2332 DIFFERENTIATING STATUS EPILEPTICUS FROM PROLONGED FUNCTIONAL SEIZURES – CAN PERIPHERAL CELL RATIOS AND LACTATE HELP?

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Objectives This study aimed to identify the utility of peripheral neutrophil-to-lymphocyte ratio (NLR), neutrophil-to-monocyte ratio (NMR), monocyte-to-lymphocyte ratio (MLR), platelet-to-lymphocyte ratio (PLR), systemic inflammatory index (SII), systemic inflammatory response index (SIRI) and blood lactate in differentiating between SE and FS.

Methods Retrospective case control study in adults presenting to a tertiary hospital (Alfred Health) between 2017 and 2020. SE was defined as per ILAE criteria for time point 1. FS events needed to meet the same time criterion. Bloods were obtained during the event or within 12 hours of offset.

Results After screening 1262 cases, 79 SE events from 66 patients and 44 prolonged PNES events from 28 patients were analysed. NLR, NMR, MLR, PLR, SII, SIRI and lactate levels were higher in SE compared with FS. Using ROC curves and Youden's index, cut-off values were identified with sensitivities between 0.38 to 0.84, specificities between 0.64 and 1.00 and AUCs between 0.62 to 0.79. Lactate levels peaked at 60 minutes whereas cell ratios mostly peaked between 240 to 360 minutes post onset. Two nomogram prediction models combining lactate and either SII or SIRI were generated. Using ROC curves, AUCs of 0.92 and 0.90, sensitivities of 0.81 and 0.79 and specificities of 1.0 and 0.95 were identified where the cut-off probability of SE was >0.79 and >0.80 respectively.

Conclusion Combining early peaking lactate and later peaking SII or SIRI resulted in prediction models with good sensitivity and specificity for distinguishing SE from FS. If validated, this can have important diagnostic implications.

2333 CRITICAL SHORTAGE OF NEUROLOGISTS IN REGIONAL AND RURAL AUSTRALIA: MODELING NEUROLOGIST SUPPLY IN AUSTRALIA, 2023–2034, REPORT OF THE ANZAN WORKFORCE COMMITTEE

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Background In 2015/16, the annual national expenditure on neurological conditions exceeded AUD3 billion (2.6% of total healthcare expenditure). A comprehensive study of the Australian neurological workforce has not previously been undertaken.

Methods Current neurological workforce was obtained using data from ANZAN (including surveys), the Medical Board of Australia, and other sites. Workforce supply modelling used equations to simulate neurologist influx from training and immigration, and attrition from retirement, emigration, and death. Potential interventions to increase workforce supply were then simulated.

Results In 2021, there were 422 registered neurologists in Australia. The average FTE was 0.769 and, on average, neurologists saw 22.21 (SD=19.36) initial and 39.91 (SD=26.98) review patients per 1.0 FTE (i.e. 329,762 initial and 651,580 review encounters annually). Modelling of the workforce from 2023 to 2034 predicted an increase in neurologists from 422 to 739 (577,475 initial and 1,141,037 review encounters annually). Regional Australia represented approximately 31% of the total population but was served by only 4.1% of the neurology workforce. Neurologist numbers in Regional Australia will increase from 17 to 30 (23,676 initial and 46,783 review encounters). Introduction of 10 or 20 new regional neurologists in 2023 with 5-year placement requirements would result in 31–41 regional neurologists by 2034 (total capacity 24,224–32,039 initial and 47,865–63,305 review encounters), respectively.

Conclusion Modelling of the neurologist workforce in Australia for the period 2023 to 2034 suggests that Regional Australia's significant shortfall is expected to persist. Interventions aimed at increasing regional neurologist workforce are likely to attenuate this shortfall.

2336 CENTRAL NERVOUS SYSTEM (CNS) INFLAMMATION POST COVID-19 VACCINATION: A CASE SERIES

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Objectives Cases of CNS demyelination temporally associated with covid-19 vaccination have been reported in the literature. We report six cases presenting to Royal Prince Alfred Hospital, a tertiary hospital in New South Wales, between May 2021 and January 2022.

Methods We report clinical and MRI features of six individuals with evidence of an inflammatory CNS disorder temporally associated with receiving the Pfizer (n=2) or AstraZeneca (n=4) SARS-CoV-2 vaccines.

Results Age ranged from 30 to 68 years (mean 56), four were female. The onset of neurological symptoms was within 1 to 60 days (mean 28 days) of the first (n=4) or the second (n=2) vaccine dose. Presenting symptoms included visual loss, numbness/paraesthesia, facial/limb weakness, speech disturbance, gait instability, and sphincter disturbance. Presentations were transverse myelitis (n=2), acute disseminated encephalomyelitis- (ADEM) like (n=2), and optic neuritis (n=2). No patients had any prior history of autoimmunity. MRI showed enhancing lesions consistent with active demyelination of the optic nerves, brain and/or spinal cord all but one patient. CSF oligoclonal bands were negative where tested (n=4). The final diagnoses included aquaporin-4 positive neuromyelitis optica (n=1), myelin oligodendrocyte glycoprotein antibody disease (MOGAD) (n=1), transverse myelitis (n=1), optic neuritis

(n=1), and ADEM (n=2). All patients responded to high dose intravenous methylprednisolone therapy and returned to baseline (n=1) or near baseline (n=5).

Conclusion A wide variety of inflammatory CNS syndromes temporally associated with the covid-19 vaccination have been described. Large post-marketing studies are required to investigate any causal relationship.

2338 PERIPHERAL NEUROPATHIES TEMPORALLY ASSOCIATED WITH COVID-19 VACCINATION

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Objectives Neurological complications of vaccination are rare and usually have a good outcome. We were interested to investigate the incidence of Guillain Barre Syndrome (GBS) after COVID vaccination at our institution.

Methods We retrospectively reviewed data of patients admitted for neuropathy from April to December 2021, corresponding to the period when immunisation against SARSCOV2 was actively undertaken in New South Wales. We also separately reviewed nerve biopsies of three patients from other institutions.

Results There were 13 cases of neuropathy; 10 GBS and three small fibre neuropathy. Eight were temporally linked to SARSCoV2 vaccination (6 ChAdOx-1S). Five were sporadic cases of GBS (three preceded by diarrhoea). Latency between vaccination and onset of symptoms ranged from 2 to 30 days. Facial diplegia was seen in 3 of the 7 post vaccine GBS patients and none of the sporadic cases. Patients with GBS received standard immunomodulatory therapy while most of those with small fibre neuropathy recovered spontaneously.

Sural nerve biopsies from three external patients were reviewed; two GBS and one mononeuritis multiplex. There were no histopathological features specific to the SARSCoV2 vaccination with two showing typical findings of AIDP and one an active axonal neuropathy with lymphocytic infiltrates. One of the biopsy patients with GBS post vaccine died within two days of hospitalisation of unknown cause. All other patients made a complete or partial recovery over three months.

Conclusion This review highlights the peripheral nerve complications temporally associated with COVID vaccination, some unique clinical features, and confirms most make a complete recovery.

2339 NEUROPSYCHOLOGICAL OUTCOMES IN CHRONIC AUTOIMMUNE ENCEPHALITIS – A STUDY FROM THE AUSTRALIAN AUTOIMMUNE ENCEPHALITIS CONSORTIUM

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Objectives While cognitive dysfunction after autoimmune encephalitis (AE) is subjectively noted by patients and caretakers alike; objective neuropsychological assessments in chronic AE cohorts, are rarely reported.

Methods Standardised neuropsychological assessments were performed prospectively in a series of 50 patients with AE. Patients were recruited from four secondary and tertiary referral centres in metropolitan hospitals in Victoria, Australia. Data was standardised into age and education normative values. Wechsler indices scores from the WASI-II, WAIS-IV, and WMS-IV were derived for each patient and include the Verbal Comprehension Index, Perceptual Reasoning Index, Working Memory Index, Processing Speed Index, Immediate Memory Index, Delayed memory Index, Auditory Memory Index and Visual Memory Index.

Results Average disease duration was 4.1 years. Of the 50 patients, 32% of patients had ongoing cognitive syndromes, with 18% of patients classified with moderate impairments, and 14% with severe cognitive impairment. Deficits on tasks sensitivity to memory were the most commonly observed, however there was significant variability in cognitive outcomes. Of the sero-positive group, those with anti LGI1 antibody mediated AE had worse overall cognitive outcomes compared to other AE sub-types.

Conclusions A large proportion of patients with AE can exhibit complex cognitive deficits years after the initial diagnosis. To improve clinical practice, consideration should be made to ongoing comprehensive cognitive monitoring, and reactive intervention when required. This performed at the individual level will assist in managing the long-term morbidity of this disease, to minimise the effect on the individual's quality of life and deleterious psychological outcomes.

2341 CRYPTOCOCCAL MENINGITIS COMPLICATING SIPONIMOD TREATMENT FOR SECONDARY PROGRESSIVE MULTIPLE SCLEROSIS

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Opportunistic fungal infections are a rare complication of immunomodulatory therapy for multiple sclerosis[1,2]. We report the first case of cryptococcal meningitis with siponimod therapy. A 61 year old man presented with a deterioration in gait over one month, with a new non-enhancing lesion in the left dentate nucleus on MRI, mimicking disease progression. Lumbar puncture revealed a normal opening pressure despite CSF pleiocytosis with 18 mononuclear cells per mL and a raised protein of 0.74 g/L. Microscopy showed 2+ yeast cells consistent with a Cryptococcus species, with the titre of cryptococcal antigen in CSF and serum greater 1 in 1024. Induction anti-fungal therapy was commenced with intravenous amphotericin followed by oral fluconazole. Siponimod therapy was stopped and his peripheral lymphocyte returned to greater than 1.0 per mL within 14 days. Despite high fungal load and rapid normalisation of the lymphocyte count, throughout his treatment course he remained afebrile with no symptoms of raised intracranial pressure to suggest immune reconstitution inflammatory syndrome (IRIS). He remains well at