiopathic Epilepsies (IE) is the electroencephalogram (EEG). The characteristic EEG of each syndrome is an electrographic endophenotype of the larger clinical phenotype of each and more directly associated with potential gene defects than the full phenotype. Endophenotypes represents primary abnormalities elicited by the gene defect, which, in some patients, blossom into full seizures. Revealing the percentage of abnormal EEGs in asymptomatic relative of patients with IE may help to describe the mode of inheritance that would help the ongoing genetics studies to discover the pathologic gene defect. *Method:* This is a prospective cohort study to identify the percentage of abnormal EEG in asymptomatic first-degree relatives of patients with IE *Results:* 20 out of 141 EEGs (14%) of first-degree relatives were abnormal. The abnormalities included generalized polyspikes and waves , generalized 3-Hz spike and waves or centro-temporal spikes in 50% of the abnormal EEGs. 50% of the abnormalities were nonspecific. *Conclusion:* These results may indicate that the EEG endophenotypes in IEs do not follow a Mendelian pattern of inheritance. Nevertheless, the EEG endophenotype is relatively common and thus genetically simpler than the full epilepsy, which will aid in gene identification

# P.018

## The term "epilepsy in the elderly" is conceptually irrelevant and needs to be replaced by an etiology-driven classification system in the aging brain

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*Objective:* "Epilepsy in the elderly (EE)" is considered a homogeneous, benign syndrome in patients aged > 60 years, with cerebrovascular disease as the most frequent etiology. We challenge this concept by comparing EE and middle-aged adults with epilepsy (MAE). *Methods:* We compared: 1) seizure dynamics, 2) MRI lesions, 3) EEG findings and 4) treatment course in EE and MAE at the Halifax First Seizure Clinic. *Results:* 48 EE patients aged > 60.2 years (median 66.9 years). 31 MAE patients aged 50.2 – 59.6 years (median 55.1 years). Seizure dynamics in EE/MAE included first seizure in 50/54.8%, new onset epilepsy (new seizures within 12 months) in 43.8/35.5%, newly diagnosed epilepsy (seizures for >> 12 months) in 9.6/6.3%. First seizure evolved into new onset epilepsy in 12.5/3.2%. MRI in EE/MAE was normal in 22.5/27.6% or showed microangiopathy (25/38.5%), atrophy (10/15.4%), tumors (7.5/11.5%), vascular malformations (7.5/3.8%), hippocampal pathologies (0/3.8%), infarcts (12.5/0%). EEG in EE/MAE was normal in 64.4/65.5% or showed diffuse (6.6/3.5%) or focal slowing (8.8/7%), generalized (4.3/13.7%) or focal (15.4/10.4%) epileptiform activity. At 12 months, 87% of EE and 93.8% of MAE were seizure-free. *Conclusions:* EE and MAE show similar heterogeneity. We propose an etiology-driven classification of epilepsy syndromes in the aging brain.

# P.019

## Progressive contralateral hippocampal atrophy following Temporal Lobe Epilepsy Surgery (TLS)

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*Background:* Temporal Lobe Epilepsy is associated with bilateral gray (GM) and white matter (WM) loss. After surgical treatment progressive bilateral temporal and extra-temporal WM change occur, however, less is known regarding post-operative GM change. We set out to measure contralateral hippocampal volume (CHV) following TLS. *Methods:* 1.5T-3D-1mm-isotropic-MPRAGE scans in 26 TLE patients and 3 controls in two groups: longitudinal (n=10)(imaged POD1,2,3,6,60,120 and >360d) and single post-operative scan (n=16). Manual volumetry protocols. *Results:* We find significant

CHV atrophy at delayed scan relative to baseline (mean atrophy 26.8%). In the longitudinal group there is significant and progressive atrophy from baseline to POD4-8 (72.6+/-6.5%), POD60-360 (69.7+/-12.3%) and >360 (58.5+/-10.6%). No significant atrophy in either the control group HV or contralateral CV over time. No significant difference in mean HV at the most delayed exam for surgery type (p=0.13) or side (p=0.24). *Conclusions:* We find a statistically significant CHV atrophy following surgery which is progressive over time. Our longitudinal within-subject design describes the time course and extent more fully than previous work. Caudate analysis indicates that early CHV atrophy is not due to global atrophy following brain surgery but rather may be due to deafferentation and deefferentation. Finally, we find no significant difference in atrophy when analyzed by surgical approach or surgical side.

# P.020

## Marijuana use in intractable epilepsy

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*Background:* In Canada, marijuana is legal for those with seizures. We determined the prevalence of marijuana use in intractable epilepsy patients and assessed the perceived effects. *Methods:* Information about marijuana use was collected over 12 months from consecutive adult patients admitted to an 8 bed Epilepsy Monitoring Unit using a 27 item self-administered questionnaire. Patients unable to understand and give consent for participation were excluded. *Results:* 215 of 310 patients median age 36 (interquartile range 27-49) years, 57% female had proven epilepsy. Median duration of seizures was 12 years (interquartile range 5-24) occurring daily or weekly in 47%. 37% of patients used marijuana over the previous year, 85% by smoking and 56% on a daily basis. Mean dose was 1 gm/day. Another 19% had used it previously. Use of cigarettes was 27%, alcohol, 40% and street drugs 2%. Seizure improvement was perceived by 91%, decreased stress by 99%, improved sleep by 98% and reduction in antiepileptic drug side effects by 88%. Minor adverse effects of marijuana occurred in 13% including seizures worse in 3%. *Conclusions:* Patients investigated for intractable epilepsy use marijuana more than the general population and perceive improved seizure control, lower stress, better sleep and reduced side effects from antiseizure drugs.

# P.021

## Contactin-associated protein 2 (Caspr2) antibodies associated with refractory temporal seizures, rapid cognitive decline, and emotional lability

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*Background:* Caspr2 is a transmembrane protein facilitating intercellular communication. It is found primarily in the central nervous system, specifically cerebellum and hippocampus. Anti-Caspr2 antibodies, more commonly seen in men (M/F: 4), also bind voltage-gated potassium channels. The antibodies are associated with limbic encephalitis, seizures, Morvan's syndrome, peripheral nerve hyperexcitability, and cerebellar ataxia. Malignancy exists in 20% of cases. *Methods:* Case report and review of literature. *Results:* A 71-year-old man presented with subacute onset refractory seizures failing several anti-convulsants, emotional lability, and rapid decline in memory and executive function. EEG showed an electrographic seizure over the left hemisphere. MRI brain demonstrated mild diffuse cerebral atrophy, chronic ischemic changes, and mild diffusion restriction in the medial frontal lobes. Cerebrospinal fluid was normal. Serum Antithyroid peroxidase and antithyroglobulin antibodies were negative. TSH was slightly elevated and eltroxin didn't help. Anti-Caspr2 antibodies were highly positive. EMG ruled out neuromyotonia. Body CT and PET scans indicated no malignancy. Treatment with IVIG stopped the seizures and cognition dramatically improved. *Conclusions:* Recognizing anti-Caspr2 antibody-associated encephalitis in elderly males with new onset refractory epilepsy and rapid cognitive decline is important for timely initiation of immunomodulation to avoid permanent deficits. Rapid executive dysfunction was unique in this case.

# P.022

## fMRI for language: how can it replace the Wada test?

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*Background:* The goal of our project is to assess the feasibility of replacing the invasive Wada test considered as the gold standard with non-invasive fMRI test for assessment of language dominance preoperatively. *Methods:* fMRI test with three language paradigm tasks (verb generation, sentence completion and naming) were conducted on our cohort of patients. fMRI laterality indices (LI) were then defined as a ratio (L-R)/(L+R) between the number of activated voxels in the left and right ROIs for Anterior Language Area (ALA) and Posterior Language Area (PLA). fMRI results were divided into the right (LI < -0.2), left (LI > 0.2) or bilateral (-0.2 < LI <0.2) hemispheric language dominance and compared to the results of the Wada test. *Results:* 28 patients were studied. The concordance rate between Wada and fMRI tests for the ALA and PLA was 68.2% and 52.2% for sentence completion; 56% and 52% for verb generation and 25% and 35% for naming paradigm, respectively. *Conclusions:* Sentence completion and verb generation fMRI paradigms showed higher concordance with Wada test than naming paradigm. The higher discordance between the Wada test and fMRI was related to bilateral results suggestive of less stringent thresholds used for either test.

# P.023

## Infraslow Status Epilepticus: A new form of subclinical status epilepticus recorded in a child with Sturge Weber Syndrome

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*Background:* Analysis of infraslow EEG activity (ISA) has shown potential in the evaluation of patients with epilepsy and in differentiating between focal and generalized epilepsies. The purpose of this report is to present a girl with Sturge-Weber Syndrome (SWS) who was identified to have infraslow status epilepticus (ISSE), which successfully resolved after Midazolam administration *Methods:* The continuous EEG recording of a 5-yr-old girl with known Structural