evaluated off-DBS and during stimulation delivered through each electrode contact in a randomised order.

Results ERNA amplitude, beta power and contact proximity to the anatomically ideal stimulation location predicted magnitude of therapeutic response to DBS. However, after exclusion of covariance, ERNA amplitude remained the only significant predictor of DBS response.

Conclusion ERNA is a readily recordable, large amplitude signal that accurately correlates with motor response to DBS. It holds significant potential as a biomarker for guiding electrode implantation, ideal contact selection, automated parameter fitting and delivery of closed-loop DBS.

REFERENCE

1. Sinclair NC, McDermott HJ, Bulluss KJ, Fallon JB, Perera T, Xu SS, et al. Subthalamic nucleus deep brain stimulation evokes resonant neural activity. *Annals of neurology* 2018;**83**(5).

004 VESTIBULAR EVENT MONITORING IN THE EMERGENCY DEPARTMENT

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Introduction Acute vertigo is often accompanied by ictal-nystagmus which may assist with diagnosis. We examine the merits of a structured assessment combined with vestibular event-monitoring in the Emergency Department (ED).

Methods We undertook a structured clinical assessment and video-nystagmography in 220 non-consecutive patients presenting to a public-hospital ED with acute vertigo, during a 10-month period. The records of 115 consecutive vertiginous patients who underwent standard-assessment were compared.

Results For the structured assessment group: 54% presented with acute vestibular syndrome (AVS), 24% with episodic spontaneous vertigo (EVS), and 20% with recurrent positional-vertigo (RPV).

For AVS (n=119), most common diagnoses were vestibular neuritis (34%), stroke (34%) and vestibular migraine (13%). Nystagmus slow-phase velocity (SPV) for VN, stroke and VM were $11\pm5.5^\circ/\text{s}$, $5.6\pm2.5^\circ/\text{s}$, $5.4\pm5.9^\circ/\text{s}$; Mean ipsilesional video-head impulse gains were 0.51 ± 0.29 , 0.89 ± 0.20 and 0.96 ± 0.13 . For EVS (n=53), diagnoses included vestibular migraine (63%), Meniere's Disease (11%) and others (26%). Nystagmus SPV was $5.4\pm3.6^\circ/\text{s}$, $7.6\pm6.3^\circ/\text{s}$, $4.1\pm1.5^\circ/\text{s}$. In RPV (n=43), common diagnoses were posterior-canal BPPV (66%), horizontal-canal BPPV (23%), migraine (7%). Positional nystagmus SPV profile showed Peak SPV of $42.5^\circ/\text{s}$, $77.6^\circ/\text{s}$, $20.64^\circ/\text{s}$ and Time-constants of 6.52s, 22.51s, 34.56s for Posterior-canal BPPV, Horizontal-canal BPPV and Atypical Positional-Vertigo. A final diagnosis was reached in 96% of patients.

In the ED control group, only 77% were separated into spontaneous or positional-vertigo. A diagnosis was provided in 57% and was concordant with the history and examination in 34%.

Conclusion Vestibular event-monitoring and structured clinical assessment secured a diagnosis in 96% of cases compared with 34% for the control group, reinforcing its merit.

005 ELECTROCLINICAL CHARACTERISTICS OF AUTOIMMUNE ENCEPHALITIS AS OUTCOME BIOMARKERS

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Introduction Seizures are a common characteristic of Autoimmune encephalitis (AIE). The use of the electroclinical characteristics to assist in the diagnosis of AIE has been explored¹ however use of specific electroencephalogram (EEG) changes has not been examined with regards to outcome prediction.

Methods Patients with AIE were recruited retrospectively across 4 hospitals in Victoria. Clinical Data was collected during admission and at final follow-up. EEGs of patients were reviewed using an objective proforma. Associations between EEG biomarkers and clinical outcomes were demonstrated using logistic regression modelling.

Results We recruited 88 patients with AIE and available EEGs. Presence of rhythmic delta, superimposed fast activity and an abnormal background were significantly more common in N-methyl-D-aspartate receptor (NMDAR) antibody associated AIE patients ($p<0.05$). ICU admission was associated with rhythmic delta epileptiform activity (OR 3.25, $p=0.046$), sharp elements in the EEG abnormality (OR 3.55, $p=0.05$), and an abnormal background rhythm (OR 3.56, $p=0.03$). Development of drug resistant epilepsy was associated with prolonged duration of abnormality on EEG (OR 11.99, $p=0.013$), and sharp elements in the EEG abnormality (OR 7.29, $p=0.02$).

Conclusion We have identified EEG biomarkers that differentiate NMDAR AIE from other subtypes, and likely represents an objective description of extreme delta brush which has previously been described in NMDAR AIE.² We have also demonstrated biomarkers associated with important outcomes that can be used to help guide treatment and prognosis.

REFERENCES

1. Limotai C, Denlertchaikul C, Saraya AW, Jirasakuldej S. Predictive values and specificity of electroencephalographic findings in autoimmune encephalitis diagnosis. *Epilepsy Behav* 2018;**84**:29–36.
2. Veciana M, Becerra JL, Fossas P, Muriana D, Sansa G, Santamarina E, et al. EEG extreme delta brush: An ictal pattern in patients with anti-NMDA receptor encephalitis. *Epilepsy Behav* 2015;**49**:280–5.

006 CAN SEIZURE-RELATED HEART RATE DIFFERENTIATE EPILEPTIC SEIZURES FROM PSYCHOGENIC NON-EPILEPTIC SEIZURES?

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Introduction This study aims to (i) evaluate the diagnostic sensitivity, specificity and predictive values of seizure-related heart rate (HR) in differentiating epileptic seizures (ES) from