P.011

Measuring cord blood b cells in neonates with possible exposure in utero to Anti-B cell therapies

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Background: The increasing use of anti-B cell therapies in managing multiple sclerosis(MS) around the time of conception has raised important considerations for neonates exposed in utero. International recommendations suggest assessing neonatal B cell count in potentially exposed neonates. Practical implementation of cord blood collection at birth requires coordinated care across specialties, including paediatric haematology, neurology and obstetrics. Methods: This workshop, scheduled for 01/30/2025, will address clinical and logistical challenges of neonatal B cell assessments following in utero exposure to anti-B cell therapies. Presentations by MS pregnancy specialists from Toronto,Ontario, will be complemented by collaborative problem-solving among participants, including a paediatric haematologist, MS neurologists, obstetricians, paediatricians, and a quality specialist. A patient with lived experience will contribute to discussions. Results: The workshop will develop a care pathway for cord blood B cell testing, optimizing vaccine scheduling at London Health Sciences Center (LHSC) in London Ontario. Outcomes will include enhanced multidisciplinary collaboration, participant feedback, development of a practical clinical care plan for B cell collection and interpretation and measures of the pathway's impact on patient satisfaction and clinical decisions. Conclusions: This initiative will improve care for mothers and neonates exposed to anti-B cell therapies, addressing critical gaps in clinical practice through collaboration and a standardized approach.

P.012

Myelin water imaging in Anti-NMDA receptor autoimmune encephalitis; a pilot study

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Background: This study explored whether Myelin Water imaging could detect myelin injury in Anti-NMDA receptor autoimmune encephalitis (NMDAr-AIE), where traditional neuroimaging is often normal. Myelin Water Fraction (MWF) quantifies myelin content by distinguishing myelin sheath water from other brain water compartments. Methods: Adult participants with confirmed NMDAr-AIE diagnoses and healthy controls (HC) underwent 3T brain MRI including MWF mapping. Participants were recruited after discharge from the hospital. Mean MWF was calculated for 4 white matter regions of interest (ROI). Patient demographics, clinical assessments, treatment, and outcomes were collected. Results: Five participants with NMDAr-AIE (4F/1M, mean age 30, SD 7) and four HC (3F/1M, mean age 36, SD 6) were included. All NMDAr-AIE participants had normal or non-specific T2 hyperintensities on initial imaging and had received immunotherapy. The mean Modified Rankin Score (MRS) on discharge was 2. MWF (mean ± SD) for normal-appearing white matter, corpus callosum, corticospinal tract, and superior longitudinal fasciculus were 0.10±0.02, 0.12±0.02, 0.15±0.03, 0.12±0.02, which were very similar to HC at 0.09±0.02, 0.11±0.01, 0.15±0.02, and 0.11 ±0.02, respectively. Conclusions: Myelin Water imaging showed no myelin pathology in five NMDAr-AIE patients, with MWF values comparable to HC. This suggests that myelin pathways are relatively preserved post-recovery from AIE.

P.013

Psychosocial Impact of COVID-19 pandemic among Omanis with Multiple Sclerosis: a single tertiary center experience

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Background: The COVID-19 pandemic posed significant challenges for people with multiple sclerosis (PwMS) in Oman, including heightened stress, treatment disruptions, and risks associated with immunosuppressive therapies. This study aimed to evaluate the pandemic's impact on MS management, COVID-19 incidence and outcomes, psychosocial and mental health effects, and demographic and clinical predictors influencing these outcomes among Omani PwMS. Methods: In this cross-sectional study conducted from January to April 2021, 104 PwMS aged 18–60 participated in structured interviews and completed the Expanded Disability Status Scale (EDSS) and the World Health Organization Well-being Index (WHO-5). Clinical data on relapse rates, disease-modifying therapies (DMTs), and treatment adherence were analyzed using descriptive and inferential statistics. Results: Of the participants, 76 (73.1%) were female, and 23 (22.1%) reported contracting COVID-19, with fatigue being the most common symptom (87%). Female sex ($p = 0.042$), younger age (18–34 vs. 35–45 years; $p = 0.014$), COVID-19 diagnosis ($p = 0.037$), and lower mental well-being scores ($p = 0.021$) were strongly associated with COVID-19-related effects. Conclusions: Key predictors of self-reported COVID-19 effects in Omani PwMS were a confirmed diagnosis, female sex, younger age, and lower mental well-being. These findings highlight the need for exploration of mental resilience in this group and interventions during crises.

P.014

Decision-making in the use of corticosteroids for treating multiple sclerosis relapses: a retrospective study from a single Canadian center

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Background: Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system characterized by acute attacks. High-dose steroids (HDS) are the primary treatment, with no significant differences between oral and intravenous (IV)

routes. However, factors influencing route selection and attack characteristics leading to treatment remain unclear. This study assesses trends in oral vs. IV HDS use, factors affecting decisions, and clinical impact. Methods: We retrospectively analyzed data from the Multiple Sclerosis database (MuSicaL) using Natural Language Processing (NLP) from 2010–2022. We examined annual trends in HDS route, its relationship with attack type, and prescribing specialties. Statistical analyses were conducted using R-4.2.2. Results: Of 2,413 individuals meeting inclusion criteria, 1,086 had an attack, and 543 (50%) used HDS. Among 265 with a known route, oral HDS was most common, and HDS use declined after 2018. Attack type significantly influenced HDS route ($p = 0.045$), with IV use highest in multifocal subtype (50.9%) and lowest in myelitis (32.7%). Neurologists were the primary prescribers of IV HDS. Conclusions: Our results indicate a trend towards increased oral HDS use, with IV reserved for severe attacks like multifocal ones. Attack type influences treatment choices, and neurologists remain key prescribers of IV HDS, guiding future treatment strategies.

P.015

Analysis of Aquaporin-4 and Myelin Oligodendrocyte Glycoprotein Autoantibodies using live cell-based assay in a reference laboratory with over 6,000 tests

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Background: Accurate aquaporin-4 (AQP4) and Myelin Oligodendrocyte Glycoprotein (MOG) assays are essential for effectively diagnosing neuromyelitis Optica spectrum disorder and MOG antibody-associated disease. The Live Cell-Based Assay (L-CBA) is the gold standard laboratory test for detecting these antibodies. We studied the profiles of these antibodies, in samples of patients with relevant neurological conditions. Methods: Between January 2021 and December 2024, a total of 6673 samples of serum and/ or CSF were tested at BC Neuroimmunology Lab, Vancouver. We performed in-house L-CBA for the AQP4 and MOG Abs identification. We analyzed the demographics and characteristics of the positive Abs results. Results: We identified 7.8% positive results for anti-MOG and 2.7% for anti-AQP4 antibodies. Both antibodies were more frequent in females (AQP4: 76.9%, MOG: 65.1%). The average age of patients was 49.2 ± 18.8 years, ranging from 9 to 88 years for AQP4 antibodies, and 40.9 ± 19.5 years, ranging from 10 months to 89 years for MOG antibodies. Conclusions: Both anti-MOG and anti-AQP4 Abs are prevalent in females. Moreover, anti-MOG Abs are present across a wider age range from infancy to the elderly, and anti-AQP4 Abs are typically found in later ages, between 10 and 90 years.

P.016

Secondary immunodeficiencies in ocrelizumab - versus rituximab-treated persons with relapsing Multiple Sclerosis

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Background: Anti-CD20 monoclonal antibodies are highly effective for RMS treatment. Ocrelizumab (OCR) is standard, while Rituximab (RTX) is an alternative. The impact of anti-CD20 therapies on immune markers remains understudied, though deficiencies are frequently observed and have been associated with increased risk of infection. Our objective is to characterize and compare lymphocyte, neutrophil, and immunoglobulin levels in OCR- versus RTX-treated persons with RMS. Methods: This retrospective chart review included RMS patients on OCR or RTX (2017–2023). Pre- and post-treatment levels of lymphocytes, neutrophils, and immunoglobulins (IgG, IgA, IgM) were analyzed. Kaplan-Meier curves, log-rank tests, and Cox proportional hazards models were used for survival analysis. Results: 350 patients (OCR=175, RTX=175) were included. The mean treatment length was 60.9 (SD 19.1) months for OCR and 42.7 (SD 19.5) months for RTX. RTX was associated with a significantly shorter time to IgM deficiency (29.6 vs. 40.0 months, p=0.02). Cox analysis confirmed RTX increased IgM deficiency risk (HR=1.54, 95% CI: 1.06-2.23, p=0.02). No differences were seen for lymphocytes, neutrophils, IgG, or IgA. Conclusions: RTX was associated with a shorter time to and increased risk of IgM hypogammaglobulinemia compared to OCR, highlighting the importance of long-term monitoring. Further research is needed to guide treatment decisions.

P.017

EBNA1 titres are elevated in radiologically isolated syndrome and correlate with plasma GFAP

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Background: Epstein-Barr virus (EBV) infection is believed to be a critical prerequisite for the development of multiple sclerosis (MS). This study aims to investigate whether anti-EBV titres are elevated before the onset of MS symptoms in people with