

Psychiatric non-epileptic seizure: diagnostic utility of density spectral array

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DESCRIPTION

A 40-year-old woman with a history of insomnia admitted to the emergency room for generalised convulsion lasting for more than 30 min. The attack was characterised by bilateral asynchronous hyperkinetic prolonged jerking with loss of responsiveness. The serial intravenous diazepam (10 mg) had a limited effect. As the attack was accompanied by a decrease in the oxygen saturation due to the apnoea, she was intubated followed by deep sedation with barbiturates for almost 24 hours. Continuous electroencephalography (EEG) monitoring revealed a suppression-burst pattern during the sedation. However, after the discontinuation of sedation, the hyperkinetic attack reappeared immediately. The ictal EEG during this attack was obscured by the motion artefacts (figure 1). Given the unresponsiveness, she seemed to be impaired awareness. However, density spectral array (DSA)^{1,2} that was analysed from the data of O1 and O2 electrodes during the prolonged attack clearly showed preserved alpha-band activity (figure 2). This activity was consistent with the posterior dominant rhythm, that is, the presence of this preserved background alpha activity suggested that she was aware during the attack. Thus, she was diagnosed with psychiatric non-epileptic seizure (PNES).³ The attack of PNES gradually disappeared after a liaison psychiatry therapy with drugs for anxiety and insomnia. While EEG waves that were recorded during a hyperkinetic attack were often obscured by motion artefacts, DSA was occasionally useful to

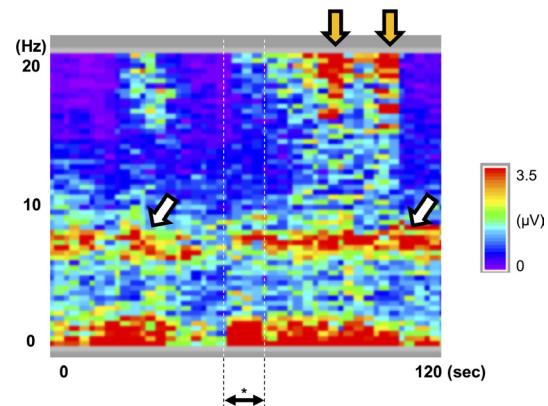


Figure 2 Density spectral array (DSA). The DSA is the data based on the time–frequency analysis calculated from the amplitude of O1 and O2 electrodes during the electroencephalogram (EEG) examination. Preserved alpha activity, 8–9 Hz, is visible (white arrow). Power spectrum change due to motion artefact is also shown (yellow arrow). The asterisk indicates the time window of EEG in figure 1.

Patient's perspective

I was relieved to hear the diagnosis. As the number of medicines has decreased, I feel better now.

Learning points

- ▶ Hyperkinetic prolonged attack is one of the characteristic semiology of psychiatric non-epileptic seizure (PNES).
- ▶ Conventional EEG evaluation is often limited by motion artefacts during the seizure.
- ▶ Density spectral array from bilateral occipital region occasionally reveals the posterior-dominant rhythm which may assist in the diagnosis of PNES.

clarify the background EEG activity which might assist in the diagnosis of PNES.

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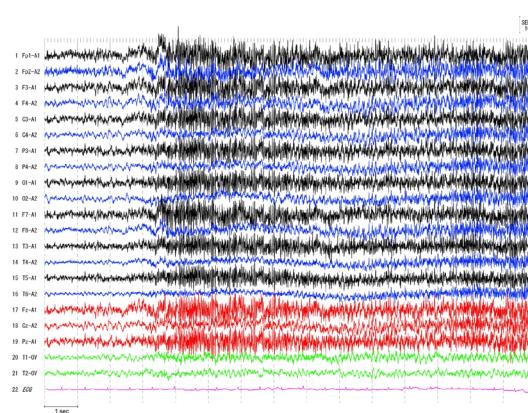


Figure 1 Electroencephalography (EEG) during a hyperkinetic attack. EEG waves are shown on the monopolar montage with the time constant of 0.1 s and high-frequency filter of 120 Hz. Artefact of electromyogram is evident.



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