Treating insomnia
Alternatives to drug therapies

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Chronic insomnia is a common and significant disorder that should be treated with nondrug therapy. It can be treated in the primary care setting with a short course of behavioural therapy, with difficult cases referred to specialist sleep clinics.

KEY POINTS

- Insomnia is a prevalent and debilitating disorder often presenting in general practice.
- Use of medications to treat patients with insomnia is common but not recommended.
- Adequate diagnosis is important and should include a sleep diary and patient questionnaire.
- Treatment of patients with insomnia with an abbreviated (two to three consultations) nondrug therapy is possible and preferred over medication.
- Two behavioural therapies have been found to be useful: stimulus control therapy for sleep-onset problems and bed period restriction therapy for problems with excessive wakefulness at night.
- Patients with difficult or more complex sleep disorders should be referred to specialist sleep clinics rather than given medications.

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Insomnia is defined as the inability to obtain adequate sleep despite having adequate opportunity. A diagnosis of insomnia requires the reported sleeping difficulties of falling asleep, frequent or long awakenings, awakening before intended or a combination of these difficulties. However, these sleep symptoms alone do not complete the diagnosis, consideration of daytime impairments also being required.

Adequacy of sleep can be assessed by how a person functions and feels during the day. If functioning and wellbeing are good and there are no noticeable sleepiness, fatigue or cognitive impairments, then sleep is adequate and insomnia is not the issue. The person may be a natural short sleeper who is spending more time in bed than necessary. They may be an older person whose sleep need has declined naturally with age to six to seven hours[1] but who spends what they believe to be the right amount of time in bed of eight hours and therefore experience one to two hours of wakefulness.

If a patient with difficulty sleeping feels fine during the day, they can be reassured that their sleep symptoms are benign and it can be suggested they spend a bit less time in bed if they are concerned about this wakeful time. Sleepers in earlier centuries, particularly in the winter, seemed to tolerate long periods of wakefulness in bed.[2]

Impact of insomnia

The personal impacts of insomnia include:

- daytime fatigue
- cognitive impairments
- emotional distress
- lowered quality of life.

Patients with insomnia also have increased risks to their psychological, physical and occupational health.[3] For example, longitudinal studies have shown that those with insomnia have twice the risk for developing depression and have reduced occupational productivity because of more work absences and

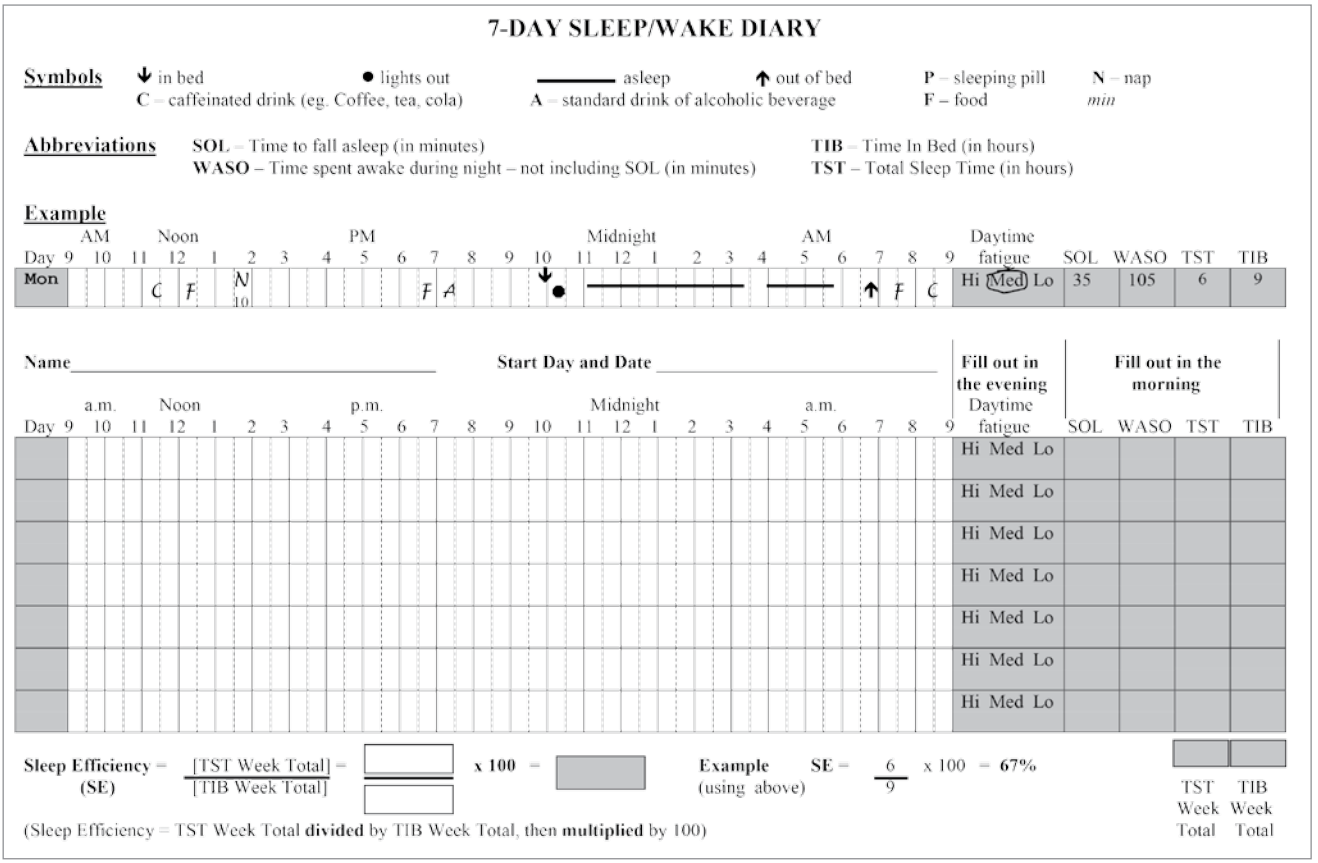

Figure 1. An example of a sleep/wake diary.

reduced professional advancement.[3]

The societal impacts and economic burden of insomnia are also significant. The estimated annual direct and indirect financial cost of insomnia is $1.5 billion in Australia.[4]

Prevalence of insomnia

The sleep symptoms of insomnia are common, with a population prevalence of 20 to 30%. When the presence of negative daytime impact (i.e. daytime sleepiness, fatigue and irritability) is included, the prevalence of severe insomnia in Australia is about 7%.[4]

Surveys of patients attending general practices have suggested prevalence rates of sleeping difficulties or insomnia ranging from 38 to 41%.[5,6] The true prevalence may be higher because many patients may not report their insomnia at all or may only mention it at the end of a consultation about some other acute problem. This scenario does not provide much opportunity to investigate the type of insomnia the patient is experiencing or to decide on the most effective course of action. This may account for the high likelihood of the patient being prescribed a quick fix with sedative medication, as discussed below.

Drug treatment of insomnia

A recent analysis of almost 3000 cases of insomnia in general practice in Australia found 95% were prescribed medications, about half of which were temazepam.[7] About 1.3 million prescriptions for hypnotic drugs are written every year in Australia for the treatment of patients with insomnia.[8] About a quarter of a million hypnotic/sedative tablets are consumed every night.[8]

Does this amount of medication consumption eliminate the burden of insomnia? Apparently not. Those patients who reported sleeping less than six hours per night or having a sleep disorder were much more likely to be taking prescription hypnotic drugs.[9] Although hypnotic drugs usually provide some acute symptomatic relief, the benefits tend to diminish with long-term use.

Tolerance and drug dependence are common problems with long-term administration (more than four weeks) of hypnotics/sedatives. Cessation of the drug results in a gradual relapse of the insomnia at best and an intensified rebound insomnia at worst.[10] Other adverse side effects such as daytime sedation, cognitive and memory impairments, and increased risk of falls in the elderly are also commonly reported. Hypnotic medications do not address the

causes of the insomnia and do not provide a lasting cure.[11]

Alternatives to medications

There are effective and durable treatment alternatives to drug therapy for patients with insomnia. Several nondrug tools have been grouped together and given the term cognitive behavioural therapy for insomnia (CBTi). These include methods of changing inappropriate behaviours and maladaptive beliefs perpetuating insomnia.

Research shows CBTi to be as effective as drug therapy in the short term (up to four weeks) and more effective in the long term (more than four weeks) than drug therapy.[11] These benefits combined with a much lower risk profile for CBTi recently led the Clinical Guidelines Committee of the American College of Physicians to recommend using CBTi as the initial treatment for patients with chronic insomnia disorder.[12] For patients in whom CBTi is unsuccessful, the committee recommends a discussion with the patient of the pros and cons of short-term administration of medication before adding this to CBTi.

Administration of CBTi in primary care settings

Confirming the diagnosis

Research has shown that CBTi can be effectively administered in the primary care setting by GPs or practice nurses with a minimum of two consultations.[13,14] The first step after a patient has reported the presence of an insomnia sleeping problem is to evaluate the nature and severity of the problem. This is best done using a sleep/wake diary to collect at least one week of information, as well as a questionnaire about the severity of the insomnia problem and its impact on the patient's daytime functioning. The sleep/wake diary information can be most easily appreciated when it is collected in a graphical format, an example of which is shown in Figure 1.

A completed seven-day sleep/wake diary shows at a glance an overview of the patient's sleep patterns: bedtime, lights-out time, estimated time taken to fall asleep,

Name: _____

Date: _____

1. Please rate the current (i.e. last 2 weeks) SEVERITY of your insomnia problem(s)

	None	Mild	Moderate	Severe	Very
Difficulty falling asleep:	0	1	2	3	4
Difficulty staying asleep:	0	1	2	3	4
Problem waking up too early:	0	1	2	3	4

2. How SATISFIED/dissatisfied are you with your current sleep pattern?

Very satisfied				Very dissatisfied
0	1	2	3	4

3. To what extent do you consider your sleep problem to INTERFERE with your daily functioning (e.g. daytime fatigue, ability to function at work/daily chores, concentration, memory, mood, etc).

Not at all interfering	A little	Somewhat	Much	Very much interfering
0	1	2	3	4

4. How NOTICEABLE to others do you think your sleeping problem is in terms of impairing the quality of your life?

Not at all noticeable	Barely	Somewhat	Much noticeable	Very much
0	1	2	3	4

5. How WORRIED/distressed are you about your current sleep problem?

Not at all	A little	Somewhat	Much	Very much
0	1	2	3	4

Figure 2. The Insomnia Severity Index questionnaire. Note, item number one contains three sleep questions giving a total of seven items.

Reproduced with permission from Sleep Med 2001; 2: 297-307.[15]

estimated time awake during the night after initially falling asleep, wake-up time and estimated total sleep time. Three or more nights per week showing more than an estimated 30 minutes taken to fall asleep or more than an estimated 45 minutes awake in bed during the night after initially falling asleep indicates clinical insomnia sleep symptoms.

In addition to the sleep/wake diary, the Insomnia Severity Index (ISI) is a reliable and valid questionnaire measure of clinical insomnia including daytime impact.[15] It is a quick to administer and score seven-item questionnaire (Figure 2). Three questions relate to sleep symptoms and four to daytime impact of the insomnia. A score of 15 or more on the ISI indicates moderate-to-severe clinical insomnia.

Following the initial report of insomnia symptoms, at least two further consultations should be arranged for the patient. This will allow time for the collection of diary entries and ISI information necessary for confirmation of the diagnosis and appropriate elements of CBTi to be started with a subsequent follow up about two weeks later.

Treatment in primary care settings

Therapy is recommended for patients with an ISI of 15 or more and significant delayed sleep onset and/or wake time during the night evident on the diary. In an abbreviated treatment protocol of two sessions the behavioural components of CBTi, i.e. stimulus control therapy [16] and bed period restriction therapy,[17] will produce the quickest results.

Stimulus control therapy

If the patient's main difficulty is initially getting to sleep, stimulus control therapy augmented by morning light therapy is recommended. The instructions for the patient are as follows.

- Keep the bedroom for sleeping only and do not read or watch TV in bed.
- Have a sedentary, 'wind down' time in dim light before bedtime.
- Decide to go to bed only when noticeably sleepy or tending to fall asleep (not necessarily fatigued).
- If you do not fall asleep in about 15 minutes, get out of bed and go back to some sedentary activity.
- When you feel sleepy again, go back to bed.
- Keep repeating these steps until you finally fall asleep in less than 15 minutes.
- Get out of bed at a fixed wake-up time every morning regardless of the amount of sleep obtained, getting some bright light exposure in the first hour or two after waking up.
- Do not nap during the day. Naps can dissipate the accumulating sleep pressure and reduce the effectiveness of the therapy.

Bed period restriction therapy

If the patient's main difficulty is with many or prolonged night-time awakenings alone or in combination with difficulty getting to sleep, the best behavioural therapy is bed period restriction therapy, sometimes called sleep restriction therapy. These patients tend to spend much more time in bed than they sleep and will have a lowered sleep efficiency (SE) measure; for example, SE less than 80% means they are spending less than 80% of the time in bed asleep.

SE is calculated from the sleep diary as:

$SE=[TST/TIB] \times 100$

where TST is total sleep time and TIB is time in bed.

The instructions for the GP or practice nurse conducting this therapy are as follows.

- Calculate the average nightly sleep time from the patient's diary.
- Prescribe that amount of time plus 30 minutes for the time in bed (with a minimum prescription of five hours). For example, if the average reported sleep time is 5.5 hours, prescribe six hours of bed time for the next two weeks.
- Arrange with the patient fixed bed and out-of-bed times. For example, if the patient had been going to bed at about 11 pm, falling asleep at about 11:45 pm with several awakenings and getting out of bed at about 7 am, a sensible bed period may be from midnight to 6 am.
- No daytime naps are allowed, with the patient warned against falling asleep in front of the TV before bed time.
- The new bed period should be maintained for two weeks.
- If, at the end of the two weeks, the patient is showing a SE of about 85% or a substantial increase in SE of about 30% and reporting excessive daytime sleepiness, the bed period can be increased by 30 minutes for the next week or two.
- The time in bed can be increased at each evaluation period by 30 minutes until symptoms largely alleviate. This can be self-managed by the patient if further consultations are not feasible.

Implementation of these therapies

Although these two behavioural therapies are best indicated for somewhat different sleep symptoms, they share common features. They are both based on learning theory to re-associate the bed with de-arousal and sleep rather than agitation, frustration and anxiety. Initially, they both reduce total sleep time, which gradually increases sleep drive and leads to improved sleep and reduced feelings of fatigue.

The apparent challenges of the behavioural therapies can be ameliorated by some encouragement and detailed rationale of their effectiveness. It can also be helpful to emphasise that although attention to following these behavioural instructions is important, the patient should not and need not be trying to force sleep directly. 'Trying hard' to sleep is probably counterproductive.

The behavioural therapies can be supplemented in the primary care setting with information about sleep to help dispel patient maladaptive beliefs and address some of the cognitive components of CBTi. For example, the sleep period alternates between deep and light sleep about every 90 minutes such that brief awakenings at the light sleep phases should be considered normal. This information is freely available online and several resources are listed in the Box.

SLEEP RESOURCES FOR PATIENTS

- **Australasian Sleep Association – consumer information**
  – www.sleep.org.au/professional-resources/consumer-information
- **SA Health. Sleep problems – Insomnia Management Kit designed for GPs**
  – www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/clinical+resources/clinical+topics/substance+misuse+and+dependence/sleep+problems+-+insomnia+management+kit
- **How to sleep better (an e-book). By Helen Wright and Leon Lack. Adelaide: Re-Timer Pty; 2015.**
  – http://re-timer.com/the-product/how-to-sleep-better/

Caveats about treatments

Both stimulus control therapy and bed period restriction therapy can increase daytime sleepiness. This feature is not usually reported by patients with chronic insomnia, but it should be monitored during behavioural therapies to avoid potentially adverse effects.

A validated measure of daytime sleepiness is the Epworth Sleepiness Scale (ESS).[18] A score of 10 or more is considered to be excessive daytime sleepiness and if exceeded during behavioural therapies for insomnia should indicate extending the patient's time in bed. This brief questionnaire, designed in Australia, asks questions about the likelihood of dozing off to sleep in a number of different situations. Although not perfect, it has become widely accepted internationally as a quick indicator of daytime sleepiness. A copy of the full scale is available at http://epworthsleepinessscale.com.

Referral to sleep specialists

All cities and most large regional towns in Australia have specialist sleep clinics and information about these can be found on the Australasian Sleep Association website (http://www.sleep.org.au). If a patient initially reports excessive daytime sleepiness (i.e. ESS score of more than 10) with insomnia symptoms or if the treatment has not had satisfactory results, referral to a sleep clinic is preferable over prescription of medication.

Insomnia has many common comorbidities, including obstructive sleep apnoea (OSA), restless legs syndrome (RLS), delayed sleep phase disorder, pain and depression, and these can be readily assessed at a comprehensive sleep clinic. OSA in particular has a high comorbidity with insomnia (30 to 70%) and may explain the high level of sleepiness or resistance to insomnia treatment.[19] A sleep clinic can diagnose sleep apnoea and effectively treat it. Even if a sleep study does not find OSA or another sleep disorder (e.g. narcolepsy or RLS), the feedback to the patient of objective measure of sleep in conjunction with perceived sleep can often be therapeutic for those with chronic insomnia who usually underestimate total sleep time by one to two hours.

An increasing number of sleep clinics now have sleep psychologists who are experienced in the use of CBTi, as well as there being an increasing number of registered psychologists in private practice trained in the therapy. The greater number of consultations (four to six) preferred by sleep psychologists for CBTi can be supported by a referral using the Australian Department of Health GP Mental Health Treatment Plan – Better Access program.

Conclusion

Insomnia is a common and debilitating disorder that can be treated in the primary care setting and for which behavioural therapy is recommended over medication. More difficult cases, particularly with comorbidities or excessive daytime sleepiness, can be referred to specialist sleep clinics. MT

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COMPETING INTERESTS: Professor Lack has received grants and other funding from Re-timer, Pty Ltd. He has several patents issued regarding a light therapy device including: USA Patent # US20060136018 A1, European Patent # 1624932 A1 and WO 2004096364 A1.