

Seizures in Sleep

Clinical Spectrum, Diagnostic Features, and Management



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KEYWORDS

• Seizures • Epilepsy • Epilepsy syndrome • Antiepileptic drugs

KEY POINTS

- Epilepsy and antiepileptic agents influence sleep.
- Sleep, arousal, and sleep deprivation influence epilepsy.
- Sleep state modulates epileptic seizures and interictal epileptiform discharges.
- Hypersomnolence may be frequent among patients suffering from epilepsy.
- Successful amelioration of coexisting sleep disorders may improve seizure control.

INTRODUCTION: THE RELATIONSHIP BETWEEN SLEEP AND EPILEPSY

Sleep and epilepsy have a reciprocal relationship. Sleep can affect the distribution and frequency of epileptiform discharges, and epileptic discharges can change sleep regulation and provoke sleep disruption.¹ Patients with epilepsy frequently complain of symptoms such as hypersomnia, insomnia, and breakthrough seizures, which are owed to disturbed sleep.² These symptoms commonly indicate an underlying sleep disorder rather than the effect of epilepsy or medication on sleep. Clinicians must be able to identify and differentiate between potential sleep disorders related to epilepsy, and direct therapy to improve the patient's symptoms.³ Sleep deprivation, which is a very common problem in the intensive care unit (ICU), is known to facilitate interictal discharges in patients with epilepsy with a more prominent increase noted in generalized-onset epilepsy.⁴ Indeed a recent review by Foldvary-Schaefer and colleagues⁵ demonstrates that total sleep deprivation activates interictal epileptiform discharges in 23% to 93% of patients with definite or suspected seizures.

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Some antiseizure medications are associated with weight gain and increased body mass index (BMI). Increased BMI is associated with an increased risk of obstructive sleep apnea (OSA). In fact, up to one-third of patients with medically refractory epilepsy show evidence of OSA, and treatment of the underlying OSA may reduce seizure frequency.^{6,7}

INTRODUCTION TO EPILEPSY

A seizure is an event characterized by excessive or hypersynchronized discharges of neurons. Epilepsy is defined as a disorder characterized by either 2 unprovoked seizures occurring during a time interval more than 24 hours apart or a 60% increased risk of recurrence after 1 unprovoked seizure.⁸ During an epileptic spell, there are recurrent episodes of altered cerebral function associated with abnormal, excessive, paroxysmal, hypersynchronous discharge of cerebral neurons. The International League against Epilepsy (ILAE) has recently revised the seizure classification. Seizures are now classified as either focal or generalized.⁹ **Box 1** depicts a seizure classification scheme according to the updated ILAE, which was designed to ensure that concepts and terminology are in place to reflect the advances in understanding and knowledge of these disorders.

EPIDEMIOLOGY OF EPILEPSY AND IMPACT ON SLEEP DISORDERS

According to the Institute of Medicine report in 2012, 2.2 million people in the United States are afflicted with epilepsy. The lifetime prevalence is 1 in 26 and 150,000 cases

Box 1

The classification of seizures

- Generalized seizures
 - Tonic-clonic
 - Absence
 - Typical
 - Atypical
 - Absence with special features
 - Myoclonic absence
 - Eyelid myoclonia
 - Myoclonic
 - Myoclonic
 - Myoclonic atonic
 - Myoclonic tonic
 - Clonic
 - Tonic
 - Atonic
- Focal seizures
- Unknown
 - Epileptic spasms

From Berg AT, Berkovic SF, Brodie MJ, et al. Revised terminology and concepts for organization of seizures and epilepsies: report of the ILAE Commission on Classification and Terminology, 2005–2009. Epilepsia 2010;51(4):676–85; with permission.

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