Methods Retrospective review of clinical records and diagnostic tests.

Results A 78-year-old man with cerebral and lung melanoma metastases was treated with nivolumab, the newly developed monoclonal antibody which inhibits PD-1 deactivation of T-cells. He showed good radiological response.

Three months after ceasing nivolumab, he presented to ED with acute confusion, aphasia, left-sided weakness and neglect as a stroke call. MRI demonstrated no evidence of stroke or acute encephalitis. EEG showed diffuse slowing. Lumbar puncture was not performed as he was therapeutically anticoagulated and had begun to improve on empirical antibiotics and acyclovir. One week later, he suddenly deteriorated with fevers and reduced level of consciousness. Acyclovir was restarted. Repeat EEG revealed periodic epileptic discharges over the right hemisphere and MRI demonstrated hyperintense signal and diffusion restriction of the right mesial temporal lobe suggestive of encephalitis. Subsequent lumbar puncture was negative for HSV, VZV, enterovirus, and autoimmune encephalitis antibodies.

The patient’s oncology team had been in support of a course of methylprednisolone on suspicion of autoimmune encephalitis, but by the time the lumbar puncture results returned he was again improving. A diagnosis of suspected nivolumab-induced encephalitis was made based on exclusion of other possible diagnoses.

Conclusions The rising use of immune checkpoint inhibitors heralds an array of new and unexpected neurological complications including autoimmune encephalitis. A nationwide registry of possible cases may be helpful in improving our currently limited understanding of these emerging complications.

## Abstracts

### 114 COGNITIVE IMPAIRMENT IN THE COMMUNITY: A 16-MONTH AUDIT STUDY OF A NEUROLOGY MEMORY CLINIC IN THE INNER SYDNEY REGION

Louise Rigney, 1Uly Chen, 2Alexis Selby, 3Tejas Patel, 4Yun T Huang, 4Anthony Ed Mobbs, 5Rowena EA Mobbs.

1Department of Neurology, Campbelltown Hospital, Campbelltown, NSW, Australia; 2Australia; 3Sydney Cognitive, North Sydney, NSW, Australia; 4University of Sydney, Sydney, NSW, Australia; 5Department of Neurology, Northern Beaches Hospital, Frenchs Forest, NSW, Australia; 6Department of Neurology, Bankstown Hospital, Bankstown, NSW, Australia; 7Brain and Mind Centre, University of Sydney, Camperdown, NSW, Australia; 8University of Sydney, Camperdown, NSW, Australia; 9Macquarie University, Macquarie, NSW, Australia

Conclusions Delay in diagnosis from first clinical manifestation, high rate of psychological and medical comorbidity, presence of overlap syndromes, and allied health requirement, support the need for integrated neurological services in dementia.

### 115 IS MBS RESTRICTION ON EEGS TRULY BENEFICIAL? RETROSPECTIVE OBSERVATIONAL ANALYSIS OF EEG REFERRAL PATTERNS

Chathri Ratnayake*, 1Ranja Kokulan, 1,2Patrick Carney.

1Department of Neurology, Eastern Health, Box Hill, VIC, Australia; 2Eastern Health Clinical School, Faculty of Medicine Dentistry and Health Sciences, Monash University, Box Hill, VIC, Australia

Results Total of 1210 EEG referrals were analysed and 5 were excluded from analysis due to insufficient clinical data. Of these referrals 1114 (92.4%) were for high yield indications, 77 (6.4%) for low yield and 14 (1.2%) were indeterminate as to low or high value. Of low yield referrals, 79% were referred for syncope or presyncope and 18.2% for psychogenic nonepileptic seizures. Low yield EEGs were referred by hospital doctors, neurologists and general practitioners by proportions of 37.7%, 33.7% and 28.6% respectively. Four (5.2%) low diagnostic value EEGs were abnormal.

Conclusion Current clinical practice for EEG referrals is in line with MBS draft review recommendations. We believe addition of a standardised referral form and restricting referrals will have minimal impact on referral quality.

### 116 ALTERED PERIPHERAL AXONAL PROPERTIES IN FIBROMYALGIA

Cindy (Shin-YI) Lin*, 1Hao-Wen Teng, 1Jowy Tani, 2Hung-Ju Chen, 3Yi-Chen Lin, 4Tsui-San Chang, 1Hua-Ying Sung, 1University of Sydney, Sydney, NSW, Australia; 2Central Clinical School, Brain and Mind Centre, University of Sydney, Sydney, NSW, Australia; 3Neural Regenerative Medicine, College of Medical Science and Technology, Taipei Medical University, Taipei, Taiwan; 4Department of Neurology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan

Introduction Fibromyalgia (FM), a common chronic widespread pain syndrome with neurological symptoms affecting ~10% of the population worldwide. Whereas small fibre depression was associated with younger age at diagnosis (ave.60) versus anxiety(74) and agitation(75). Psychosis was in 14(10%) REM sleep behaviour disorder 6(5%). In the 12 months prior, falls were seen in 30(22%) and weight loss 29 (21%). Allied health input occurred in 81% of dementia versus 68% MCI cases.
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neuropathy is a recognized part of FM, surprisingly little is known about large fibre neuropathy. The present study investigates the sensory and motor axonal properties using novel nerve excitability testing (NET) to seek a better understanding of the pathogenesis of this painful disorder.

Methods 25 FM patients were recruited from the Wan Fang Hospital in Taiwan who fulfilled the American College of Rheumatology diagnostic criteria. NCS, pain scores, blood tests and NET were performed in all patients and patients with factors that may confound the results of NET were excluded. Control data were obtained from age and gender-matched healthy controls (HC) who had no neurological deficits or known pain disorders.

Results The FM group showed an increase in superexcitability (p<0.05), subexcitability (p<0.05) and over-shoot during hyperpolarizing threshold electrotonus (p<0.05) in the sensory excitability profiles in contrast to HC. However, motor nerve excitability profiles showed no significant difference.

Conclusions Alterations in the sensory axonal parameters can be detected while NCS is normal, these findings are compatible with the concept that the sensory system is mainly involved in the pathogenesis of FM. Results implied probable hypofunction of the paranodal fast K+ channel in the sensory axons, known to be associated with the generation of pain. Our study highlights the advantage of NET over NCS, in the early detection of axonal dysfunction and may provide further understandings of future therapeutic treatment.

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2. Kuwabara S, Misawa S. Pharmacologic intervention in axonal excitability: in vivo (n=136, age 51–96 yrs, M:F 1.1:1) and mild cognitive impairment (MCI) (n=28, age 56–83 M:F 0.6:1) over a 16 month period in 2017–18 was performed using online server data collection and retrospective analysis of general and employment demographic characteristics, presenting clinical information, and care across clinical psychology, psychotherapy, occupational therapy, speech pathology, and dietetics.

Results Younger onset dementia was present in 14(10%). Of the 122 dementia cases aged above 65 years, 24(20%) were employed-active, 98(80%) were retired, and none were unemployed. Approximately 5% had a background in healthcare. Allied health support was provided in 106 cases (78%) with ≥3 supports in 28(21%) and was more common in those who were retired(76%) versus employed-active (21%). Clinical psychology or psychotherapy support was provided in 50 (37%) cases of dementia.

Conclusions The onset of dementia often co-exists with active employment. Community perception of employment status in dementia would be of future research interest. Provision of multidisciplinary allied health supports in dementia may facilitate coping, adjustment and cooperative strategies for exit with dignity but further studies are required in this cohort.

118 CASE SERIES: SUBACUTE COMBINED DEGENERATION OF THE SPINAL CORD IN VITAMIN B12-REPLETE RECREATIONAL NITROUS OXIDE ABUSERS

1Louise Rigney, 2Alexis Selby, 3Lily Chen, 4Tejas Patel, 5Yun T Hwang, 6Anthony ED Mobbs*, 7Rowena EA Mobbs.
1Department of Neurology, Liverpool Hospital, Sydney, NSW, Australia; 2Department of Drug Health, Royal Prince Alfred Hospital, Sydney, NSW, Australia; 3Department of Neurology, Royal Prince Alfred Hospital, Sydney, NSW, Australia; 4Department of Neurology, Bankstown Hospital, Bankstown, NSW, Australia; 5Brain and Mind Centre, University of Sydney, Camperdown, NSW, Australia; 6University of Sydney, Camperdown, NSW, Australia; 7Macquarie University, Macquarie, NSW, Australia

Introduction Within a few years of its discovery in late 18th century, nitrous oxide was being used recreationally for its pleasurable effects. It remains in widespread use as an inhaled stimulant today, and can be legally acquired in bulk quantities with relative ease. In the body prolonged exposure to nitrous oxide leads to the oxidation of vitamin B12, rendering it unusable in key enzymatic reactions necessary for myelin synthesis. Over time this qualitative deficiency leads to a central demyelination syndrome that characteristically develops despite normal serum vitamin B12 levels and, with continued exposure to nitrous oxide, resists treatment with vitamin B12 supplementation.

Method Nitrous oxide abusers presenting with a central demyelination syndrome were enrolled in this case series. Serum levels of vitamin B12, active B12, folate and homocysteine were measured. Nitrous oxide exposure was discontinued, and all patients were treated in accordance with evidence-based guidelines.

Results Eight patients presented with predominantly moderate-to-severe clinical deficits. The majority were vitamin B12 replete. In most cases individuals had actively engaged in prolonged vitamin B12 supplementation in an attempt to circumvent the harmful pathophysiology, of which they were loosely aware. Following treatment and rehabilitation several patients were discharged into full-time care, and most had significant residual disability at follow-up.

Conclusions This case series not only illustrates the tragic consequences of abuse of this widely available and legally procured stimulant, but also highlights the futility of