P.023

Utility of neurophysiological evaluation in movement disorders clinical practice

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Background: Quantitative and objective neurophysiological assessment can help to define the predominant phenomenology and provide diagnoses with prognostic and therapeutic implications. We evaluated retrospectively the indications and final diagnoses of movement disorder neurophysiological evaluations in a specialized movement disorders centre. Methods: Reports from 2003 to 11/2021 were reviewed. The indications were classified according to predominant phenomenology, and the diagnosis of each study was categorized in subgroups of each phenomenology. Results: A total of 525 reports were evaluated. The mean age of patients was 51 years (range 5 – 89 years), and 50% were women. The most common indication was functional movement disorders (33%), followed by jerky movements (25%), tremor (20%), unsteadiness (6%), stiff person syndrome (4%), and other less common indications (12%). The most prevalent diagnoses were functional movement disorder (37%), followed by tremor (28%), comprising of essential (6%), dystonic (5%), cerebellar (4%), parkinsonian (3%) and other types of tremors (10%); and myoclonus (21%), including cortical (8%), subcortical (3%) and undefined (10%) types. Conclusions: This 17-year experience showed that neurophysiological testing can help in the diagnosis of movement disorders. More standardized techniques will encourage the widespread use of neurophysiology to evaluate movement disorders.

MS/Neuroinflammatory Disease

P.024

The influence of disease modifying therapies on short-term disease progression in a cohort of relapsing-remitting multiple sclerosis patients in Newfoundland and Labrador

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Background: Multiple sclerosis (MS) is an immune-mediated demyelinating disease of the central nervous system accompanied by chronic inflammation and neurodegeneration. An unmet clinical need in the management of MS is how to select an initial disease modifying therapy (DMT). Real-world evidence suggests that early aggressive control with high-efficacy medications results in better long-term prognosis. Methods: This retrospective study was conducted at Memorial University using Relapsing Remitting MS (RRMS) patients enrolled in the HITMS study. Analysis included study participants aged 18+ with RRMS and three years of clinical visits. Disability progression was measured by the Expanded Disability Status Scale (EDSS) and defined as a change of ≥ 1.0. Study subjects were categorized according to DMT at their initial visit. Results: In this cohort, 87 participants met the inclusion criteria; 67 were stable and 20 had disability progression. There was no significant difference in disability progression based on DMT regimen, and age, sex, and disease duration did not affect disability progression. Conclusions: Despite evidence that all RRMS patients go on a DMT, our cohort demonstrated a significant proportion remain DMT naive. Furthermore, the selection of DMT in this cohort appears to be appropriate, as there were no obvious differences in disability progression regardless of DMT.

P.026

Autoimmune encephalitis: modifiable and non-modifiable predictors of relapse

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Background: Approximately 25% of encephalitis cases in North America are immune mediated. For most forms of autoimmune encephalitis (AIE), risk of relapse is unclear and little evidence exists to guide which patients have the highest risk and whether standard treatments reduce this risk. Our objective was to determine the factors associated with AIE relapse. Methods: We performed a chart review consisting of patients with AIE presenting to the Calgary Neuro-Immunology Clinic and Tom Baker Cancer Centre between 2015 and 2020. Predictors of relapse were determined with use of t-test. Results: Outcome data was assessable in 39/40 patients, 17/39 (44%) patients relapsed. Seropositive patients and those with abnormal CSF were more likely to relapse, although neither reached statistical significance (p=0.12, 0.059). Patients with longer duration of steroid and steroid sparing treatment prior to relapse, and those on steroids at the time of relapse, had milder relapses (p=0.024, 0.026, 0.047). There was no difference in steroid or steroid sparing treatment use at 3, 6, and 12 months between groups. Conclusions: Risk of relapse in AIE is high (44%), with most relapses occurring in the first 3 years. Continuous immunosuppression lessens the severity of relapse, although our study did not confirm it reduced the occurrence of relapse.

P.027

Multiple Sclerosis Self-reflective Treatment Evaluation Program (MS-STEP): alignment of current practices to the 2020 Canadian MS Working Group recommendations

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Background: New Canadian treatment optimization recommendations (TOR) were released in 2020 to guide clinicians on the optimal use of disease modifying treatments (DMTs). The alignment of current practices to TOR was investigated to identify potential areas for improvement in patient care. Methods: From January–July 2021, a chart audit of 160 patients was conducted by a sample of Canadian neurologists. Patient selection criteria included adult patients with relapsing-remitting MS, who had been switched from an initial DMT. Results: In alignment with TOR, most patients received a platform therapy

initially (89%; n=143) and suboptimal efficacy response (MRI changes, relapses, disability progression) was the most common trigger for switching treatment. Furthermore, the expanded disability status scale was used in 94% (n=151) of cases during clinical assessment. In some instances, neurologists did not adhere to TOR. Only 10% (n=16) of patients were tested for cognitive function and over half (58%; n=93) did not receive gadolinium contrast at re-baseline MRI. Major criteria for switching therapies based on relapse rate, severity/recovery, or MRI were not followed in (n=4; n=27; n=7) patients respectively. Conclusions: Canadian neurologists are generally aligned with recent TOR for MS. However, they are not switching nearly as often or as early as per TOR criteria.

P.028

Eye movement biomarkers for early detection of multiple sclerosis disease progression

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Background: There is growing body of evidence linking abnormal eye movements in people with multiple sclerosis (MS) to disease severity and cognition which could better detect disease progression. The objective of this study is to determine if a novel eye-tracking tool can accurately predict disease severity and cognitive status based on eye movement metrics and characterize how they evolve with progression. Methods: Persons with MS (n=132) will be followed over 4 years with clinical assessments every 6 months. Eye movements are also assessed while performing oculomotor tasks using Innodem Neurosciences' patented eye-tracking technology. The eye movement metrics will be inputted into machine learning classifying algorithms to identify which metrics can serve as reliable Eye Movement Biomarkers (EMB) for MS progression and cognitive status. Results: There were 16 participants recruited as of January 2022 with mean age 47. 3 (SD 10.4; range 26-67), gender (12F/4M), EDSS 2.59 (SD 1.49; range 1.5-6.5), SDMT 51.4 (SD 14.1, range 24-78). With current enrollment, there is a negative correlation between EDSS and SDMT (r = -0.47) as observed in the literature. Conclusions: This trial will demonstrate the utility of EMBs for monitoring MS progression by improving physicians' access to a reliable, non-invasive, sensitive and accessible marker of disease progression.

P.029

Assessing disability in MS during the COVID-19 pandemic: correlation between PDDS and EDSS scores obtained before and after virtual assessments

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Background: Public health measures during the COVID-19 pandemic resulted in many multiple sclerosis (MS) patients being assessed virtually. Expanded Disability Status Scale (EDSS) scores, which are routinely obtained during MS consults, cannot be reliably calculated during virtual assessments. The Patient Determined Disease Steps (PDDS) is a validated patient-reported outcome measure of disability in MS. This study aimed to find real world evidence for the validity of PDDS as a surrogate of EDSS. Methods: Chart review of all MS patients from the MS Clinic in Saskatoon, Saskatchewan who completed PDDS forms emailed to them prior to their virtual visit (N = 277) was performed. 97 (35%) had documented EDSS scores prior to and following their self-reported PDDS. Correlational analysis between PDDS scores and pre and post EDSS scores was performed. Results: PDDS scores were highly correlated with EDSS scores before ($r(95) = .79$, $p < .001$) and after ($r(95) = .84$, $p < .001$) clinic closure occurred. Conclusions: This study provides real-world evidence that PDDS can accurately assess disability in MS when in-person assessments are not possible. Further investigation into patient demographics that increase the likelihood of completing PDDS assessments prior to appointments at our centre is ongoing.

P.030

Association between multiple sclerosis and seizures: a systematic review and meta-analysis

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Background: Although seizures are a well-recognized phenomena in patients with multiple sclerosis (MS) with many observational studies reporting its prevalence and incidence, the relative risk of seizures or epilepsy in adults with MS compared to those without is not well-described. Methods: We systematically searched MEDLINE and Embase, from their inception to January 1, 2022, using keywords and database-specific terms. We included observational studies that reported risk of seizures or epilepsy in adults with MS and that in a comparison group, consisting of people without MS or the general population. We used a random-effects meta-analysis to report a pooled adjusted risk ratio (RR) of seizures in adults with MS compared to the comparison group. Results: We screened 8,750 articles and included 17 studies, totaling over 192,850 adults with MS of which 6064 (3.1%) had seizures. Compared to a comparison group, the pooled adjusted RR of seizures in adults with MS was 2.86 (95% CI, 2.35-3.47, $I^2 = 95.8\%$). Conclusions: MS should be considered an independent risk factor for seizures or epilepsy. Further research should help identify patients with MS who are at risk of seizures, to improve screening and treatment and in turn reduce the burden of epilepsy in this population.

P.031

Access to immunoglobulin treatment for CIDP patients during the COVID-19 pandemic

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Background: Immunoglobulin supplies are limited; we aimed to determine if the COVID-19 pandemic was associated with