Toward a Good Night’s Sleep: An Approach to Insomnia in Older Patients

ABSTRACT: Insomnia is common among older adults, who should routinely be screened for sleep-related problems. When patients experience insomnia, consider other treatable sleep disorders, such as obstructive sleep apnea, restless legs syndrome, and periodic limb movement disorder. Keep in mind that comorbid medical and mental health conditions can contribute to insomnia as well. Recommend cognitive-behavioral therapy for insomnia whenever practical. Treatment of sleep-related problems can improve quality of life and reduce the impact of poor sleep on comorbid conditions.

Key words: sleep disorder, insomnia

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Many older patients struggle to get a good night of sleep, and in fact, insomnia is more common in older adults than in younger persons. It is associated with medical and mental health problems across the adult lifespan; untreated insomnia can negatively impact quality of life and predispose patients to exacerbation of other symptoms, such as pain and depression. Appropriate treatment can improve health, mood, and overall well-being.

In this article, we discuss the factors that control sleep, how sleep changes normally with age, and what goes wrong when insomnia develops. We also provide an overview of other prevalent sleep disorders in older patients and outline practical recommendations for diagnosis, triage, referral, and treatment of older patients who present with insomnia.

“NORMAL” SLEEP

To fully understand what goes wrong with sleep, it is helpful to understand what constitutes “healthy sleep.” Sleep is regulated by two core mechanisms: circadian rhythms and the homeostatic sleep drive. These processes also modulate level of alertness during the day. Understanding how these two underlying mechanisms interact will illuminate the factors that sustain chronic insomnia.

Circadian rhythms are biological cycles lasting about (circa) 1 day (diem). Circadian rhythms are controlled by a group of cells in the suprachiasmatic nucleus located in the hypothalamus—this is often referred to as the “biological clock” or the “circadian clock.” The circadian clock is strongly influenced by exposure to light entering through the eye, and regulation of this “clock” is mediated by melatonin production in the pineal gland. Throughout the 24-hour day, the clock sends alerting signals throughout the brain and helps us to maintain wakefulness in the face of a building sleep drive.

The homeostatic “sleep drive” is the second process that controls sleep. This is the body’s natural urge for sleep based on how much time has been spent awake. This sleep drive is akin to hunger—the longer we are awake, the sleepier we feel, and adenosine appears to play an important role in the accumulation of “sleepiness” in the brain. Sleep is best when the biological drive for sleep is high, and the alertness signal from the circadian clock is declining. Trying to sleep at times that do not correspond with the circadian clock and/or the homeostatic sleep drive can lead to insomnia.

The precise amount of sleep needed varies from person to person. Epidemiology studies suggest that persons in the United States typically sleep between 7 and 8 hours per night, although some people sleep more and some sleep less. It appears that aging itself has little effect on the amount of sleep an individual needs. In fact, older persons need about as much sleep as they did when they were younger—but unfortunately, there are many
obstacles to getting enough good-quality sleep to feel rested during the day.

A “normal” night of sleep is comprised of approximately 90-minute cycles that contain two physiological states, or “stages,” of sleep. The first state is non–rapid eye movement (NREM) sleep, which is further divided into three stages (N1, N2, and N3). N1 is the lightest stage of sleep, N2 has a higher arousal threshold and is the stage in which the most time asleep is spent, and N3 is described as “deep sleep.” N3 has a high arousal threshold, and it appears to be when physiological restoration occurs. The second state is rapid eye movement (REM) sleep. REM typically occurs at the end of each 90-minute cycle and is believed to be important for memory consolidation and overall health. During REM sleep, the brain activity resembles that of wakefulness but the body is paralyzed. Dreams (including nightmares) most commonly occur during REM sleep.

**AGE-RELATED SLEEP CHANGES**

Significant changes occur to sleep during the normal aging process, while the amount of sleep needed by an individual remains relatively stable across adulthood. Deep sleep (stage N3) decreases with age. This change can affect sleep in multiple ways. First, since N2 and N1 have lower arousal thresholds, sleep may be more easily disturbed by environmental factors such as noise. There may also be a slight decrease in REM sleep as we age; however, this remains less clear than the dramatic decline in N3 sleep. A second critical factor is that older adults may not feel as rested and energetic during the day. This may increase daytime sleepiness and napping, and studies show older adults nap more than younger adults. Older adults may nap more frequently because of fatigue, boredom, or fewer daytime obligations after retirement. Daytime napping affects the homeostatic drive for sleep at night, and oftentimes napping (planned or unintentional) becomes an important part of the clinical picture when we treat patients with insomnia. Reducing daytime sleep and therefore increasing sleep drive at night can improve insomnia for many patients.

As mentioned above, circadian rhythms regulate our propensity for sleep across a 24-hour period. As we age, the amplitude of the circadian signal grows weaker and the rhythm cycle tends to shift earlier. This may lead to an earlier time to bed and early morning awakenings. While a change in circadian timing is a normal part of aging, it can contribute to difficulty in sleeping often resulting in symptoms of insomnia. For some older adults, trying to stay up until a socially desirable time can lead to evening dozing, and early morning awakenings can increase making it difficult to sleep until a desirable morning rise time.

Although the majority of healthy older adults are able to navigate normal age-related changes to their sleep, over 40% will develop insomnia and/or other sleep-related disorders as they age. Overall, older adults experience more fragmented sleep due to the natural changes outlined above, but many go on to develop chronic insomnia. Psychiatric and medical conditions (eg, depression, anxiety, arthritis, chronic pain, medications) also can directly impact sleep. Behavioral and lifestyle factors (eg, spending extensive time in bed, daytime napping, decreased exposure to light because of social factors) and other sleep disorders are essential to consider as well. Attending to comorbid conditions and medications that contribute to insomnia is therefore a critical step in the management of insomnia symptoms. Behavioral and lifestyle factors often become key targets for non-pharmacological interventions as discussed below.

**WHEN IS SLEEP DISTURBANCE INSOMNIA?**

“Insomnia” is a clinical disorder in which patients have insufficient or poor-quality sleep—even though they have the opportunity to get the sleep they need. A diagnosis of insomnia requires that the sleep difficulty last at least 1 month and that it negatively impact daytime functioning (eg, difficulty in concentrating, impaired memory, fatigue, stomach problems, irritability, or reduced motivation). Insomnia symptoms can include difficulty in falling asleep, repeated nighttime awakenings, early morning awakenings, inadequate total sleep time, or poor sleep quality. Sleep maintenance insomnia (difficulty in staying asleep) and early morning awakenings are the most common types of insomnia symptoms in older adults; however, many older patients have difficulty both in falling asleep and in staying asleep.

Most population-based surveys estimate the prevalence of insomnia in the general population is approximately 10% to 20%; in older adults the rate increases to 42% and up to 57% of older adults complain of generally poor sleep. A subset of these patients (5% to 20%) could be considered to have “primary insomnia” or insomnia not directly associated with another medical or psychiatric condition. The majority have insomnia that occurs in the context of other medical or psychiatric conditions.

**CONSEQUENCES OF UNTREATED INSOMNIA**

In addition to negatively impacting quality of life, insomnia is linked to higher health care utilization, greater risk of falls, and cognitive decline, and it is associated with increased rates of depression and anxiety. A National Sleep Foundation survey estimated that insomnia costs
$100 billion annually in medical expenses, ramifications of accidents, reduced productivity, and impaired job performance.\(^1\) Most importantly, multiple studies have demonstrated that even when controlling for comorbid or concurrent disorders, insomnia is associated with increased morbidity and mortality risk.\(^1\)\(^2\) \(^1\)\(^3\)

**OTHER SLEEP DISORDERS**

Some patients may present with symptoms of insomnia, but they may actually have another sleep disorder. Important disorders to consider include obstructive sleep apnea (OSA), restless legs syndrome (RLS) or periodic limb movement disorder (PLMD), REM behavior disorder, and circadian rhythm sleep disorders. Many patients have more than one sleep disorder, and it is common for one sleep problem to exacerbate the other. For example, daytime sleepiness resulting from OSA may lead to increased napping, which can exacerbate insomnia by decreasing sleep drive at night. Since older adults are at elevated risk for all of the disorders described here and the treatments vary widely, clinical guidelines recommend routine assessment of sleep complaints and referral to a sleep specialist when needed.\(^1\)\(^5\) The Table lists 10 initial questions to ask your patients about sleep.

*Obstructive sleep apnea.* OSA occurs in more than one third of older adults in the community.\(^1\)\(^7\) It is the complete or partial cessation of respiration during sleep, which is diagnosed with an overnight sleep study, done either in the patient’s home with portable monitoring or in a sleep laboratory with polysomnography (PSG). PSG reflects the collective findings of EEG, eye movements, and respiratory measurements.

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REM, rapid eye movement.
electromyography, respiratory effort, airflow, and limb movements during sleep. It is critical that we screen older patients for OSA. Loud snoring, witnessed pauses in breathing, excessive daytime sleepiness, gasping or choking during sleep, and morning headaches are all symptoms of OSA, and patients with these symptoms should be immediately referred for diagnostic evaluation. When OSA is suspected, hypnotic medication for insomnia should generally be avoided, and the patient should be cautioned about driving when sleepy. Treatment for OSA involves opening the upper airway, most typically through a positive airway pressure (PAP) machine. Suspected sleep apnea warrants a prompt referral for diagnosis and treatment, since the consequences of untreated sleep apnea are severe. Consequences can include increased risk of stroke, myocardial infarction, and metabolic disease.

**Restless legs syndrome and periodic limb movement disorder.** Both RLS and PLMD are common among older patients and become more severe with age. About 12% of older adults have RLS, and nearly half experience at least mild PLMD. PLMD is characterized by repetitive and highly stereotyped movements during sleep. RLS often accompanies PLMD and is experienced as an irresistible urge to move the legs or may be described as a “creepy crawly” feeling in the legs. When RLS is suspected, reversible causes should be ruled out. Commonly, patients with RLS have low ferritin, and iron supplements dramatically improve symptoms.

When additional direct treatment is required, there are FDA-approved medications for the treatment of RLS. PLMD is diagnosed with PSG, and in patients with comorbid OSA, they typically resolve when OSA is treated. In the event that PLMD continues, it can be directly treated with dopaminergic agents and non-pharmacological approaches (e.g., moderate exercise, smoking cessation, alcohol avoidance, and caffeine reduction).

**Advance sleep phase disorder.** When the normal age-related shift in circadian rhythms is extreme and problematic, advance sleep phase disorder (ASPD) may develop. ASPD occurs in approximately 7% of older adults. Patients with ASPD often present with evening sleepiness and trouble staying asleep in the morning hours. A patient with ASPD may fall asleep quite early (e.g., 7:00 PM) and then wake up unable to return to sleep too early as well (e.g., 3:00 AM)—having achieved a full night of sleep. What differentiates ASPD from insomnia is that adequate sleep is achieved, but it occurs at an undesirable time. ASPD is diagnosed through a clinical history and at least 1 week of sleep diary or wrist actigraphy (a small motion sensor worn on the wrist to measure sleep patterns). Sleeping on an “early” schedule has not been shown to negatively impact health, and treatment should be undertaken only if the patient wishes to change the timing of sleep. ASPD is most commonly treated with timed exposure to bright light in the evening.

**REM behavior disorder.** REM behavior disorder (RBD) is most common in older adults, particularly older men. Patients with RBD report complex and often violent movements during sleep, which are associated with dream content and can be dangerous to the patient or the bed partner. Safety is an immediate concern. RBD occurs during REM sleep and is related to a loss of the normal muscle atonia. RBD is diagnosed with PSG and treated with pharmacological interventions. Recent studies show that persons with RBD are at higher risk for the eventual development of Parkinson’s disease; therefore, patients with RBD should be monitored for other symptoms of Parkinson’s disease to facilitate diagnosis and treatment when and if symptoms emerge.

**CORRELATES AND CONTRIBUTING FACTORS**

Few older patients have insomnia alone. Comorbid medical and mental health conditions can contribute to insomnia, and insomnia can exacerbate medical and mental health symptoms reflecting a bidirectional interaction. At least 70% of older adults with insomnia have comorbid medical or psychiatric disorders, use alcohol or drugs, or take medications that impact their sleep. Most older insomnia patients will present with insomnia in the context of other chronic problems. As a result, treatment can be challenging.

Just a few decades ago, comorbid disorders were seen as an indication not to directly treat insomnia. In fact, patients suffering from insomnia are much more likely to have a comorbid disorder, and recent studies show that treating insomnia in the context of depression or anxiety, for example, leads to improvements in both insomnia and the comorbid disorder.

In the case of depression, successful treatment of insomnia reduces the risk of future depressive episodes as well. The conventional approach to treat comorbid psychiatric disorders first has therefore been called into question, and the current approach is to treat both insomnia and comorbid conditions simultaneously.

Older adults often take multiple medications, many of which negatively impact their sleep. Beta-blockers, corticosteroids, decongestants, bronchodilators, diuretics, and other gastrointestinal, cardiovascular, neurological, and psychiatric medications may disrupt sleep. Often patients take these medications for important reasons and they cannot be discontinued; however, it may be helpful to adjust the timing of medication administration and minimize
the number of medications taken near bedtime, and to reduce liquids just before bed and minimize negative effects on sleep.

DO PATIENTS SEEK HELP WHEN THEY CANNOT SLEEP?

Many older patients experience sleep problems; however, they often do not seek medical treatment. In fact, the majority of patients with insomnia do not seek medical help for their sleep problems at all. Reasons patients do not seek help include the belief that insomnia is trivial, lack of awareness and skepticism about available treatment options, clinicians’ lack of responsiveness to patient concerns, and feeling that clinicians are too busy to address insomnia. When patients do seek help, they are typically experiencing severe symptoms, including daytime fatigue, distress, chronic pain, and/or severe sleep loss, that have gone on for years. When patients come to us with sleep complaints, they are often desperate for help and have struggled on their own without relief. Particularly given the potential consequences of untreated sleep disorders, we should routinely screen our older patients for sleep problems, and when they do come to us for help, we must recognize their suffering and provide appropriate treatment or referrals as quickly as possible.

DIAGNOSING INSOMNIA

Insomnia is diagnosed with a good clinical history. Brief standardized screening and assessment measures are available and can be administered during routine measurement of vital signs in a busy practice. The screening questions in the Table can be asked in a short period of time, and when a sleep problem is identified, time can be allotted for additional assessment either at that same visit or at a subsequent visit as time permits. These questions facilitate a rapid evaluation of patients’ sleep habits and screening for other common sleep disorders.

Give patients who report symptoms of insomnia a sleep diary to be completed for approximately 2 weeks; it can provide a baseline assessment and can be helpful in monitoring treatment progress. A simple sleep diary for patients can be found on the American Academy of Sleep Medicine website at http://yoursleep.aasmnet.org/pdf/sleepdiary.pdf.

TREATING INSOMNIA

While it is not always necessary to address underlying causes of insomnia before beginning treatment, it is important to address potential contributors that are reversible. Some patients will benefit from basic suggestions to improve sleep habits and reassurance that insomnia is a problem to be taken seriously. We have included some practical recommendations in the Box “12 Rules to Sleep By,” which you can provide to patients. In developing these recommendations, we were cognizant of the heterogeneity of sleep difficulties in older patients and of which recommendations are most likely to result in clinical benefit. These recommendations should be discussed with your patient, and the most important recommendations for a given individual should be highlighted. Patients who do not benefit from this quick “educational approach” should be provided with more intensive and further individualized treatments, since this type of “sleep hygiene” education is not as effective as other forms of treatment, which are discussed below. Nonetheless, accurate information about sleep-related issues is helpful for all insomnia patients.

Non-pharmacological approaches. Cognitive-behavioral therapy for insomnia (CBT-I) is based on the work of Aaron Beck (1967), which demonstrates that thoughts, feelings, and behaviors are interconnected and can exacerbate symptoms and distress—and that changing thoughts and behaviors can relieve symptoms and change feeling states. CBT-I is typically delivered by mental health practitioners (or sometimes by sleep specialists), and unlike many forms of “psychotherapy,” it is quite brief—usually lasting only 4 to 8 sessions. A growing number of studies show that CBT-I is more effective than medications for the long-term management of insomnia, and we encourage you to identify a local specialist who can provide this treatment to your patients when referrals are necessary. A list of credentialed behavioral sleep medicine providers can be accessed through the American Board of Sleep Medicine website at http://www.absm.org/BSMSpecialists.aspx.

Unlike basic sleep hygiene education, CBT-I is a highly individualized treatment targeting the factors that maintain insomnia, which are somewhat different for each patient. Education about how sleep works and how insomnia develops is essential because the other components of treatment can present adherence challenges, and education can help the patient understand the rationale behind each recommendation. At times, CBT-I recommendations must be adapted for older adults with comorbidities that may make CBT-I challenging.

A key component of CBT-I is adjusting the sleep schedule, typically by curtailing time spent in bed to match the time spent asleep. This approach is called “sleep restriction.” For older adults, reducing time in bed can be challenging, and it is important to discuss these challenges with the patient. For example, if your patient is supposed to stay up 2 hours later than usual, what will she do during that time? How will your patient avoid naps during the day? A second key component of CBT-I is “stimulus control.” This is used to break negative associations between the sleep environment and sleep-related distress, typically by telling patients to...
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**Information for Patients: 12 Rules to Sleep By**

1. Establish a regular wake time. Use an alarm and do not vary by more than 1 hour from day to day.

2. Go to bed around the same time each night. Select your bedtime based on when you feel sleepy and how much sleep you need.

3. Use your bed only for sleep and sleep only in your bed.

4. If possible, do not nap during the day. Keep naps short if they are needed or desired (less than 1 hour total).

5. If you struggle to fall asleep or get back to sleep at night, get out of bed and return to bed when you are sleepy.

6. Make your sleep environment a comfortable place to be. Adjust temperature, use darkening window shades, and minimize noise.

7. Don’t watch the clock! Watching the clock makes it impossible to sleep.

8. Establish regular meal times, especially dinner time.

9. Establish a regular exercise routine, but don’t exercise within 2 hours of bedtime.

10. Put your day to rest by giving yourself some “wind down” time before you go to bed each night. Do something relaxing like taking a bath, meditating, or listening to music. Let go of the day’s anxieties before you get into bed!

11. Avoid caffeine in the afternoon and evening hours.

12. Limit alcohol intake. If it disrupts your sleep, it may be best not to drink at all.

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*A good night’s sleep is an important part of staying healthy. If following these rules does not improve your sleep, talk to your doctor about your treatment options.*

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There are also briefer forms of behavioral treatments that are easier to provide in primary care offices, and studies show that a skilled provider (physician, nurse, health educator) can deliver effective, brief interventions. These interventions typically include a few key aspects:

- Education about sleep regulation and insomnia.
- A regular sleep schedule (especially a regular morning rise time) that is individually tailored.
- Monitoring progress with a sleep diary, which is reviewed at one or more follow-up visits where recommendations are revised according to progress.

**Pharmacological treatments.**

In general, pharmacological thera-
pies for insomnia are more often pro-
vided by primary care practitioners than by sleep specialists, and such therapies are appropriate for some patients. There is a consensus in the field that new-generation FDA-approved medications for the treatment of insomnia are recommended over older sedative-hypnotics, medications from other drug classes used “off label” to treat insomnia (e.g., sedating antidepressants), or over-the-counter sleep aids. The decision to start a new medication for sleep problems should not be taken lightly, however, and clinicians should consider several issues in making such a decision:

- Is this patient a good candidate for pharmacotherapy, or are there contraindications?
- Which sleep aid will address the patient’s specific type of complaint?
- How long do I want this patient to use this medication? What is the discontinuation plan if treatment is not intended to be indefinite?
- How will the patient and I evaluate the effectiveness of the medication over time? What will we do if the medication becomes less effective with continued use?

Considering these questions in advance of initiating therapy can reduce the likelihood of problematic use in the future. As with any medication, a risk-benefit analysis should be undertaken. Generally, the contraindications for insomnia pharmacotherapy are more common among older patients because many sleep medications can increase the risk of falls, interact with other medications, and lead to confusion or cognitive problems; in addition, some may lead to physiological or psychological dependence. For example, if an elderly patient is experiencing cognitive impairment and awakens confused at night as a result of dementia, pharmacological interventions may exacerbate rather than reduce symptoms.

Also, while there are studies on “longer-term” use of hypnotics,
there are no studies of use beyond 1 year. Given that older patients often have experienced insomnia for many years before seeking treatment, it is crucial to discuss a discontinuation plan at the outset. When considering pharmacological interventions, start with the lowest effective dose, follow the patient’s progress closely, and monitor carefully for adverse events.

**SUMMARY**

Insomnia is common among older adults, and as healthcare providers we should routinely screen for sleep-related problems. When patients experience insomnia, we should consider other treatable sleep disorders and recommend cognitive-behavioral therapy for insomnia whenever practical. Treatment of sleep-related problems can improve quality of life and reduce the impact of poor sleep on comorbid conditions.

**REFERENCES:**


www.Consultant360.com