

Standards for EEG diagnosis of NEAD: Literature review

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Overview of literature review

- EEG appointment
- Activation techniques
- Suggestion
- Testing during NEAs
- Factual report

EEG appointment

- >20min (ACNS), 40-60min (McGonigal; Luther)
- Slightly improved yield if length increased from 1-2 to 4 hours but no benefit increasing to 6 hours (Chayasirisobhon)
- Bring an eyewitness (McGonigal)
- During long-term monitoring, 79% had an attack with 'others' in attendance (Leis)

Activation

- HV & PS 'should be performed' (ACNS 2016)
- HV & PS done (Ribai) or not done (Luther; Benbadis) if spontaneous NEA
- Latency to NEA: <4 min in 94% attacks (Benbadis)
 - <5 min in 74% of attacks (Ribai); suggested 10 min wait (Lancman; Walczak)

Should suggestion be used?

- Suggestion ‘may be used’ (NICE 137; ILAE); ‘has a limited role and may lead to false-positive results’ (NICE 137). Non-habitual attacks in 3-13% patients (Popkirov); in ~6% of patients non-habitual *psychogenic* symptoms
- Suggestion is ‘preferable’ (Scottish Seizure Guidelines) with pointers towards its efficacy (McGonigal)
- Yield 64-69% if NEAD suspected (Popkirov)

Suggestion: protocol

- Need to capture attack (McGonigal; Cohen; Dericioglu; Luther)
→ comprehensive patient info (Hoepner; Popkirov)
- Patient asked to describe event in detail → reviewed aloud by phys → reinforcement (Benbadis; McGonigal)
- Test sensitivity to suggestion event will *stop* (ILAE; Ribai; Walczak; Dericioglu)

Suggestion: language

- ‘will perhaps help in inducing usual spell’ (Ribai)
- ‘occasionally precipitated seizures in patients with seizure tendencies’ (Walczak)
- ‘the purpose of the study was to examine them during one of their typical episodes so that the cause and nature of their seizures could be better understood and proper treatment instituted’ (Luther)

Testing during/after NEAs

- Avoidance testing (ILAE; Reuber&Elgar; DeToledo; Luther; Leis), e.g. resistance to eye opening
- Pupillary light reflex (Reuber&Elgar; Dericioglu)
- Awareness (King; Wilkus), e.g. response to command or recall of a colour given

Afterwards...

- Check attack habitual (Devinsky; McGonigal; Niedermeyer; Bazil; Dericioglu; Slater; Ribai)

Factual report

- EEG → 4 levels of NEAD certainty (ILAE)
- NEA EEG reviewed using different sensitivities (Wilkus)
- EEG normal *before* and *after* NEA (King; Dericioglu; Slater; Devinsky; Chen; Leis; Luther; Cohen); NEA alpha most useful (Chen; Niedermeyer; King); note sleep phenomena lost (Orbach; Benbadis)
- Semiology → timings (Reuber&Elgar) >2 min (ILAE; Lesser), >5 min (Scottish Seizure Guidelines) >10 min (Dworetzky)
- Snapshot of EEG to back up (ACNS 2016; Benbadis & Tatum)

CLINICAL NEUROPHYSIOLOGY PRACTICE

The full literature review will be published in
Clinical Neurophysiology Practice next year