Seizure Timing, Body Position And EEG Evaluation In Pediatric Patients With Refractory Epilepsy: 20 Years Of Video-EEG Experience

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INTRODUCTION

Epilepsy is associated with increased morbidity and mortality, depending on the underlying cause and due to recurrent seizures. Although seizures are a common cause of accidents and injuries, generalized convulsive seizures (GCS, focal to bilateral tonic-clonic and generalized tonic-clonic seizures of generalized or unknown onset [1]) can lead to sudden unexpected death in epilepsy (SUDEP), a major cause of death specific to epilepsy [2] .

OBJECTIVE

Evidence-based recommendations regarding the ideal sleep position for patients with epilepsy at risk of SUDEP are currently lacking. We analyzed the time of sleep during which GCS occur, electroencephalographic changes and changes in body position during gcss in paediatric patients with refractory epilepsy using video electroencephalography (V-EEG).

MATERIAL&METHODS

All patients who underwent V-EEG examination at a tertiary epilepsy centre in Turkey between 1 January 2002 and 1 January 2022 were retrospectively reviewed. Inclusion criteria were a diagnosis of intractable epilepsy and at least one GCS recording with v-EEG. Patients with missing video recordings were excluded. A standardized form was used to collect data on epilepsy syndrome [3], aetiology, seizure semiology [1] and frequency, body position during seizures, antiepileptic drugs (AEDs), time to first contact with staff and oxygen provision. In addition, the number of seizures during sleep and wakefulness, the time of onset of GCS during daytime and nighttime sleep and wakefulness, the position of sleep onset on nights with and without seizures, the body positions adopted by the patient during all GCS, the presence of postictal generalized EEG suppression and its duration, if any, were assessed using a second standardized form.

RESULTS

A total of 818 seizures were analyzed, including 273 GCS in 117 patients. Post-ictal generalised EEG suppression (PGES) was observed in 59 patients (50.4%) and ranged from 10 s to 60 min, with >20 s generally detected in patients in the prone position. The onset Positions of GCS during sleep and wakefulness were similar. GCS occurred on average 53.27 min (SDS 41.37) after the onset of daytime sleep and 131.37 min (sds 118.95) after the onset of nighttime sleep ($p<0.05$). There was a significant difference between the likelihood of a prone-onset seizure ending in the prone position (91.66%) and the likelihood of a non-prone-onset seizure ending in the prone position (1.14%) ($p<0.05$).

CONCLUSION:

This study underlines that the position at the end of seizures that begin in the prone position does not change, that PGES is prolonged in these patients and that seizures generally occur in the second hour of night sleep. Our study adds to the literature on which patients and for how long stimulation methods should be used.

REFERENCES

[1] Fisher RS, Cross JH, French JA, Higurashi N, Hirsch E, Jansen FE, Et Al. Operational classification of seizure types by the international league against epilepsy: position paper of the ILAE commission for classification and terminology. Epilepsia 2017;58(4):522–30.

[2] Thurman Dj, Hesdorffer Dc, French Ja. Sudden unexpected death in epilepsy: assessing the public health burden. Epilepsia 2014;55(10):1479–85.

[3] Scheffer IE, Berkovic S, Capovilla G, Connolly MB, French J, Guilhoto L, et al. ILAE classification of the epilepsies: position paper of the ILAE commission for classification and terminology. Epilepsia 2017;58(4):512–21.