functions including memory and spatial abilities ($p<0.05$) while structural changes were focused on the thalamus ($p<0.001$).

Conclusion Hallucinations are present across neurodegenerative syndromes and highest in FTD. Attentional subsystems and networks are implicated in the generation of these features that dissociate across *C9orf72* and sporadic bvFTD.

2431 PREDICTIVE ACUTE NYSTAGMUS CHARACTERISTICS IN POSTERIOR CIRCULATION STROKE DIAGNOSIS

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Objectives The acute nystagmus characteristics of posterior circulation stroke (PCS) were assessed and compared to acute vestibular neuritis (AVN) in the emergency department (ED)

Methods Video-nystagmography (VNG) was prospectively conducted in ED at one Australian metropolitan tertiary referral hospital over a three-year period, recording ictal nystagmus in 101 patients with radiologically confirmed PCS and 104 patients with AVN.

Results PCS locations were in the brainstem alone (34.7%), cerebellum alone (29.7%), both cerebellum and brainstem (19.8%) or other/multiple locations (15.8%) were recruited. Common PCS territories included: posterior-inferior-cerebellar-artery (38.6%), multiple-territories (20.8%), pontine-perforators (18.8%), anterior-inferior-cerebellar-artery (6.9%) and posterior-cerebral-artery (5.9%).

In PCS, 50.5% of patients had no spontaneous nystagmus. Remaining PCS patients had primary position horizontal (37.2%), vertical (8.9%) and torsional (3.9%) nystagmus. Horizontal nystagmus was 51.7% ipsiversive and 48.3% contraversive in 29 lateralised PCS. 28.4% of PCS patients had pathologic gaze-evoked nystagmus. Most PCS patients with horizontal nystagmus (60.5%) had unidirectional 'peripheral-appearing' nystagmus

In contrast, AVN patients almost universally (98.1%) had primary position horizontal nystagmus. No AVN patient had gaze-evoked nystagmus. Horizontal nystagmus with SPV$\geq$5.4 / s distinguished AVN from PCS with sensitivity and specificity of 90.3% and 89.1%.

Absent nystagmus, gaze-evoked direction-changing nystagmus, and vertical/torsional nystagmus were all highly specific for PCS (100%, 100% and 98.1%).

Conclusion Most patients with PCS had concerningly benign features such as absent nystagmus or unidirectional 'peripheral-appearing' horizontal nystagmus acutely. Comparatively, all AVN patients had nystagmus acutely. This study reinforces a new paradigm in vestibular neurology that absence of findings does not equate to absence of pathology.

2212 PRETREATMENT PERIPHERAL IMMUNE CELL RATIOS AS PROGNOSTIC BIOMARKERS IN GLIOMA PATIENTS

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Background In the glioma microenvironment, elevated immune cell ratios are posited to reflect systemic response to malignancy. Given the dearth in clinically significant molecular markers to predict prognosis, there is potential for immune cell ratios to serve as low-cost and readily available prognostic markers.

Objectives This study evaluated the ability for pretreatment peripheral immune cell ratios (Neutrophil-to-Lymphocyte Ratio, NLR, and Monocyte-to-Lymphocyte Ratio, MLR) to predict overall survival (OS) and modified Rankin Scale (mRS) at admission, 6 months and 12 months post-diagnosis. It also explored relationships between immune cell ratios and clinicopathological parameters (tumour location, tumour size, tumour grade, IDH-1 mutation, MGMT promoter methylation status).

Methods Pretreatment NLR and MLR were analysed retrospectively in 64 glioma patients from Royal Melbourne Hospital. OS was evaluated with the Kaplan-Meier method. Prognostic factors for OS and mRS were evaluated with univariate and multivariable regression analyses.

Results Higher pretreatment NLR (>4.7), compared to lower pretreatment NLR (≤4.7), predicted higher mean admission mRS ($p<0.001$) and 6-month mRS ($p=0.02$). Higher NLR was associated with poor functional outcome (mRS 3–6) at admission ($p<0.001$) and 6 months ($p=0.001$). Higher pretreatment MLR (>0.35) predicted poorer OS ($p=0.02$). Higher NLR was associated with larger tumour diameter ($\geq$5cm) ($p=0.02$).

Conclusion To our knowledge, this was the first study to evaluate the association between immune cell ratios and mRS. This study demonstrated that NLR and MLR can serve as prognostic markers to predict functional outcomes and OS in glioma patients, which allows us to identify high-risk patients in need of further treatment.

2275 IVIG-EXPOSURE AND THROMBOEMBOLIC EVENT RISK: COHORT STUDY USING THE UK BIOBANK

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Objectives Arterial and venous thromboembolic events (TEEs) have been associated with intravenous immunoglobulin (IVIg) use, but the risk has been poorly quantified. We aimed to calculate the risk of TEEs associated with IVIg exposure.

Methods We included participants from UK Biobank. Study endpoints: incidence of myocardial infarction, other acute ischemic heart disease, stroke, pulmonary embolism, other venous embolism, and thrombosis. Predictors included known TEE risk factors: age, sex, hypertension, smoking status, type 2 diabetes mellitus, hypercholesterolemia, cancer, and history of TEE (phx). IVIg was added in the sensitivity analysis.

Results 14 794 of 502 543 individuals had an incident TEE during the study period. In the phx category, IVIg exposure was independently associated with increased risk of incident TEE (OR= 3·69, p=0·03) on multivariate analysis. The number needed to harm in phx group was 5·8 (95% CI, 2·3–88·3).

IVIg exposure did not increase risk of TEE in those without phx. If everyone in the phx group was exposed to IVIg, the median risk of recurrent event in those <60 years of age increases from 6.1% to 19.3% and in those >60 from 9.1% to 26.9% (moving nearly 50% of individuals into >20% risk of recurrent TEE). A similar change in risk was seen if the cohort was divided by gender.

Conclusion IVIg is associated with increased risk of further TEE in individuals with phx. In practice, this will influence how clinicians consent for and manage overall TEE risk upon IVIg exposure in high-risk patients.

2429 INVESTIGATING TRAUMATIC ENCEPHALOPATHY SYNDROME (TES) IN RETIRED ATHLETES, MILITARY PERSONNEL AND VICTIMS OF ASSAULT WITH A HISTORY OF SUSTAINED, REPETITIVE MILD TRAUMATIC BRAIN INJURY

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Objectives The SNAP-CTE Study aims to identify features and characteristics of the in-life experience of those who may be suffering from Chronic Traumatic Encephalopathy (CTE) and correlated Traumatic Encephalopathy Syndrome (TES). A cohort of 20 participants were included in the preliminary findings.

Methods 20 participants with a history of mTBI meeting current criteria for TES were evaluated for features of migraine disorder, cognitive decline, mood disorder and general medical history in a metropolitan neurology clinic. Participants with drug use outside of alcohol were excluded. Participants were included if they have experienced sustained and repetitive mTBI, in the absence of other neurological presentations and negative magnetic resonance imaging for an alternate cause.

Results The average age of participants was 55 years old, consisting of 90% male and 10% female participants. At presentation, 45% of participants were experiencing regular migraine symptoms. Up to 90% of participants were experiencing cognitive decline, for up to 3 years prior to presentation. Similarly, 80% of participants presented with mood disturbance, up to 6 years prior. ACE-III indicated MCI with an average score of 90. History of alcohol use disorder was noted in 40% of participants, with only 15% of participants using concurrently.

Conclusions Migraine disorder in TES presents an opportunity for investigation regarding pathophysiological processes associated with mTBI. Longer history of mood disturbance may be a better indicator of TES, versus cognitive decline, and both should be researched further. The TES cohort did not appear to have a predilection for self-medicating with alcohol use.

2280 ADHERENCE PATTERNS IN ANTISEIZURE MEDICATIONS (ASM) INFLUENCING THE RISK OF SUDDEN UNEXPECTED DEATH IN EPILEPSY (SUDEP): A DATA LINKAGE STUDY USING DISPENSED PRESCRIPTIONS

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Objectives This study aims to estimate antiseizure medication (ASM) adherence and identify adherence patterns that influence epilepsy mortality.

Methods We retrospectively identified a cohort of 1,187 Australian tertiary epilepsy outpatients from 1/01/2012 until 31/12/2017. Privacy-preserving data-linkage with the national prescription, death, and coroner's databases were performed. We fitted a 4-cluster longitudinal group-based trajectory model for ASM adherence from recurring 90-day windows of prescription dispensations during a 3-year 'landmark period,' 1/1/2012 to 31/12/2014. We estimated the risk of SUDEP and all-cause death for each adherence pattern during an 'observation period,' 1/1/2015 to 31/12/2017, using the Adhere-R package. The Cox-proportional hazards and logistic regression models were adjusted for age, sex, socioeconomic status, epilepsy duration, comorbidity, epilepsy severity and inadequate seizure control.

Results 1,187 participants were observed for a median of 3.2 years (IQR 2.4–4.0 years). We observed ≈10 cases of SUDEP during the observation period. We identified 4 patterns of ASM adherence: good 51%, declining 24%, poor 16%, and very poor 9%. Declining adherence was associated with an increased risk for SUDEP, hazard ratio 8.43 (95%CI 1.10, 64.45) at 1 year, and HR 9.17 (95%CI 1.16,72.21) at 3 years.

Conclusion Poor adherence is underappreciated and observed in half of the outpatients with epilepsy. A declining pattern of adherence, observed in a quarter of patients, is associated with more than eight times the increased risk of SUDEP. Any ongoing therapeutic interventions must be coupled with strategies to maintain and improve patient ASM adherence if we are to reduce the risk of SUDEP.