

Continued from previous page

insomnia. In general, primary insomnia is defined as difficulty sleeping that lasts for at least 1 month, affects functioning, and isn't caused by another condition, medication, or substance.

A thorough sleep history that includes symptoms, the person's sleep schedule and daytime activities, and the effects of sleep disturbances on daily functioning should be conducted for patients with sleep complaints. After identifying the cause of the sleep problem, Dr. Cole suggested, "We should be looking at non-pharmacologic interventions." Among the possibilities:

- Improving the environment (such as reducing nighttime noise levels, ensuring comfortable room temperatures, and/or increasing light exposure during the day and limiting it at night).
- Increasing daytime physical activity.
- Following a consistent bedtime routine.
- Adjusting medications.

Dr. Cole stressed the importance not adding to a patient's insomnia by prescribing drugs that may exacerbate the condition. For instance, certain medications contribute to insomnia. These include:

- Antidepressants
- Antihypertensives
- Appetite suppressants
- Beta agonists
- Calcium channel blockers
- Central nervous system (CNS) stimulants
- Diuretics
- Other contributing medications include glucocorticoids, respiratory stimulants, sedatives/hypnotics, and over-the-counter allergy, cold, or cough products.

Drugs or Not?

Pharmacist Alan Obringer, RPh, CPh, CGP, said, "I'm the perfect person to talk about nonpharmacologic treatments." He noted that there is much that can be done to help patients with insomnia that doesn't involve medications. For

instance, he suggested, "We can start by determining what is happening during the day that keeps someone from sleeping at night." He stressed that when a patient says that he or she can't sleep, the response should be to explore what is going on — not to go immediately for a prescription. He suggested, "The answer may be as simple as moving a person into a room with someone who shares his or her sleeping habits."

It is important to consider treatment goals, including improvement in sleep quality, sleep time, insomnia-related daytime impairment, and psychological distress. "After we find out what is happening, then we can think about treatment," he said. In choosing the appropriate treatment regimen, said Dr. Obringer, the team needs to consider the time course of insomnia (e.g., whether the person can't fall asleep versus can't stay asleep), comorbidities such as depression, and the potential for adverse effects.

If the individual is cognitively able, he or she can keep a sleep journal to help determine what might be causing sleep disturbances. For instance, a resident may reveal that the lights or sounds on his phone have been keeping him awake. Dr. Obringer said, "At times like this, the patient needs to make choices. Is it more important to have 24/7 access to the phone or to get a good night's sleep?" He added, "When you find a nonpharmacologic intervention that works, repeat it."

Behavioral Therapies

Cognitive-behavioral therapy for insomnia (CBT-I) has shown positive results for many patients, Dr. Obringer noted. This therapy is designed to help a person avoid negative thought patterns that contribute to insomnia. It also promotes better sleep habits by using relaxation techniques and other behavioral interventions. Specifically, he said, "CBT-I changes a patient's beliefs and expectations about sleep using psychotherapeutic methods." It may also include paradoxical interventions, designed to eliminate patients' anxiety about

sleep performance by training them to confront their fear of staying awake. Biofeedback therapy, which reduces somatic arousal by training the patient to control physiologic variables using visual and auditory mechanisms, also may be helpful.

Behavior treatments such as stimulus control, relaxation training, and sleep restrictions also may encourage better sleep in the older population. However, the patient must be cognitively intact to some degree for most of these to have maximum impact.

There are times, Dr. Obringer said, when medications are necessary. He stressed, "The idea is not to have all patients off of insomnia drugs but to ensure that, if medications are necessary, we use the right drug at the right dosage for the right time."

Medications for Sound Slumber

There are a number of classes of drugs designed to treat insomnia, said Wendy Ethridge, PharmD, CPh, and some are better for older patients than others. Whatever medication is used, it is important to start with a low dose and monitor for side effects.

Melatonin receptor agonists, Dr. Ethridge said, are "probably the best first step." For instance, mirtazapine has an off-label use for insomnia, and it can increase appetite and help with depression as well. Ramelteon also has proven effective but comes with a higher price tag. These drugs have a minimal side-effect profile, and tapering is not required.

Other common drug choices for the older patient population include:

- Zolpidem sublingual tablets (for middle of the night awakening)
- Eszopiclone, extended release zolpidem, suvorexant, and temazepam (for sleep initiation and sleep maintenance insomnia)
- Low-dose doxepin (for sleep maintenance insomnia)

The "Z" class of sedative-hypnotics are used to treat insomnia. Zolpidem, which is approved for short-term treatment of insomnia, has a short half-life;

its side effects are dizziness and drowsiness, which should be monitored closely. Zaleplon, a short-acting agent with a rapid onset of action, is useful for patients having problems with sleep latency; its main side effects are dizziness and headache. Eszopiclone is approved for sleep initiation and sleep maintenance-related insomnia; its main side effects are metallic tastes, drowsiness, and daytime sleepiness. None of these drugs should be used in combination with two or more CNS-active medications.

The dual orexin receptor antagonist suvorexant is another choice, which may be used for both sleep-onset and sleep-maintenance insomnia. Its main side effects are drowsiness, dizziness, headache, and abnormal dreams. The tricyclic doxepin is used for insomnia characterized by the inability to maintain sleep. It has a risk of orthostatic hypotension and syncope, and it should not be combined with other anticholinergic agents and/or two or more CNS-active drugs. Its side effects include confusion, delirium, dry mouth, constipation, and sedation.

Benzodiazepines are sometimes used for insomnia. However, there are newer, safer drugs to treat this condition in the geriatric population.

The American Geriatrics Society (AGS) Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults (*J Am Geriatr Soc* 2019;67:674–694) "helps us to know what drugs to avoid if possible," Dr. Ethridge said. "If you used medications on the Beers list, have documentation about why you chose those drugs."

In general, Dr. Ethridge said, "Think of drugs like training wheels. It is better to use them and enable patients to get needed sleep." The key is to monitor for side effects, taper doses as appropriate, and combine medication use with helpful nonpharmacologic interventions. ☞

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Sleep Apnea: Problems and Solutions

Christine Kilgore

Sleep-disordered breathing is a common but underrecognized problem in the post-acute and long-term care (PALTC) setting, with an estimated prevalence of 25% to 50%. It's also common in patients with congestive heart failure (CHF) — with either reduced or preserved ejection fraction — and it worsens with both CHF exacerbation and the progression of CHF severity.

Likewise, patients who have both CHF and sleep-disordered breathing fare worse than those without sleep apnea, said Julie Gammack, MD, CMD, at the annual conference of AMDA — The

Society for Post-Acute and Long-Term Care Medicine.

Particularly in the case of central sleep apnea (CSA), the predominant form of sleep-disordered breathing in individuals with more severe CHF, "the sympathetic surges that happen when people breathe and then don't breathe, and when their CO₂ rises and then falls rapidly, is thought to affect cardiac output, cardiac remodeling, and potentially relate to arrhythmia," said Dr. Gammack, a professor of medicine in the Division of Geriatric Medicine at Saint Louis University in Missouri.

Arrhythmias are believed to be quite common in patients with CSA, she emphasized. Unfortunately, she said, it appears that treatment of CSA with bilevel positive airway pressure (BiPAP) may worsen CHF, at least in patients with a low ejection fraction.

BiPAP versus CPAP

Unlike continuous positive airway pressure (CPAP) devices, which deliver fixed, continuous, positive airway pressure, BiPAP devices have two settings — a higher inspiratory pressure and a lower expiratory pressure — which often makes

them more tolerable for those who find exhaling against high CPAP pressure uncomfortable. The most sophisticated type of BiPAP device — the BiPAP with a backup rate — uses adaptive servoventilation and delivers variable inspiratory support during hypopnea and mandatory breaths during apnea. During periods of hyperventilation, the support is reduced.

Among the studies that have looked at CSA and various types of mask-based positive airway pressure in patients with CHF and reduced ejection fraction,

Continued to next page

Continued from previous page

CPAP improved sleep-disordered breathing, left ventricular ejection fraction, and the 6-minute walk test distance, among other measures, without any survival benefit. BiPAP with a backup rate, however, reduced sleep-disordered breathing and offered other benefits, but it was associated with a significantly higher all-cause mortality.

“Why wouldn’t the improvement in breathing help? There are a few thoughts — that [the device worsened] the sympathetic surges that happen as breathing happens, that apneic spells are somehow adaptive, or that there’s some inherent toxicity of PAP,” Dr. Gammack said.

In patients with CHF and preserved ejection fraction, research has suggested improved cardiovascular outcomes with BiPAP. Those studies have been small, however, with no randomized controlled trial as in the population with reduced ejection fraction. “So we really don’t know,” Dr. Gammack said. For now, a CHF diagnosis, particularly with reduced ejection fraction, is a potential contraindication for BiPAP treatment.

Medical Interventions

Acetazolamide and theophylline have been touted “as potential ways to induce respiration” in patients with CSA and CHF, but the studies have been small and suggested an increased risk of arrhythmias, possibly stemming from “the metabolic acidosis changes that are induced by these medications,” Dr. Gammack said. At this point, “medication management is not recommended in patients with CHF.”

Newer implantable devices for sleep-disordered breathing are emerging — phrenic nerve stimulation for CSA and hypoglossal nerve stimulation for obstructive sleep apnea (OSA), Dr. Gammack noted. “We may be taking care of folks who come to us with these devices, so we need to know about them,” she said.

Phrenic nerve stimulation aims to induce smooth diaphragmatic contraction and has been shown to improve central respiratory depression events, but there have been serious adverse events in 10% of patients, “mainly related to the implanting of the leads,” Dr. Gammack said. Hypoglossal nerve stimulation provides apnea-induced stimulation and “does show some benefit in reducing apneic events, but again, there are unknown cardiovascular outcomes.”

Diagnosis

CSA involves dysregulation in the brainstem respiratory centers and often presents as a Cheyne-Stokes respiratory pattern, with repeating periods of hyperventilation followed by hypoventilation. Individuals with CHF and CSA may often have an obstructive component to their sleep-disordered breathing as well, Dr. Gammack noted.

Sleep testing is required to diagnose CSA and OSA. Home sleep apnea testing is convenient, accessible, and comfortable, but is not as accurate as sleep-center testing, particularly for CSA. Still, it can be performed in the PALTC setting, and it “may be the more reasonable approach if we were to embark on a sleep study to understand if an individual has CSA or OSA.”

Oxygen qualification testing for patients with chronic lung disease and

OSA — or other qualifying conditions — may also be done in the skilled nursing setting, Dr. Gammack emphasized.

“It’s nice to know that whether we’re testing for ‘at-rest,’ ‘awake and exercising,’ or ‘during sleep’ qualification categories, the skilled nursing facility is considered an acceptable site,” she said. For post-acute patients, she noted that knowing how to do secure oxygen qualification “can allow our patients to transition as seamlessly as possible.”

When supplemental oxygen is needed for patients with chronic lung disease and OSA, qualification requires two steps. “It has to be done in a sleep setting where you optimize your CPAP and then [demonstrate the need for oxygen],” she said. 

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