girl with newly-diagnosed GPA presented to our hospital with progressive debilitating headaches, polyuria, and polydipsia. **Results:** Initial MRI showed changes to the pituitary. Lumbar puncture (LP) revealed opening pressure of 26. She developed central diabetes insipidus (DI) and visual changes. Repeat head imaging showed adenohypophysitis. The GPA was previously treated with steroids and cyclophosphamide, followed by Cellcept. Once the pituitary involvement was discovered, she was given re-induction therapy with Rituximab and steroid dose was increased. DI is being treated with DDAVP. Her headaches are improving. **Conclusions:** CNS inflammatory diseases are rare in childhood. Pituitary involvement is extremely rare in GPA. Induction therapy for adults with GPA and pituitary involvement includes glucocorticoids and cyclophosphamide, which often leads to improvement of MRI abnormalities but is not effective in resolving pituitary dysfunction. Our patient had already received this treatment when she developed the CNS findings. This case demonstrates that cerebral involvement is often resistant to classic therapy, and one should be vigilant in looking for CNS inflammation in these patients.

# P.027

## Efficacy of a fourth alemtuzumab course in RRMS patients from CARE-MS II who experienced disease activity after three prior courses

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**Background:** In RRMS patients with inadequate response to prior therapy, 2 alemtuzumab courses (12 mg/day; baseline: 5 days; 12 months later: 3 days) significantly improved outcomes versus SC IFNB-1a over 2 years (CARE-MS II [NCT00548405]). Efficacy remained durable in a 4-year extension (NCT00930553); patients could receive as-needed alemtuzumab retreatment (≥12 months apart) for disease activity, or another disease-modifying therapy (DMT). Through Year 6, 88% remained on study; 50% received neither alemtuzumab retreatment nor another DMT; 16% received ≥4 courses; 3% received ≥5 courses. We evaluated Course 4 (C4) efficacy in patients receiving ≥4 courses. **Methods:** Annualized relapse rate (ARR); improved/stable Expanded Disability Status Scale (EDSS) score (versus baseline); 6-month confirmed disability improvement (CDI). 11% of patients met inclusion criteria: ≥4 courses within 60 months of baseline; no DMT. Those receiving C5 were censored at that time. **Results:** ARR decreased after C4 (12 months pre-C4 [-12M]: 0.75; 12 months post-C4 [+12M]: 0.19; $P<0.0001$), remaining low (0.23) at Year 3 post-C4. More patients had stable/improved EDSS scores +12M (67.5%) versus at C4 administration (53.5%). Percentage with CDI increased post-C4 (-12M: 10.0%; +12M: 26.7%). **Conclusions:** C4 reduced relapses and stabilized/improved disability in patients with disease activity after initial treatment (C1, C2) plus one additional course (C3).

# P.028

## Each revision of the McDonald diagnostic criteria for multiple sclerosis allow earlier diagnosis in more patients

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**Background:** The 2005, 2010, and 2017 McDonald diagnostic criteria for multiple sclerosis (MS) were compared at baseline in participants of a Canadian multicentre clinical trial of minocycline in clinically isolated syndrome (CIS). **Methods:** The cohort included 142 participants. Baseline clinical and imaging data were used to determine if participants met criteria for dissemination in space (DIS) and time (DIT) as required for each version of the criteria. We also explored the impact of permitting a clinical diagnosis of transverse myelitis to represent a spinal cord lesion, and for multifocal clinical onset to represent DIS. **Results:** The clinical trial excluded patients meeting the 2005 McDonald criteria at baseline. The 2010 criteria were met by 28.9% (41/142) of participants. If a multifocal clinical presentation was considered evidence of DIS 29.6% (42/142) met the 2010 criteria. The 2017 criteria were met by 36.7% (52/142). Allowing a clinical diagnosis of transverse myelitis to confirm a spinal lesion, or multifocal onset to confirm evidence of DIS, led to a diagnosis in 38% (54/142) and 38.7% (55/142), respectively. **Conclusions:** This study confirms that each revision of the McDonald diagnostic criteria allowed an MS diagnosis in more CIS patients at onset. Exploration of other modifications suggests further improvement may be possible.

# P.029

## Case report: pediatric enterovirus encephalitis - a rare complication of rituximab therapy

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**Background:** Opportunistic infection should be considered when seeing neurological complications in the setting of immunosuppression. Accumulating evidence that enteroviral meningoencephalitis can occur after rituximab administration exists but differentiating it from non-infectious conditions can be challenging. **Methods:** Case report **Results:** We describe a 4 year-old-boy with a history of pulmonary capillaritis, treated with immunosuppressive therapy including steroids, rituximab, and azathioprine. He developed mutism and ataxia after 18 months on rituximab. MRI Brain/Spine revealed extensive T2/FLAIR hyperintensities in the deep subcortical white matter, temporal lobes, globus pallidi, thalami, brainstem, and cerebellum; and swelling of the dorsal cervical cord, showing primarily grey matter involvement. IgG levels had a decreasing trend over the course of Rituximab. CSF, and subsequent brain biopsy, were both positive for enterovirus RNA by RT-PCR. He was thought to have enterovirus encephalitis secondary to rituximab therapy, and was treated with IVIG and fluoxetine. **Conclusions:** One should consider chronic opportunistic CNS infections in children treated with immunosuppressive therapy, and to consider chronic enterovirus infection when B-cell suppression has occurred. As rituximab is being increasingly used in the pediatric population, and is generally

thought to be safe, attention should be paid to any child with chronic neurological signs, particularly younger children who may be at higher risk for chronic enterovirus infection.

## P.030

### Clinical findings, immunotherapy and neuroimaging results in Pediatric Anti-NMDA Receptor Encephalitis

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**Background:** Anti-NMDAR Encephalitis is an autoimmune disease of children and adults which most often presents with subacute psychiatric disturbance or seizures, but includes a broad group of potential clinical manifestations. Routine neuroimaging, such as cerebral MRI, is often nonspecific or normal. **Methods:** This study reports a series of retrospectively reviewed pediatric patients with AntiNMDAR encephalitis with emphasis on the evolution of clinical features over time, cerebral MRI, 18-FDG Positron emission tomography (PET) findings, and post illness neurocognitive features. **Results:** Four cases of Antibody confirmed AntiNMDAR encephalitis were included, two male and two female, of a mean of 13 years of age. Patients had a mean of three symptom categories by presentation, though many of these were subtle, progressing to 6.5 by the end of the first month. MRI, CSF and EEG were abnormal for one, three and all patients, respectively. All patients had abnormal cerebral PET scans, and all displayed some temporal lobe hypermetabolism on either initial or repeat cerebral PET Scan. **Conclusions:** Anti-NMDAR encephalitis is a variable disorder with an evolving clinical presentation in children. Temporal hypermetabolism on cerebral PET may be a time dependent feature of the disorder.

## P.031

### A qualitative study of patient perspectives regarding the role of the neurologist in advanced Multiple Sclerosis

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**Background:** With few evidence-based disease-modifying therapies being available for patients with progressive multiple sclerosis (PMS), how can neurologists best care for their patients? Little is known about the perspectives of patients with respect to the role they would like their neurologist to play in their care. We hereby report an update to our abstract presented at the Canadian Neurological Sciences Federation's annual congress in 2016. **Methods:** Patients with PMS having an Expanded Disability Status Scale (EDSS) score of 6 or more were invited to participate. Semi-structured interviews were conducted with patients and their caregivers, and written questionnaires were completed by all participants. Collected data was subjected to thematic coding. **Results:** We have now interviewed a total of 18 patients (compared to 10 in 2016) and have reached thematic saturation. The majority of patients identified the neurologist as a useful figure in their care. Three main reasons were identified: (1) The neurologist provides information about new research and therapies (2) The neurologist educates patients about their disease and available services (3) The neurologist is viewed as an important supportive figure. **Conclusions:** Despite a lack of disease-modifying treatments for progressive multiple sclerosis, patients with PMS view the neurologist as an essential provider of care.

# Neuro-oncology

## P.032

### Cavernous sinus masses: An unusual case and review of the literature

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**Background:** We present a 67-year-old male with a two-week history of progressive double vision. Past medical history included oropharyngeal SCC, T4N2cM0, post-CCRT, and remote sarcoidosis. Clinically, the patient had multiple cranial nerve palsies affecting bilateral occular motor function. Neuroimaging showed an enhancing mass involving the sella and cavernous sinuses. Whole-body PET showed FDG-avid lesions in the sella and liver. Transsphenoidal biopsy of the sellar mass was obtained for tissue diagnosis. **Methods:** Details of the case were obtained from the patient's EMR. Neuroimaging and neuropathology were reviewed with the appropriate subspecialists. A literature search was performed using multiple databases (PubMed, Web-of-Science) and relevant articles were included for review. **Results:** Sellar mass biopsy confirmed p16+ve SCC, identical to the patient's known primary malignancy. On review of enhanced skull-base images, there was no evidence of direct tumor extension, favouring hematogenous spread. **Conclusions:** This case demonstrates the localizing potential of cavernous sinus masses. SCC metastases to the cavernous sinus are rare, and confer a poor prognosis.The presence of a p16 mutation has public health implications, as this mutation demonstrates more frequent and aggressive distant metastatic potential, and as a surrogate marker for high-risk HPV infection, represents a preventable risk-factor for a rapidly increasing cause of head and neck cancer in the Western world.

## P.033

### Biopsy versus subtotal versus gross total resection in patients with low-grade glioma: a systematic review and meta-analysis

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**Background:** The role of extent of surgical resection (EOR) on clinical outcomes in patients with low-grade glioma requires further examination. **Methods:** We systematically searched MEDLINE, Embase, and the Cochrane Library for studies published between January 1, 1990 and January 5, 2018 on predefined patient outcomes regarding different EOR of low-grade glioma. **Results:** Our literature search yielded 60 studies including 13,289 patients. Pooled estimates of overall survival showed an increase from 3.79 years (95% CI, 2.37–5.22) in the biopsy group to 6.68 years (95% CI, 4.19–9.16) in