

# An approach to product selection for insomnia

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## Abstract

Insomnia is a common condition which includes trouble falling, or staying, asleep. This condition can range from being mild to severe, depending on how often it occurs, and for how long. The main focus of treatment for insomnia should be directed towards finding the underlying cause. Once a cause is identified, it is important to manage and control the underlying problem, as this alone may be able to eliminate the insomnia. Treating the symptoms of insomnia, without addressing the underlying cause, is rarely successful. In the majority of cases, chronic insomnia can be resolved if its medical or psychiatric causes are identified, and treated appropriately.

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## Introduction

Most adults have experienced insomnia or sleeplessness at one time or another in their lives. An estimated 30-50% of the general population is affected by insomnia, and 10% has chronic insomnia.<sup>1</sup> When a patient presents with insomnia, the doctor should look for a coexisting medical condition, psychiatric disorder, neurological disease, sleep disorder, or drug that is associated with insomnia.

Insomnia is classified as “insomnia associated with” the coexisting condition, if such a condition is identified. It is otherwise considered to be an independent disorder.<sup>2</sup>

## Symptoms

Common insomnia symptoms include:<sup>1,3,4</sup>

- Difficulty falling asleep, or staying asleep
- Variable sleep, such as several nights of poor sleep, followed by a night of better sleep
- Daytime fatigue or sleepiness
- Forgetfulness
- Poor concentration
- Irritability
- Anxiety
- Depression
- Reduced motivation or energy
- Increased errors or accidents
- Ongoing worry about sleep.

For many people, the symptoms of insomnia interfere with day-to-day activities, personal relationships and job performance. In one survey, people who experienced chronic insomnia had a twofold increased risk of automobile accidents, compared to people who were fatigued for other reasons.<sup>3</sup>

## Causes

### Short-term insomnia

Short-term insomnia, which lasts for three months, or less, is usually caused by stressors.

Possible stressors include:<sup>1,3,4</sup>

- Changes in the sleeping environment, i.e. temperature, light and noise
- Stress, such as the loss of a loved one, divorce, or job loss
- Recent illness, surgery, or the presence of a painful condition
- Use of, or withdrawal from, stimulants, e.g. caffeine, certain medications, e.g. theophylline, beta blockers, steroids, thyroid hormones and beta-2 agonist bronchodilators, illegal drugs, e.g. cocaine and methamphetamine, or alcohol
- Jet lag
- Changes in shift work.

Short-term insomnia often resolves when the stressor is removed.

### Long-term insomnia

Long-term insomnia lasts longer than one month.

Common causes include:<sup>1,3,4</sup>

- Mental health problems, such as depression, anxiety disorders (including panic attacks), and post-traumatic stress disorder
- Medical illnesses, especially those that cause pain, stress, or difficulty breathing
- Neurological disorders, such as Parkinson's disease and Alzheimer's disease
- Other sleep disorders, such as sleep apnoea, restless

legs syndrome, periodic limb movements, and circadian rhythm disorders

- Medications
- Illegal drug use.

## Treatment

Generally, treatment of insomnia entails both non-pharmacological and pharmacological aspects. It is best to tailor treatment to the individual patient, based on the underlying cause. Studies have shown that combining medical and non-medical treatments is more successful in treating insomnia than either approach alone.<sup>1</sup>

All patients with insomnia should receive treatment for the underlying disorder that may be precipitating or exacerbating the insomnia. Patients should also receive counselling about sleep hygiene and stimulus control.<sup>5</sup>

Some patients may continue to have insomnia that is sufficiently burdensome to warrant an intervention. In these cases, reasonable approaches include behavioural therapy, medication, or both.<sup>5</sup>

### Behavioural therapies

Behavioural therapies for insomnia include sleep hygiene education, stimulus control, relaxation, sleep restriction therapy, cognitive therapy, and cognitive behavioural therapy (Table I). Patients whose insomnia has been successfully treated by behavioural therapy are likely to report decreased daytime symptoms and improvement of daytime functioning, quality of life, and co-morbid conditions.<sup>5</sup>

### Medication

Medication, to aid sleep, may be recommended if insomnia interferes with the patient's ability to function during the daytime. Discuss sleep-inducing medicines with a doctor, including the potential benefits, e.g. improved daytime symptoms and functioning, vs. the risks, e.g. side-effects and addiction potential, and burdens, e.g. cost and effort.<sup>7</sup>

Medications that are commonly used to treat insomnia include benzodiazepines, nonbenzodiazepine sedatives, and melatonin agonists. Patients whose insomnia has been successfully treated with pharmacological therapy are likely to report an improvement in daytime functioning, better quality of life, and fewer co-morbidities, e.g. depressed mood. Risks of pharmacological therapy include side-effects, as well as physical and psychological addiction, associated with long-term use.

The risks of pharmacological therapy may increase in certain clinical settings:

- *Pregnancy*: Sedative-hypnotics may increase the risk of foetal malformations, if taken during the first trimester.
- *Alcohol consumption*: Sedative-hypnotics should not be combined with alcohol, because there is a risk of excessive sedation whenever central nervous system (CNS) suppressants are combined.
- *Renal or hepatic disease*: Most sedative-hypnotic medications undergo hepatic and renal clearance. Metabolic

**Table I: Behavioural therapies for patients with insomnia<sup>1,5-7</sup>**

#### Sleep hygiene

There are several simple steps that can be taken to improve a patient's sleep quality and quantity:

- Go to bed, and get up, at the same time every day. Sleep as much as needed, to feel rested. Set the alarm clock to get up at a certain time each morning, even on weekends. Do not oversleep.
- Avoid taking long naps in the daytime.
- Go to bed when sleepy.
- Do not force sleep. If the patient does not fall asleep 30 minutes after going to bed, he or she should get up and go to another room, and resume relaxation techniques (see below).
- Exercise regularly, at least 20 minutes daily, and ideally four to five hours before bedtime.
- Do not go to bed hungry.
- Do not go to bed with any worries. Try to resolve them before going to bed.

#### Relaxation therapy

Relaxation therapy involves measures such as meditation and muscle relaxation, or dimming the lights and playing soothing music, prior to going to bed.

#### Stimulus control

Stimulus control consists of a few simple steps that may help patients with chronic insomnia:

- Do not drink caffeinated beverages late in the afternoon (e.g. tea, coffee and soft drinks). Avoid "night caps" (alcoholic drinks) prior to going to bed.
- Avoid large meals and excessive fluids before bedtime.
- Do not smoke, especially in the evening.
- Control the environment: Light, noise, and undesirable room temperatures can disrupt sleep. Shift workers and night workers, especially, should address these factors. Dimming the lights in the bedroom, relaxing, limiting the noise, and avoiding stressful tasks before going to bed, may be beneficial. (Refer to sleep hygiene and relaxation therapy above.) Avoid carrying out activities in the bedroom that should be done elsewhere. For example, do not work or operate a business out of the bedroom, and avoid watching television, reading books, and eating in bed.

#### Sleep restriction

Restrict time in bed for sleeping purposes only, as this may improve sleep quality. Set rigid bedtime and rising times. Get up at the rising time, even if feeling sleepy. This may result in better sleep the next night, because of sleep deprivation from the previous night. In some cases, sleep restriction has been helpful.

clearance may be delayed in patients who have renal or hepatic disease, leading to accumulation and excessive sedation.

- *Pulmonary disease or sleep apnoea*: Many sedative-hypnotics are respiratory suppressants that can worsen obstructive sleep apnoea or hypoventilation.
- *Night-time decision makers*: Sedative-hypnotics should not be taken by individuals who may be called upon to make important decisions during the night, e.g. single parents who are responsible for the care of young children, because they can cause excessive sedation and impair decision making.
- *Older adults*: The risk of adverse effects is increased in older adults, especially those who are 75 years of age or older. This is a consequence of multiple co-morbidities and CNS changes associated with aging.<sup>5,7</sup>

## Benzodiazepines

Benzodiazepines are a class of sleep-inducing medications that bind several gamma-aminobutyric acid (GABA) type A receptor subtypes. They reduce the time to sleep onset, prolong Stage 2 sleep, prolong total sleep time, and may slightly reduce the relative amount of rapid eye movement sleep.<sup>5</sup> Benzodiazepines commonly used to treat insomnia include triazolam, lorazepam, temazepam and flurazepam. A primary difference among these medications is their duration of action.<sup>5,7</sup>

People who take benzodiazepines should be cautious, because they may feel sleepy in the morning, and this can affect driving safety, job performance, and decision making. Patients should be counselled not to take benzodiazepines together with alcohol, or other sedating drugs, and not to take a higher dose than prescribed. Benzodiazepines are generally recommended for short-term use, because regular use may cause long-term addiction.<sup>7</sup>

## Nonbenzodiazepines

A newer class of sleep-promoting medications has been approved to treat insomnia. These medications have a structure that is different from benzodiazepines, and which demonstrate a more targeted action at a single GABA type A receptor.<sup>5</sup> Nonbenzodiazepines appear to improve both subjective and objective sleep outcomes. Meta-analyses of clinical trials indicate that nonbenzodiazepines decrease sleep latency and the number of awakenings, while improving sleep duration and sleep quality.<sup>5</sup> Their side-effects tend to be less frequent, and less severe, than those of traditional benzodiazepines.<sup>7</sup> Nonbenzodiazepines that are used to treat insomnia, e.g. zolpidem, may be addictive if taken every night for a prolonged period. Avoid taking them with alcohol, or other sedating drugs.<sup>7</sup>

## Melatonin agonists

Melatonin is secreted by the pineal gland, a pea-sized structure at the centre of the brain. Melatonin is produced during the dark hours of the day-night cycle (circadian rhythm). Melatonin levels in the body are low during daylight hours. The pineal gland responds to darkness by increasing melatonin levels in the body. This process is thought to be integral to maintaining circadian rhythm. At night, melatonin is produced to help the body regulate sleep-wake cycles. The amount of melatonin produced by the body seems to decrease with age.

Melatonin supplements have been investigated for use in patients with circadian rhythm problems.<sup>1</sup> These supplements may be useful in patients who have delayed sleep-phase syndrome, and in a subgroup of patients with low melatonin levels. It appears to be safe when used short-term, i.e. for three months or less.<sup>5</sup>

Ramelteon is a melatonin agonist. It binds with much higher affinity than melatonin to melatonin receptors. Ramelteon provides the most benefit to patients who have sleep onset insomnia. Although ramelteon is approved in the USA, in 2008, the European Medicines Agency concluded that

there was inadequate evidence that the drug was effective in treating insomnia.<sup>5</sup>

Agomelatine is a melatonergic drug, and appears to be effective in treating circadian rhythm sleep disorders, and some types of insomnia. However, further studies are required to understand the mechanisms of action, particularly for insomnia.<sup>8</sup>

## Other medications

Numerous other medications have a sedating effect, but are not recommended for routine use in patients with insomnia. These include antidepressants, diphenhydramine, antipsychotics, and barbiturates.<sup>1,5,7</sup>

## Alternative treatments

Alternative treatments, including herbal products, e.g. valerian, homeopathy, and aromatherapy, have been suggested as treatments for insomnia. However, studies of valerian show that it is no more effective than a placebo in treating insomnia. In addition, most herbal products have not been tested, to confirm efficacy and safety.<sup>7</sup>

## Combination therapy

Combination therapy involves prescribing both cognitive behavioural therapy (CBT) and a medication, usually for six to eight weeks. The medication is then tapered, or given on an as-needed schedule, while continuing with the CBT.<sup>5</sup>

## Special populations

Patients who have insomnia that is associated with a circadian rhythm disorder may benefit from phototherapy or chronotherapy.<sup>5</sup>

## Conclusion

Insomnia is one of the most common medical complaints. Patients with insomnia experience increased fatigue, sleepiness, confusion, tension, anxiety and depression. Such dysphoria pervades other areas of life, causing patients with insomnia to report a decreased quality of life and degraded performance. The main focus of insomnia treatment should be finding what is causing it.

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