

Insomnia in the Older Adult

The Characteristics of Insomnia in the Older Adult

Insomnia refers to a subjective complaint of difficulty initiating or maintaining sleep and/or unrestorative sleep that is accompanied by daytime consequences such as sleepiness, irritability or concentration problems. Insomnia patients may also have significant anxiety about their inability to achieve adequate sleep. In older adults, insomnia most often involves difficulty maintaining sleep, though many older adults experience a variety of insomnia symptoms as they age such as a decrease in sleep efficiency, an increase in sleep latency, more frequent nocturnal awakenings and lengthier awakenings.¹ Not all older adults sleep poorly; epidemiological evidence suggests that insomnia prevalence among older adults is between 20% and 40%.²

How Sleep Patterns Change with Age

Changes in sleep patterns that occur as a natural function of aging are partly to blame for insomnia in older adults. Compared to children and younger adults, older adults spend more time in the lighter stages of sleep and less time in deeper sleep (slow wave sleep), the most restorative stage of sleep. An advance of the sleep phase is also common among older adults, with many older adults going to bed and waking up earlier three or more hours earlier than younger adults.³ Evidence suggests that circadian rhythms may become less sensitive to the effects of melatonin and to external cues such as periods of light and dark, thereby making the daily rhythms of sleeping and waking less robust in older adults.⁴

Primary Insomnia

"Primary insomnia" is a term to describe sleep difficulty that is not caused by any underlying physical or mental condition. In general, a diagnosis of primary insomnia is given when a patient's sleep complaint persists for more than three weeks and is accompanied by daytime consequences such as sleepiness, fatigue, irritability or cognitive impairment. Primary insomnia may be caused by stress, anxiety, excessive worry, caffeine consumption, jet lag, poor sleep habits, substance use, a disruptive sleep environment or negative sleep associations.

Insomnia Comorbid with Medical Illness

Among older adults, insomnia is often comorbid with medical illnesses such as rheumatoid arthritis, Parkinson's disease, congestive heart failure, stroke, asthma, and chronic obstructive pulmonary disease, cancer, Alzheimer's disease and other forms of dementia.⁵ In addition, a variety of medications used to treat medical conditions associated with aging may cause nighttime insomnia or daytime drowsiness, which may further disrupt the sleep cycle.

Insomnia Comorbid with Mental Illness

Psychiatric conditions are also a primary cause of insomnia in the older adult, especially depression and generalized anxiety disorder (GAD).⁶ The association between insomnia and depression in older adults is not well understood, but the two conditions may have elements of shared physiopathology. Insomnia may also be predictive of depression; a recent study found that the risk of developing depression is three times higher for people with insomnia compared to those who sleep well.⁷ In contrast, symptoms of GAD usually precede the onset of insomnia symptoms.⁸

Insomnia Comorbid with Other Sleep Disorders

Insomnia in older adults may also be comorbid with other sleep disorders, including restless legs syndrome (RLS) and obstructive sleep apnea (OSA). OSA may cause extreme daytime sleepiness, irritability and repeated nocturnal awakenings that are sometimes mistaken for insomnia. OSA is more common in post-menopausal women than in women who have not gone through menopause.⁹ Patients who complain of insomnia as well as snoring and daytime sleepiness should be screened for OSA.

Risk Factors for Insomnia in the Older Adult

The most important risk factors for insomnia in older adults are medical and psychiatric illnesses. In addition, the more medical conditions a person has, the more likely they are to report difficulty sleeping.¹⁰ Female gender is another strong risk factor for insomnia; women are more likely than men to suffer from insomnia throughout their lives, and older age increases this risk.¹¹ Low education levels, living in a geriatric care facility and being separated, divorced or widowed may also increase the risk of insomnia in older adults.^{12 13 14 15} Lifestyle also has a strong impact on the sleep of older adults; inactivity, spending too much time in bed and frequent napping increase the risk of insomnia among older adults.¹⁶

Implications for Health and Quality of Life

Insomnia is associated with a diminished quality of life; a recent study of more than 3,400 primary care physicians found that insomnia patients report a quality of life comparable to patients with congestive heart failure or depression.¹⁷ For older adults, insomnia is also associated with cognitive decline, higher rates of physical and mental illness, greater use of the healthcare system and an increased risk of falls and hip fractures.^{18 19 20} Spouses and other bed partners may also be affected by an insomnia patient's sleep problems; one large, population-based sample of older adults found that people whose spouses suffered from sleep problems were more likely to have poor health, depressed mood and marital unhappiness.²¹

The Critical Role of the Primary Care Physician

Certain sleep disorders require treatment by a physician with a sleep specialization. Insomnia is an exception; the vast majority of insomnia patients are treated by primary care and family physicians. For this reason, it is critically important that sleep questions be included in a general medical work-up, especially for older adults. It is also essential that physicians in primary practice be trained in the diagnosis and treatment of insomnia; research suggests that general practitioners who receive even a minimal amount of training can significantly improve their ability to properly diagnose and treat insomnia.²² Research also suggests that diagnosing insomnia at the onset improves the chances of preventing it from becoming a chronic condition.²³

Differential Diagnosis

A differential diagnosis of insomnia should involve:

- A determination of the nature of the sleep disturbance (sleep onset vs. sleep maintenance insomnia)
- A determination of the duration of the sleep disturbance
- A discussion of daytime symptoms (e.g., irritability, fatigue)
- An evaluation for medical or psychiatric conditions
- A screening for other sleep disorders such as OSA and RLS
- A list of current medications (prescription and over-the-counter)
- An evaluation of patient's sleep and sleepiness diary
- A review of the patient's sleep environment
- Information on the patient's caffeine use
- Information on the patient's use of alcohol
- A discussion of lifestyle factors including exercise habits, work schedules and recent life events that may be causing stress or anxiety

Behavioral and Psychological Treatment

The cornerstones of treatment for insomnia are behavioral/psychological therapies, including sleep hygiene and cognitive behavioral therapy. Sleep hygiene involves keeping a regular sleep/wake schedule, developing a relaxing bedtime routine, restricting the bedroom to sleep and sexual activity, avoiding caffeine and alcohol, eliminating naps and creating a sleep environment that is cool, dark, quiet and comfortable. Relaxation techniques may also improve insomnia in older adults.

Cognitive behavioral therapy (CBT) is an effective long-term treatment option for insomnia. CBT addresses the factors that perpetuate insomnia such as hyperarousal and patient anxiety about sleep. There are no side effects or risk of dependency with CBT, and it is generally a less expensive option compared to drug treatments for the long-term management of insomnia.

CBT for insomnia typically consists of the following components, and physicians may use one or a combination of them:

- Cognitive restructuring - targets the patient's dysfunctional attitudes about sleep, such as excessive worry about the effects of not sleeping
- Sleep restriction – limits the patient's time in bed to the amount of time he or she typically sleeps, and then gradually increases time in bed as sleep time increases.
- Stimulus control – allows the patient to re-associate the bedroom with sleep. It involves going to bed only when sleepy, limiting the bedroom activities to sleep and sex, getting out of bed if sleep is not achieved within 15 minutes and avoiding naps.
- Relaxation therapy – reduces stress and anxiety, relaxes the body and prepares the patient for sleep.

Research suggests that CBT produces lasting changes in patients with insomnia, and as many as one-third become good sleepers simply by employing such strategies.²⁴

Pharmacological Treatments

Pharmacological treatments are recommended in patients for whom behavioral/psychological remedies alone are not effective. There are currently ten drugs with FDA approval for treatment of insomnia, and all are recommended for the

short-term treatment of insomnia (see Table 1). Those that have received FDA approval since 2005 (ramelteon, eszopiclone and zolpidem CR) may be prescribed without limitation on the duration of their use.

Table 1 – FDA-Approved Medications for the Treatment of Insomnia

Drug	Chemical Class	Recommended Dose in Adults, in Older Adults	Half Life (hours)
Estazolam	Benzodiazepine	2 mg, 1 mg	8 - 24
Eszopiclone	Non-benzodiazepine	2 mg, 3 mg, 1 mg	5 - 7
Flurazepam	Benzodiazepine	30 mg, 15 mg	48 - 120
Quazepam	Benzodiazepine	15 mg, 7.5 mg	48 - 120
Temazepam	Benzodiazepine	30 mg, 15 mg	8 - 20
Triazolam	Benzodiazepine	0.25 mg, 0.125 mg	2 - 4
Zaleplon	Non-benzodiazepine	10 mg, 5 mg	~1.0
Zolpidem	Non-benzodiazepine	10 mg, 5 mg	1.5 – 2.4
Zolpidem CR	Non-benzodiazepine	12.5 mg, 6.25 mg	6.26 – 12.5
Ramelteon	Melatonin agonist	8 mg, 8 mg	1.5 - 5

Adverse Effects of Pharmacological Treatments

Each of the medications approved for the treatment of insomnia have the potential for adverse effects in older adults, including daytime drowsiness, cognitive impairment, ataxia, dependence and rebound insomnia. Research suggests that the occurrence of these effects may be lower for the newer sleep medications (e.g., ramelteon, eszopiclone and zolpidem CR), most likely because these agents have shorter half-lives.²⁵

In addition, the U.S. Food and Drug Administration recently requested that manufacturers of insomnia medications revise their product labels to include stronger language concerning potential risks. These risks include severe allergic reactions and complex sleep-related behaviors, which may include sleep driving. Sleep driving is defined as driving while not fully awake after ingestion of a sedative-hypnotic product, with no memory of the event.

Special Considerations for Pharmacological Treatments

There are a number of factors to consider before treating an older patient with insomnia medications, including the patient's current medication regimen and the physiological characteristics of older adults. For example, older adults may metabolize some drugs more slowly, which can magnify the effect of the drug.²⁶ Older adults may also take medications to treat other conditions, increasing the likelihood of adverse drug interactions. Older adults may also be more susceptible to the potential side effects of insomnia medications such as residual sedation, ataxia, cognitive impairments, dependence, and an increased risk of falls.²⁷ Insomnia medications may also worsen respiratory problems and sleep-related breathing disorders.²⁸ For most patients, the ideal pharmacological agent has rapid onset and lasts through the night with minimal or no adverse effects. The newer, shorter-acting agents typically have fewer adverse effects and are more likely to achieve this result.

The Use of Off-Label Medications

There are a number of prescription drugs without FDA approval for insomnia that are widely prescribed to treat insomnia, including sedating antidepressants, antipsychotics and antihistamines.²⁹ However, the effectiveness of these products for the long-term treatment of insomnia has not been supported by randomized clinical trials and many have potentially serious side effects. Thus, they are not recommended for the treatment of insomnia.

Complimentary and Alternative Medicine

Melatonin has been shown to modestly improve sleep complaints and is widely used for the treatment of insomnia, especially among older adults. However, melatonin and other complimentary and alternative therapies (e.g., valerian) are not regulated by the FDA and there is little evidence regarding their safety.³⁰ Thus, they are not recommended for the treatment of insomnia.

Additional alternative therapies for the treatment of insomnia include light therapy and exercise therapies such as yoga and acupuncture. As of this writing, these treatments have not undergone adequate evaluation and their use in the treatment of insomnia is therefore not recommended.³¹

Clinical Management of the Discontinuation of Insomnia Medications

Patients who take insomnia medications may become dependent on them. Patients should be informed about the potential side effects of such drugs and offered alternatives to drug treatment such as behavioral remedies. Physicians may also redefine the patient's use (e.g., as needed vs. nightly) or allow the patient a gradual withdrawal schedule spanning several weeks. It may also be helpful for physicians to follow-up with the patient about their sleep or any reappearance of insomnia symptoms once the medication is discontinued.

The Case of an Older Married Couple

In primary care practice, physicians may care for patients over the course of their lifetime and are likely to be responsible for the care of several members of the same family. This gives them an opportunity to monitor changes in behavior, health and well-being over time and to learn how the well-being of one member of the family affects the whole. In the following case study, the sleep problems and related illnesses of an older married couple spanning more than a decade are described.

Patient #1 – Presentation, Brief Personal/Medical history and Sleep Complaints

"FL" is a female who first became a patient in her mid-fifties about ten years ago. At that time she was taking alprazolam 0.5 mg every night for sleep, was post-menopausal, had no medical problems, and was neither a smoker nor a drinker. During FL's yearly examination several years ago, she revealed that excess worry was affecting her sleep such that would take her hours to fall asleep. She also admitted to vague back pains, vague abdominal pains, headaches and daytime sleepiness.

Patient #1 – Initial Diagnosis and Treatment

The patient's work-up and further follow-up led to the diagnosis of generalized anxiety disorder (GAD) and chronic insomnia, and she was prescribed paroxetine 10 mg daily, and her alprazolam was changed to zolpidem 10 mg at bedtime. She

deferred referral to a psychologist, as there were no pressing issues in her life. This regimen proved useful, as she began sleeping well and feeling better.

Patient #1 – Follow-Up and Additional Sleep Complaints

Over the ensuing few years, the patient continued to take zolpidem for sleep. During a follow-up visit, the patient complained of daytime sleepiness and lack of energy. Questions regarding her sleep revealed that she had no trouble getting to or staying asleep, but her husband complained that she was now a snorer for over 3 years, worsened over the last one year. The possibility of obstructive sleep apnea (OSA) was raised to her, and she was referred for polysomnography. She was also advised to discontinue zolpidem, which could worsen OSA. She was agreeable to the former, not the latter.

Patient #1 – Insomnia Comorbid with Obstructive Sleep Apnea

Polysomnography revealed that the patient had OSA with an apnea-hypopnea index (AHI) of 35 and lowest pulse oximetry of 81%. She was prescribed continuous positive airway pressure (CPAP). The patient was non-compliant with CPAP and was thus referred to an ENT specializing in OSA. Soon after that, her zolpidem was discontinued and she underwent uvulopalatopharyngoplasty.

Patient #1 – Follow-Up

During a follow-up visit, the patient reported less daytime sleepiness and much more energy, but she was having trouble initiating sleep on some nights. Ramelteon, a newer insomnia medication that has not been shown to suppress respiratory function or exacerbate OSA, was prescribed to be taken 30 minutes prior to bedtime. She was advised that patients may not get the full benefit of this medication until 1-2 weeks after beginning use, and to continue taking it for at least that long. The importance of sleep hygiene was also emphasized to her. Over the following weeks, the patient was sleeping better and had no side effects to report. She was advised to continue the medication pending further follow-up.

Patient #2 - Presentation and Brief Personal/Medical history

"ML" is a male in his mid-sixties presenting for a yearly examination. He is being treated for hypertension, hypercholesterolemia, obesity, asthma (mild intermittent), osteoarthritis and benign prostatic hyperplasia. His medications included simvastatin 80 mg daily, lisinopril/HCTZ 20/25, albuterol MDI prn (average 1-3 times a month), celecoxib 200 mg daily, and tamsulosin 0.4 mg daily. He had quit smoking in his 40's, and drank alcohol very rarely. In the last few years he had also developed an abnormal fasting glucose, but not diabetes.

Patient #2 – Sleep Complaints

ML has no history of sleep problems. However, in the last few years his wife's snoring has made it difficult for him to fall asleep. As a result, he had begun sleeping on the living room couch. In the past two years, he has developed the habit of taking naps on the couch after dinner, and then waking up at 11:00 pm unable to fall back to sleep for several hours. Once asleep, he would wake up two or three times to go to the bathroom.

Patient #2 – Diagnosis and Treatment

The patient was instructed on the importance of sleep hygiene, and advised to eliminate evening napping. Also, since his wife was no longer snoring after her operation, he was advised that he no longer needed to sleep on the couch. Older insomnia medications were not indicated for ML because of the risk of ataxia and

respiratory suppression, a particular concern with his history of asthma. Ramelteon 8 mg to be taken 30 minutes prior to bedtime was prescribed, and he was instructed to continue taking the medication for at least several weeks, as sleep symptoms may take that long to improve with this medication.

Patient #2 – Follow-Up

ML called one week after starting this treatment to say that he was getting to sleep nicely. He was advised to continue taking the medication until his regularly scheduled visit that was to occur 6 weeks later. When the patient came in at that time, he reported having discontinued ramelteon about 2 weeks prior, and that he had been sleeping fine since then.

Summary

Sleep problems may have a profound impact on a patient's bed partner. For example, one member of a couple may suffer from insomnia related to the other's snoring. Insomnia patients may also experience significant daytime sleepiness and irritability that can impact a marriage or other relationship. For partnered adults with sleep problems, it is helpful to interview the spouse or significant other about the patient's sleep and to instruct the spouse or partner on ways of coping with the patient's sleep symptoms.

Evidence suggests that older adults who remain healthy in later life are less likely to develop insomnia.³² This trend suggests that sleep problems among older adults are related to their comorbidities rather than to aging *per se*. Insomnia complaints are highly prevalent among older adults seen in primary care settings. For older adults, sleep complaints often appear in the presence of other medical conditions such as generalized anxiety disorder, depression, rheumatoid arthritis, Parkinson's disease, high blood pressure, asthma, COPD and other sleep disorders such as restless legs syndrome and sleep apnea.³³ Patients with the highest risk for sleep disturbance are those with pain, mental illness and overall poor physical and mental health.³⁴ In addition, lifestyle factors such as inactivity and poor sleep habits may contribute to insomnia in the older adult. Thus, sleep problems in the older adult are caused by a mix of biological, psychological and social factors.

It is common for older adults to have unrealistic expectations concerning the duration of sleep. For many people, aging is accompanied by reduced sleep efficiency, increased sleep latency and more frequent nocturnal awakenings. Helping older patients keep a positive attitude regarding their sleep despite experiencing these sleep symptoms is essential to preventing and treating insomnia. For many, behavioral/psychological strategies such as improving sleep hygiene, relaxation techniques and cognitive behavioral therapy are enough to alleviate or eliminate insomnia. For others, combining these strategies with appropriate pharmacological therapies may be effective at treating persistent insomnia.



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