

# INSOMNIA

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## ABSTRACT

Insomnia is one of the more common complaints patients present to their physicians. Sleep problems affect up to one-third of all Americans, and the loss of workplace productivity. Patients with acute insomnia generally respond well to various sedative hypnotic medications, but chronic insomnia is a different challenge. Physicians and patients may raise concerns about the long-term use of sedative hypnotic medications. Even in light of these concerns, however, the chronic insomnia remains, ostensibly leaving the physician few choices. A number of promising nonpharmacologic strategies are available that physicians can easily implement. Through the use of self-rating instruments and a sleep log, physicians can bring the sleep problem into better focus and monitor the efficacy of clinical interventions. Certain behavioral techniques, such as sleep hygiene, stimulus control, and sleep restriction, can be effective remedies for chronic insomnia. The use of cranial electric stimulation for insomnia is also showing promising results. Through careful assessment and the adoption of simple nonpharmacologic strategies, the physician's interventions may result in a good night's sleep.

Key word: Insomnia, sleep disorder, management of insomnia.

## INTRODUCTION

A sleep problem with an acute onset and little in the way of antecedents will typically prompt the prescription of some sleep aid. on the other hand, a patient with a chronic sleep problem probably presents with an extensive past history of ineffective, or at best partially effective, pharmacologic management. as the physician quickly lists the patient's prior medications and in return learns of the patient's poor response, a sense of gloom may descend on the interview. At this point, many healthcare providers may feel boxed in. Typical interventions at this juncture might include a consultative referral to a psychiatrist or a sleep medicine specialist. The former can search for contributing emotional problems, while the latter can

recommend more sophisticated diagnostic procedures—perhaps, for example, a test for obstructive sleep apnea. of course, medical consultation is the bedrock of good clinical practice, but another, complementary pathway exists. This alternate approach involves the consideration of and, when appropriate, the use of nonpharmacologic treatment strategies for the management of sleep disorders. We conducted this review of published literature on the nonpharmacologic treatment of patients with insomnia by querying the Cochrane Database of systematic reviews, pubmed, and psycinfo. The following search terms were used with each database: insomnia, sleep problems, and sleep disorders.<sup>1,2,3</sup>

## **PREVALENCE AND ECONOMIC IMPLICATIONS**

Insomnia is common, affecting 10% to 35% of the us population. Women, older adults, and individuals with physical or emotional problems report insomnia more frequently. Although women are more likely than men to report sleep difficulties, when examined objectively women in the general population have a better quality of sleep than men do. Sleep disorders are economically and socially expensive. Some of the impairments associated with poor sleep include chronic fatigue, inattention, irritability, diminished productivity, emotional problems, absenteeism, more frequent health complaints, increased alcohol use, and accidents. Individuals more days absent from work than do those without insomnia. Taken together, the economic toll in terms of employment and healthcare utilization could approach \$100 billion per year. Insomnia is a persistent condition in that it is subject to frequent recurrences. in a study<sup>6</sup> to examine the natural history of insomnia, the authors discovered that nearly three-fourths of the study group had experienced a 1-year course of sleep difficulties.<sup>2,4</sup>

Slightly less than half of the study group remained symptomatic for the duration of the 3-year study. Chronic sleep problems are associated with a number of physical disorders, chief among which are cardiopulmonary disease, musculoskeletal problems, and any disorder accompanied by frequent urination. Aside from physical problems, the single strongest correlate with insomnia is concurrent clinical depression. Research also suggests a chronic state of physiologic arousal may contribute to some types of insomnia, a condition commonly encountered in patients with posttraumatic stress disorder.<sup>1,3</sup>

Individuals with alcohol misuse disorders may continue to experience sleep problems many months after achieving abstinence. In the beginning, alcohol's sedative effect promotes the initiation of sleep, but longer term alcohol use results in a decline in total sleep time and a substantial impairment in rapid eye movement, or REM, sleep. The etiology of alcohol-related insomnia might be physiologic or simply a lingering consequence of poor sleep habits adopted during periods of heavy drinking. A careful history of sleep problems must include attention to substance misuse. Compared with normal sleepers, individuals with insomnia are more likely to use alcohol as a sleep aid, by a margin of nearly two to one. Persistent insomnia also helps predict relapse among individuals with alcohol dependence, again by a two to one margin.<sup>3,2</sup>

Individuals with a combination of stressful life events and insomnia had a risk of developing an alcohol problem that was two times greater than the risk in normal sleepers. This finding was limited to patients with preexisting clinical anxiety or depression. Among older adults with a prior history of depression, insomnia may be an independent risk factor heralding a return of the dysphoric mood. Nightmares, independent of insomnia, may also indicate individuals who are more likely to be suicidal.<sup>14</sup> Obesity also interferes with sleep; researchers have reported a progressive decrease in total sleep time as the body mass index increases. As

might be expected, the use of tobacco products has a negative influence on the initiation and maintenance of sleep. Impaired sleep also lowers the body's resistance to common rhinoviral infections. Shorter duration of sleep correlates with higher blood pressure levels. Among young adults, shorter periods of sleep were associated with higher self-reports of poor health.<sup>5,6</sup>

## **DIAGNOSIS**

The nomenclature of sleep disorders can be found in several publications. The *International Classification of Sleep Disorders: Diagnostic and Coding Manual* identifies approximately 90 different sleep disorders. *The Diagnostic and Statistical Manual of Mental Disorders* recognizes primary sleep disorders, dyssomnias, parasomnias, sleep disorders related to other mental disorders, sleep disorders related to general medical conditions, and substance-induced sleep disorders.<sup>6</sup>

## **ASSESSMENT**

The assessment of any sleep disorder begins with a comprehensive history and physical examination. This history should include the onset, duration, and impairment associated with the sleep problem. An effort should be made to identify whether the sleep problem is one of initiation or of maintenance. If sleep onset is delayed, the clinician should probe the possible causes, such as excessive worry. If sleep is repeatedly interrupted, the clinician should inquire about dreams, nightmares, and snoring. A history of habits associated with the sleep routine, such as reading in bed, is important. The clinician should ask about other patient behaviors that might occur just before going to bed, such as eating a meal, consuming alcohol or caffeine, using over-the-counter sleep aids, and exercising. If possible, a collateral history from the bed partner could

provide valuable clues, such as restlessness, talking, or possible breathing difficulties the patient might experience. The high correlation between emotional disorders and sleep problems necessitates a screening interview for depression and anxiety. The physical examination might include a review of the person's medical history to look for any contributing conditions such as a chronic pain disorder.<sup>4,6,7</sup>

A review of medications might unearth possible culprits that are interfering with the patient's sleep. Large parts of the sleep assessment can be standardized through the use of various instruments. A sleep diary is particularly useful, since research suggests most people with insomnia miscalculate their sleep history. A properly completed sleep diary can provide a wealth of information. Typical diaries include sections on medication use, ingestion of caffeinated beverages, time at which the subject went to bed, the amount of time it took to fall asleep, total hours in bed, total sleep hours, number of interruptions and type, and time and manner of awakening. The clinician should ask the patient to complete the diary on a daily basis for at least 1 week.<sup>5,7,8</sup>

The sleep diary serves other purposes, as well. It shows that the clinician is serious about gathering additional information, and the patient's response, in terms of willingness to participate and daily compliance, may provide information about the patient's motivations. The pre-sleep arousal scale is a 16-item self-report instrument designed to assess cognitive and physiologic factors that may contribute to sleep initiation. The Epworth sleepiness scale measures the impairment of a sleep disorder in terms of daytime fatigue. Scores higher than 11 are clinically significant. The Pittsburgh Insomnia Rating Scale is designed for the patient to complete and comes in two versions, one form with 65 questions and another, abbreviated form with 20

questions. Both are designed to assess the quality of sleep during a 7 day period. The 20-item questionnaire may be particularly useful for tracking the impact of clinical interventions.<sup>7,8</sup>

## **TREATMENT**

### **RATIONALE FOR NONPHARMACOLOGIC CLINICAL INTERVENTIONS**

The physician can prescribe a variety of medications to improve sleep. Many of these medications target the  $\gamma$ -aminobutyric acid receptors but are associated with accompanying adverse effects such as rebound insomnia and chemical dependence. ramelteon is a novel medication that attempts to overcome these concerns by acting as an agonist at the melatonin receptor. Unfortunately, despite the plethora of sleep medications available, a substantial number of patients with chronic insomnia do not achieve a full remission. At this point, the physician might consider a number of nonpharmacologic treatments. nonpharmacologic clinical interventions offer several potential advantages. Physicians concerned about prescription drug misuse can replace medications with evidence-based behavioral treatments. such treatment is also cost-effective. Despite substantial research and practical clinical experience, many physicians remain unfamiliar with the wide range of nonpharmacologic options available to treat insomnia.<sup>6,7,8</sup>

Behavioral techniques broadly consist of sleep hygiene, stimulus control, and sleep restriction. These are simple, effective clinical interventions that physicians can use alone or in combination with medications to improve the patient's sleep. Among this group, physicians will find sleep hygiene the easiest strategy to implement.<sup>6,7</sup>

#### ***Sleep Hygiene***

The effectiveness of sleep hygiene education rests on the physician's education of the patient about the myriad environmental factors that disturb sleep. Patients develop and sustain bad habits, which chronically interfere with a restful night's sleep. Practices that promote better sleep can be reduced to a factual handout. Sometimes the burdens of the day return with a vengeance at bedtime. Few things prevent sleep like a night of ceaseless mental flagellations. For a patient in these circumstances, the physician could suggest the patient keep a worry journal.<sup>6</sup>

The worry journal is a special diary in which the patient records the trials and tribulations of the day, along with possible solutions. Just prior to turning in for the night, the patient can spend a few minutes logging the entries and then, with a symbolic significance, close the book and set it aside until the morning. Sleep hygiene can be remarkably effective in promoting sleep. Rigorous application of the basic tenets of sleep hygiene can increase total sleep time and improve sleep efficiency. Reducing the mental stimulation that accompanies a singular preoccupation can promote the quicker initiation of sleep.<sup>7</sup>

### ***Stimulus Control***

Stimulus control is a particularly effective behavioral treatment. In many cases, the physician can trace the patient's sleep problems to bad habits. Common activities include eating, watching TV, or reading a stimulating novel while in bed. Any number of activities are incompatible with a good night's rest. The goal of stimulus control is to break the bad habits and behaviorally associate the bedroom with sleep. To be effective, stimulus control strategies require considerable diligence on the part of the patient. The physician should ask the patient to keep a sleep log to monitor and reinforce stimulus control practices.<sup>8</sup>

Stimulus control requires that the patient adopt specific routines. The patient should set and maintain a regular sleep pattern and avoid the temptation to oversleep on the weekends. A

regular rise time must be enforced regardless of the quality of the previous night's sleep. The bed should be used only for sleeping and sex. With that in mind, the patient should go to bed only when sleepy. If a restful repose eludes the patient, he or she should be instructed to leave the bed and pursue some nonstimulating activity. The patient should return to bed only when fatigue returns. Despite a restless night and the resulting tiredness, the patient should make every effort to avoid napping.<sup>7</sup>

### ***Sleep Restriction***

Many patients do not sleep efficiently. Sleep efficiency is the relationship between the amount of time spent actually sleeping and the amount of time spent in bed. For example, a person may lie in bed for 10 hours but spend only 5 hours asleep. This person's sleep efficiency is a rather abysmal 50%. The behavioral technique referred to as sleep restriction aims to reduce the gap so that time in bed closely approximates time asleep. Sleep restriction achieves this outcome by decreasing sleep onset latency and improving total sleep time. Although sleep restriction can be remarkably effective in improving the amount of time spent sleeping, it is difficult to apply. In part, this is due to an erroneous belief that equates greater time spent in bed with higher quality sleep. Another difficulty in applying sleep restriction is the need to induce mild sleep deprivation to reset the sleep cycle. Unfortunately, the time spent in bed not sleeping contributes to a variety of sleep disturbances. A sleep restriction program works with a sleep log to methodically reduce the amount of inefficient time in bed.<sup>5,8</sup>

### ***Exercise***

Routine exercise is another simple remedy for chronic insomnia. Participants in a randomized controlled trial, who engaged in brisk walking or low-impact aerobic exercise fell asleep faster, increased their total sleep time, and awoke feeling more refreshed than did the



control subjects. A more recent study produced similar results; study subjects experienced reduced sleep-onset latency and improved sleep efficiency. The timing and intensity of exercise are important. as the findings in both studies suggest, physicians should recommend 20 minutes of light to moderate exercise three or four times a week and no later than about 4 hours before bedtime.<sup>7</sup>

## **SUMMARY**

Medications remain the physician's first choice for the treatment of patients with acute insomnia. That choice makes sense given the quick relief and relatively safe profile many sleep medications provide. chronic sleep disorders present a different challenge when concerns about long-term medication management arise. The research reported herein suggests that clinicians should consider nonpharmacologic strategies to manage long-term insomnia. in some cases, of course, the patient needs the sophisticated services of a specialist in sleep medicine. for many other patients, the physician's careful assessment and simple interventions may lead to a good night's sleep.

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