

# Sleep Disorders in Neurologic Practice

## A Case-based Approach



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### KEYWORDS

- Sleep disorders • Narcolepsy • Restless leg syndrome • Sleep apnea
- REM sleep behavior disorder • Insomnia • Circadian rhythm disorders

### KEY POINTS

- Patients with neurologic conditions are at increased risk for comorbid sleep disorders, including insomnia, sleep disordered breathing or sleep apnea, circadian rhythm disorder, restless legs syndrome, rapid eye movement–sleep behavior disorder, and narcolepsy.
- Identification and treatment of sleep disorders may improve control of the underlying neurologic condition as well as improve quality of life, and thus comprises a critical component of patient care.
- A reciprocal relationship may exist whereby a sleep disorder can exacerbate a neurologic condition, and the neurologic condition or its treatments can increase risk of a sleep disorder.

### CASE A: EPILEPSY AND SLEEP DISORDERED BREATHING

Patients with epilepsy can experience a variety of sleep-related symptoms that may increase the frequency of seizures.

#### *Case Presentation*

A 43-year-old woman with a history of epilepsy since childhood presented to neurology clinic for a follow-up visit. She had complex partial seizures with occasional secondary generalization that developed after a bout of meningitis at 8 months of age. She was previously treated with phenobarbital and phenytoin for many years and was later transitioned to carbamazepine monotherapy approximately 10 years ago.

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Lamotrigine was subsequently added 8 years ago because of poor seizure control. She currently reported approximately 8 to 9 breakthrough seizures per year.

Her chief complaint at the follow-up visit was gradually worsening daytime sleepiness and inadvertent dozing when she was sedentary. On further questioning, she endorsed mild snoring on most nights, restless and poor quality sleep, difficulty falling asleep several times per week, and frequent nighttime awakenings. She had no bed partner but did not think she had any seizures during sleep. Her Epworth Sleepiness Scale (ESS) score was 14 out of 24, indicating excessive sleepiness (normal is <10; [Table 1](#)). On examination, she had normal waking oxygen saturation, an increased body mass index (BMI) of 31 kg/m<sup>2</sup>, neck circumference of 42 cm (16.5 inches), and narrow upper airway anatomy with a modified Mallampati III airway ([Fig. 1](#)), low-lying soft palate, an elongated uvula, and macroglossia. Her neurologic examination was unremarkable.

### Clinical Questions

1. What are some common causes of excessive daytime sleepiness in individuals with epilepsy?
2. What are likely mechanisms by which sleep disturbances may worsen seizures/increase seizure frequency in patients with epilepsy?
3. In contrast, what mechanisms may confer an increased risk of sleep disordered breathing among patients with epilepsy?

### Discussion

Hypersomnolence, a state of recurrent episodes of excessive daytime sleepiness, is frequently encountered among patients with epilepsy and is usually secondary to underlying causes.<sup>1</sup> These causes can include a comorbid sleep disorder such as obstructive sleep apnea (OSA) or insomnia, medication-related adverse effects, psychiatric comorbidities such as depression, or behavioral patterns that may disrupt sleep, such as poor sleep hygiene. Recent data examining sleep in individuals with epilepsy show evidence of fragmented sleep architecture on electroencephalogram (EEG) with increased spontaneous arousals and awakenings.<sup>2</sup> However, fragmented

<b>Situations</b>	<b>Chance of Dozing</b>
Sitting and reading	0, 1, 2, 3
Watching television	0, 1, 2, 3
Sitting inactive in a public place (eg, in a theater or a meeting)	0, 1, 2, 3
As a passenger in a car for an hour without a break	0, 1, 2, 3
Lying down to rest in the afternoon when circumstances permit	0, 1, 2, 3
Sitting and talking to someone	0, 1, 2, 3
Sitting quietly after a lunch without alcohol	0, 1, 2, 3
In a car, while stopped for a few minutes in traffic	0, 1, 2, 3

The ESS was developed by researchers in Australia and is widely used by sleep professionals to appraise the degree of excessive sleepiness. Patients are asked “How likely are you to doze off or fall asleep in the following situations, in contrast with feeling just tired?” “This refers to your usual way of life in recent times.” Patients are instructed to use the scale to rate the level of their sleepiness in each of the following situations/scenarios: 0, no chance of dozing; 1, slight chance of dozing; 2, moderate chance of dozing; 3, high chance of dozing.

*Modified from* Johns M. A new method for measuring daytime sleepiness: the Epworth Sleepiness Scale. *Sleep* 1991;14:540–45.

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