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IMMUNOADSORPTION, THERAPEUTIC PLASMA EXCHANGE AND PREGNANCY IN WOMEN WITH MULTIPLE SCLEROSIS – A CASE SERIES FROM GERMANY

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Objectives The aim of this study was to assess pregnancy outcomes and disease activity after apheresis in women with multiple sclerosis (MS).

Methods Women who relapsed during pregnancy and received apheresis, documented in the German Multiple Sclerosis and Pregnancy Registry (DMSKW) are presented. Pregnancy outcomes and disease course were captured with a standardized questionnaire in regular telephone interviews during pregnancy and post-partum. Relapse, treatment data and EDSS-values were verified by treating physicians.

Results In 28 pregnancies 15(53.6%) women received immunoadsorption, 8(28.6%) received therapeutic plasma exchange and 5(18%) received both on separate occasions due to severe relapses, with a median(range) EDSS of 4(1.5–9.5) during relapse. The median (range) number of apheresis cycles was 5(2–8). Most women (92.86%) received corticosteroids prior to apheresis with a mean(SD) of 1950mg(375mg). 28 live-births with 2(7.4%) congenital malformations were reported, transposition of the great arteries and hip dysplasia. 3(10.7%) SGA births were reported and 6(21.4%) babies were born prematurely. The mean(SD) birthweight was 2688g (792.2g) and excluding pre-term births, 3006g(514.1g).

Conclusion Women with severe relapses receiving a combination of corticosteroids and apheresis during pregnancy have a higher risk for preterm birth and reduced birthweight. Our data add useful information on pregnancy outcomes after treatment with apheresis during pregnancy, however is limited by the small sample size. Also, concurrent corticosteroid exposure is a possible confounding factor, which will be investigated in further analysis. Women with highly active MS should be counselled and plan their pregnancy beforehand.

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SPECIALIST COGNITIVE MANAGEMENT IN A MULTIPLE SCLEROSIS AND NEUROIMMUNOLOGY CLINIC

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Objectives The Royal Melbourne Hospital newly hosts a dedicated cognition clinic for patients with multiple sclerosis (MS) and other neuroimmunological disorders. An audit of the cognitive unit was conducted following the first eighteen months of service operation to describe the approach and practice of

cognitive diagnosis and to characterize the first cohort of patients to receive care.

Methods Medical records of all patients referred to the unit were reviewed for patient diagnosis, basis of cognitive referral, psychometric profile, and management outcomes. Cognitive dysfunction was determined using the Brief International Cognitive Assessment for MS (BICAMS) with scores less than 1.5SD below the mean considered impaired.

Results The clinic serviced patients across cognitive, neurological, psychological and functional referral points. Of 127 patients seen, 104 had MS. 37%, 11% and 2% of MS patients were impaired on at least 1, 2 or 3 subtests of BICAMS, respectively. Recommendations for patient management frequently included referral for clinical psychology (38%), further neuropsychological management (13%) or psychiatric opinion (7%), as well as other interventional strategies for fatigue and pain.

Conclusion Consistent with the MS scientific literature, cognitive impairment was heterogenous in the cohort. The rate of diagnosed cognitive impairment, however, diverges from published prevalence estimates. This unique sample of patients referred to the Royal Melbourne Hospital Multiple Sclerosis Centre Cognitive Unit provides a new window to the MS patient, outside parameters set for recruited research samples. The high service demand from both patients and clinicians alike demonstrates the need for specialist MS and neuroimmunological cognitive opinion.

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GNE MYOPATHY WITH A NOVEL LIKELY PATHOGENIC GENETIC VARIANT

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Background GNE myopathy is a rare autosomal recessive disease caused by mutation in the GNE gene, also known as quadriceps sparing myopathy or hereditary inclusion body myopathy. The estimated worldwide prevalence is 1/1000,000. There are over 150 mutations known to be causative for GNE myopathy. We describe a case of GNE myopathy with compound heterozygosity for one pathogenic and one novel, likely pathogenic variant in the GNE gene.

Case Report A 32-year-old previously healthy woman of Indian descent was referred to our clinic with progressively worsening waddling gait and weakness in her hands. She was uncertain about where her weakness started first and she had no significant family history. On examination, she had weakness of finger flexion, thumb abduction, hip flexion, knee flexion and ankle dorsiflexion with decreased reflexes and normal sensation. Muscle biopsy suggested hereditary inclusion body myopathy and it was confirmed by neuromuscular panel showing heterozygous C.2179G>A (12p.val727Met); C.1368C>A (7p.Ser456Arg) in the GNE gene. She was referred to orthopaedics for foot splints, physiotherapy for muscle strengthening and occupational therapy for impaired hand function. Her condition remained stable at present.

Conclusion GNE myopathy is a rare distal myopathy due to variants in GNE gene. While C.2179G>A being a common variant in Indian population, C.1368C>A is a novel variant likely causative for the disease. Currently there is no disease modifying therapy and management is centred around

supportive therapies to improve quality of life. The understanding of genetic variants and associated pathology may provide a revenue to disease modifying therapies.

2382 AN AUSTRALIAN CASE OF CASPR2 POSITIVE, MORVAN SYNDROME

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Introduction Morvan syndrome is a rare neurological disorder consisting of a combination of neuromyotonia with cognitive symptoms and dysautonomia or insomnia. It is associated with antibodies against the voltage-gated potassium channel (VGKC) associated proteins – most commonly, against CASPR2.

Case A 74-year-old male presented with six-months of worsening psychobehavioural changes, insomnia, amnesia, and neuromyotonia. At presentation, he complained of visual hallucinations and unsteadiness of gait. He subsequently developed urinary retention, labile blood pressure and atrial fibrillation. Neurologic examination revealed disorientation to time and place, dysarthria, diffuse hyperreflexia, and multifocal fasciculations.

Brain and whole cord MRI with contrast, was unremarkable. EEG showed moderate encephalopathy. CSF findings were unremarkable. Paraneoplastic antibodies and infectious and vasculitis screens were normal; malignancy was not found despite extensive investigation.

In serum, CASPR2-antibody was strongly positive, titre of 535pM, and also weakly positive for LGI1. Nerve conduction studies and electromyography showed post-CMAP after-discharges, and myokymia respectively. Overall, the study was suggestive of peripheral nerve hyper-excitability.

He was induced with intravenous immunoglobulins and pulsed with, and maintained, on steroids. He had excellent clinical response – his modified Rankin score improved from 4 to 1.

Conclusion Antibodies against the VGKC-complex proteins, most commonly CASPR-2, are associated with a wide spectrum of clinical diseases, often associated with an underlying malignancy. Morvan syndrome is one such rare and treatable manifestation. Awareness of this constellation of symptoms and consideration of prolonged clinical course are crucial in early diagnosis and prompt immunotherapy, or tumour therapy. Improvement can be pronounced, though relapse may occur.

2383 DOES SURGICAL CORRECTION OF REFRACTIVE ERROR ALLEVIATE HEADACHE IN PATIENTS WITH KERATOCONUS? – A RETROSPECTIVE ANALYSIS

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Objectives Refractive error has long been thought to be a cause for headache, however, historical research on this topic has major methodical limitations.

Often, patients with different headache types were examined together, making any direct conclusion between refractive error and headache difficult.

We investigate if surgical correction of refractive error with Topography Guided Photorefractive Keratectomy (TGPRK) and Collagen Cross Linking (CXL) alleviates headache in patients with keratoconus in an appropriately classified patient population, guided by the International Classification of Headache Disorders (ICHD-3).

Methods 40 patients who had keratoconus and required TGPRK and CXL met inclusion criteria.

Patients who met diagnostic criteria for headache as defined by the ICHD-3 were asked about the nature of their headaches and impact on quality of life by means of the Head Impact Score (HIT-6) questionnaire, both pre-operatively and post-operatively.

Results 24 of 40 patients reported headache pre-operatively.

Post-operatively, only 9 patients had diagnosable headaches ($p < 0.05$).

The mean number of headache days per week decreased from 4.38 ± 2.37 days/week to 0.46 ± 0.72 days/week ($p < 0.05$).

The mean duration of headache decreased from 10.8 ± 100.7 to 34.4 ± 63.5 minutes ($p < 0.05$).

The consumption of analgesia decreased from 2.42 ± 2.34 days/week to 0.56 ± 1.16 days/week ($p < 0.05$).

Post-operatively, HIT-6 scores decreased significantly. 61% of patients stopped analgesia altogether.

Conclusion Surgical correction of refractive error in patients with keratoconus can alleviate headache in a large proportion of cases, significantly improving quality of life.

It may be that the surgical treatment of keratoconus should be considered in patients as part of their headache management.

2385 META-ANALYSIS OF THE HEAD IMPULSE TEST (HIT) AND HEAD IMPULSE TEST, NYSTAGMUS, TEST OF SKEW (HINT) IN THE DIAGNOSIS OF STROKE AND PERIPHERAL VERTIGO

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Objectives We conducted a meta-analysis of the HIT and HINT tests to diagnose peripheral vertigo (PV) and central vertigo in the emergency department (ED).

Methods Pubmed, Google Scholar, EmBase and articles references published in English up to July 2021 were searched for keywords 'vertigo' or 'acute vestibular syndrome' or 'dizziness' and 'head impulse' and 'stroke'. Bivariate method for meta-analysis was used.

Results 11 studies HIT (8 studies, N = 417) and HINT (6 studies, N = 405). HIT and HINT were performed within 24 hours in 4 of 11 studies. Positive likelihood ratio (PLR) and negative likelihood ratio (NLR) for HIT in PV was 4.85 (95% CI 2.83 – 8.08) and 0.19 (95% CI 0.12 – 0.29, I²63.25%) respectively. The (area under the curve) AUC for HIT the diagnosis of PV and stroke was 0.90 and 0.92 respectively.