

Evaluation of the Sleepy Patient: Differential Diagnosis

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KEYWORDS

• Excessive daytime sleepiness • Hypersomnolence • Evaluation • Sleep disorders

KEY POINTS

- Excessive daytime sleepiness is defined as the inability to maintain wakefulness during waking hours, resulting in unintended lapses into sleep. It is important to distinguish sleepiness from fatigue.
- The evaluation of a sleep patient begins with a careful clinical assessment that includes a detailed sleep history, medical and psychiatric history, a review of medications, as well as a social and family history.
- Physical examination should include a general medical examination with careful attention to the upper airway and the neurological examination.
- Appropriate objective testing with a polysomnogram and a multiple sleep latency test if needed will help confirm the diagnosis and direct the appropriate treatment plan.

INTRODUCTION

Excessive daytime sleepiness (EDS) is defined as the inability to maintain wakefulness during waking hours, resulting in unintended lapses into sleep.¹ Patients often describe their sleepiness using vague terms such as tired, fatigue, or lack of energy. It is important to distinguish sleepiness from fatigue. Fatigue is a physical or psychological feeling that may occur in a variety of other disorders, such as depression or Parkinson disease.^{2,3} Unlike sleepiness, fatigued patients do not fall asleep when sedentary, such as while watching television or reading. This distinction is important because sleepiness indicates the presence of a sleep disorder or a problem with nighttime sleep. In a study of 190 obstructive sleep apnea (OSA) patients, approximately 47% used the term sleepiness to describe their symptoms. In contrast, 62% reported a lack of energy, 61% described themselves as feeling tiredness, and 57% used the term fatigue. When these patients were asked to select the most prominent symptom, only about

22% chose sleepiness, whereas more than 40% chose lack of energy.⁴

Patients may or may not be aware of their sleepiness before falling asleep, but it often significantly affects quality of life. EDS has many implications, including increased risk of injury at work or home, decreased alertness, car accidents, and lower productivity overall. EDS may also lead to heightened tension with family, friends, and co-workers, who may attribute the patient's symptoms to laziness or poor work ethic.

Driving while sleepy is perhaps the most worrisome behavior associated with EDS. This may take the form of dozing at a red light, while in stop-and-go traffic, or while traveling at higher speeds on a highway. Approximately 52% of drivers have driven while drowsy, with 50% reporting doing so within the last month.⁵ Sleepiness while driving should be considered a medical emergency, and immediate evaluation and treatment should be initiated.^{6,7}

Sleepiness can manifest in many different forms. For some patients, sleepiness is associated

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with more hours of sleep per day without feeling refreshed. For others, naps can be refreshing but sleepiness recurs. Children can paradoxically present with symptoms of hyperactivity or poor attention.

Many of the sleep disorders listed in the International Classifications of Sleep Disorders, 3rd edition (ICSD-3) can present with excessive sleepiness (**Box 1**). These disorders result in daytime sleepiness either because of shortened sleep time, fragmentation of the major sleep period, or central nervous system (CNS) dysfunction. Several studies of patients with OSA have demonstrated a significant correlation between the total number of arousals on a polysomnogram with the severity of sleepiness.^{8–10} Other disorders, such as narcolepsy type 1 (with cataplexy) or type 2 (without cataplexy), idiopathic hypersomnia, or Kleine-Levin syndrome, are caused by a suspected CNS abnormality.^{11–14} In contrast, insufficient sleep syndrome is caused by patients sleeping less than their biologic sleep requirement. Sleepiness in shift work disorder often results from insufficient sleep time because patients cannot sleep on their hours off due to noise, family, or social obligations. Medications, alcohol, substance abuse, and certain medical, neurologic, and psychiatric disorders can cause excessive sleepiness either by disturbing CNS sleep-wake mechanisms or by fragmenting the major sleep period (**Box 2**).

Box 1

Common sleep disorders associated with excessive daytime somnolence

1. Hypersomnia due to medical or psychiatric disorder or drug or substance
2. Narcolepsy type 1 or 2
3. Idiopathic hypersomnia
4. Kleine-Levin syndrome
5. Insufficient sleep syndrome (sleep deprivation)
6. OSA
7. Central sleep apnea
8. Shift work disorder
9. Delayed sleep phase type
10. Advanced sleep phase type
11. Long sleeper
12. Periodic limb movement disorder
13. Hypersomnia due to a medical disorder
14. Hypersomnia due to a medication or substance

Box 2

Common medical and psychiatric disorders that can cause excessive sleepiness

Brain tumors
 Strokes
 Head trauma
 Seizures
 Congestive heart failure
 Bronchial asthma
 Endocrine abnormalities (eg, excessive growth hormone, hypothyroidism, diabetes mellitus)
 Chronic renal insufficiency
 Infectious diseases (eg, human immunodeficiency virus, CNS Lyme disease)
 Metabolic or infectious encephalopathies
 Fibromyalgia
 Chronic fatigue syndrome
 Schizophrenia
 Mood (depressive) disorders
 Seasonal affective disorder
 Conversion disorder
 Factitious disorder
 Malingering
 Drug intoxication or withdrawal

Approximately 14% of the population report EDS at least a few days per week.¹⁵ The prevalence seems to be higher among subjects age 65 years and older, ranging from 15% to 20%.^{16,17} Although exact statistics are not known, the most common causes of daytime sleepiness are insufficient sleep syndrome, shift work disorder, and OSA. Central causes of daytime sleepiness, such as narcolepsy and idiopathic hypersomnia, are less prevalent but important to screen for as well.^{15,18}

A systematic approach to the sleepy patient is needed to be able to distinguish between the many causes of daytime sleepiness. A thorough sleep history from the patient and, preferably, the patient's bed partner or caregiver, is needed. In addition, past medical, psychiatric history, surgical history, family history, physical examination, and appropriate laboratory tests are needed to form a complete differential diagnosis.

SLEEP EVALUATION

A thorough sleep evaluation begins with taking a careful history to determine the chief complaint; a detailed sleep history; and a medical, psychiatric, social, and family history. This should be followed

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