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**


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**Abstracts**

**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±5.7°/s, 5.6±2.3°/s, 5.4±5.9°/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±3.6°/s, 7.6±6.3°/s, 4.1±1.5°/s. In RPV (n=43), common diagnoses were posterior-canal BPPV (66%), horizontal-canal BPPV (23%), migraine (7%). Positional nystagmus profile showed Peak SPV of 42.5°/s, 77.6°/s, 20.64°/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.
psychogenic non-epileptic seizures (PNES), (ii) define the most useful point of HR measurement: pre-ictal, ictal-onset, max-imal-ictal or post-ictal, and (iii) define the HR cut-off points to differentiate ES from PNES.

**Methods**

All video EEG (VEEG) at Monash Health from May 2015 to November 2015 were retrospectively reviewed. Baseline (during wakefulness), one-minute pre-ictal, ictal-onset, maximal-ictal and one-minute post-ictal HR were measured for each ES and PNES event. Events less than ten seconds or with uninterpretable ECG due to artefacts were excluded. ROC curve analysis was performed to study the diagnostic accuracy reflected by area under the curve (AUC). The AUC was interpreted as follows: ≤ 0.5, differentiation of PNES from ES no better than chance; 0.50–0.89, good differentiation; and 0.9–1, excellent differentiation.

**Results**

VEEG of 341 ES and 265 PNES from 130 patients were analysed. The AUC for pre-ictal, ictal-onset, maximal-ictal and post-ictal HR were found to have poor differentiation between ES and PNES. Comparing PNES and bilateral tonic-clonic ES, AUC for absolute maximal-ictal HR was 0.84 (CI 0.73–0.95) and for absolute post-ictal HR was 0.90 (CI 0.81–1.00). Using Youden’s index, to diagnose tonic-clonic ES, the optimal cut-off point for absolute maximal-ictal HR was 114 bpm (sensitivity 84%; specificity 82%; PPV 26.7%; NPV 98.5%) and for absolute post-ictal HR was 90 bpm (sensitivity 91%; specificity 82%; PPV 30.3%; NPV 99.1%).

**Conclusions**

These findings suggest that seizure-related HR increase is useful in differentiating bilateral tonic-clonic ES from PNES. Based on the AUC, the best diagnostic measure.