UPDATE
Module 1699

This module covers:

- What constitutes normal sleep and the main types of insomnia
- The impact of inadequate sleep on health and wellbeing
- Causes of sleep problems
- Sleep hygiene
- Advice and information pharmacists can offer about sleep problems

April »
Neurology month

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Sleep disorders

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Getting up at the same time each day – even after a poor night's sleep or at weekends – is part of good sleep hygiene

Difficulty sleeping is common in women, children and those aged over 65. About 30 per cent of adults have sleep problems and around half of older people report insomnia.

How we sleep has a huge impact on our lives. We function less well when we do not get enough quality sleep and our long-term health can suffer. By knowing what normal sleep patterns are and being familiar with common sleep problems, pharmacists can help patients enjoy quality sleep and improve their health and wellbeing.

What happens when we sleep?

A normal night's sleep has three parts:

1. Quiet or deep sleep, divided into four stages of progressively deeper sleep

2. Rapid eye movement (REM) sleep, during which the brain is very active but the body is limp, apart from the eyes, which move rapidly (most dreaming occurs during REM sleep)

3. Periods of waking, usually lasting for one to two minutes.

Every night, about four to five periods of quiet sleep alternate with four to five periods of REM sleep. Several periods of waking for one to two minutes occur about every two hours, occurring more frequently towards the end of the night. We do not normally remember when we wake if it lasts less than two minutes. However, if we are distracted – by noise or pain, for example – then the wakeful times tend to last longer and we are more likely to remember them.

The amount of sleep needed every night varies from four to 10 hours, with the average being between six and eight hours. As we age, it is usual to sleep less; many people aged over 70 years sleep less than six hours per night. Sleep in older people tends to be shorter, more restless and more easily disturbed but it should still be refreshing.

Too little sleep may cause memory problems, depression, a weakening of the immune system and an increase in the perception of pain.

Sleep-deprived people perform hand/eye co-ordination tasks as badly as those who are intoxicated. It is thought that driver fatigue could be a factor in 10 per cent of road accidents. Caffeine and other stimulants cannot overcome the effects of severe sleep deprivation.

What is insomnia?

Insomnia is defined as: difficulty getting to sleep, difficulty staying asleep, early wakening or non-restorative sleep despite adequate time and opportunity to sleep; resulting in impaired daytime functioning such as poor concentration, mood disturbance and daytime tiredness. Transient insomnia may be due to extraneous factors like noise, shift work and jet lag. Insomnia lasting one to four weeks is considered short term; insomnia that lasts for longer than four weeks is classed as chronic.

There are three main types of sleep disorder:

1. Primary insomnia, which has no identifiable cause and accounts for 12 to 30 per cent of chronic cases

2. Temporary insomnia, which is associated with stress, personal problems, something that changes sleep patterns, such as a new baby or shift work, pain, depression, anxiety and excessive alcohol or caffeine (temporary insomnia can become chronic)

3. Circadian rhythm disorders, which are caused by a mismatch between circadian rhythms and the sleep-wake cycle (this may be due to lifestyle, including work and travel).

The physical and psychological causes of insomnia include:

- movement disorders (restless legs syndrome, Parkinson's disease)
- respiratory and cardiac disorders such as obstructive sleep apnoea (OSA) and coughing
- pain (arthritis, headaches)
- nocturia (as with benign prostatic hyperplasia, diabetes and diuretics)

- endocrine disorders (hyperthyroidism, perimenopausal symptoms)
- physical symptoms including pruritus and cramps
- psychological/psychiatric problems such as concern about sleeping, depression, dementia, anxiety, bereavement, chronic alcohol abuse and other substance abuse
- parasomnias (unusual behaviours during sleep such as sleepwalking, nightmares, and night terrors).

Drugs such as beta-blockers, corticosteroids, sympathomimetics and antidepressants, especially selective serotonin reuptake inhibitors (SSRIs) and monoamine oxidase inhibitors (MAOIs), can also be a cause of insomnia. Other pharmacological causes include drug withdrawal (for example hypnotics and antidepressants), chronic benzodiazepine misuse, alcohol and stimulants such as caffeine and nicotine.

Common sleeping problems

- **Snoring** affects up to 40 per cent of the UK population. Losing weight, stopping smoking, reducing alcohol intake and regular exercise can all help reduce snoring. If someone snores while sleeping on their back, a tennis ball attached to the back of their pyjamas can ensure they sleep on their side. Earplugs for partners may also be helpful.

There are various products that have been developed to reduce snoring. Nasal strips pull the nostrils apart and nasal dilators push the nostrils open. Chin strips stop the mouth falling open when asleep. A vestibular shield fits inside the mouth and blocks air flow into the mouth, encouraging nasal breathing. For snoring that is caused by the base of the tongue vibrating, a mandibular repositioning splint pushes the jaw and tongue forward to reduce the narrowing of the airway.

If snoring is caused by allergic rhinitis, an antihistamine or steroid nasal spray can help. Nasal decongestants can be used for up to seven days if congestion is the cause of the snoring.

Most people who snore don't have OSA and sleep well. In OSA, there is total upper airway collapse, with cessation of airflow for at least 10 seconds, occurring more than five times per hour. It causes severe daytime sleepiness. Untreated severe OSA may be associated with hypertension and a risk of stroke and heart attack. Obesity is a major risk factor for OSA. OSA is managed with lifestyle changes (losing weight, stopping smoking and limiting alcohol consumption) and using breathing apparatus to provide continuous positive airway pressure (CPAP).

- **Jet lag** is caused by a mismatch between our biological clock and the time zone we are in. The body takes roughly one day to adjust for each time zone travelled. Changing sleep routine a few days before departure can help: if travelling east, sleep an hour earlier than usual; if you're going west, sleep an hour later.

Other advice that pharmacists can give to help patients avoid jet lag includes:

- setting your watch in flight to the time of your destination and trying to eat at normal mealtimes for your destination
- using an eye mask and earplugs (wearing the mask if it is night-time where you are going; keeping the light on and mask off if it is day)
- drinking water throughout the flight to prevent dehydration, avoiding alcohol and limiting caffeine consumption
- stretching regularly and walking in the aisle
- on arrival, using your diet to help control wakefulness: high-protein meals increase alertness and high-carbohydrate meals make you sleepier
- using light and exercise to help reset your internal clock – walking in morning daylight helps you to adjust.

Patients who take medication at specific times of day should be advised to speak to their pharmacist before travelling.

- **Shift workers** often have problems sleeping and can use anchor sleep to stabilise their biological clock: they should aim for at least four hours sleep at the same time every day. Days off can be used for recovery sleep. Good sleep hygiene (see below) is essential, using black-out curtains and earplugs as necessary. As light resets the internal clock, using bright light in the evening and avoiding dawn light with sunglasses can help.

Refer any patient who:

- falls asleep during conversation or a meal
- thinks they have enough sleep but feels very tired during the day
- collapse when they laugh or experience strong emotions
- physically enacts their dreams, lashing out and injuring themselves or their partner while asleep
- regularly disturbs their partner by their snoring, sleeptalking or walking
- thrashes about while asleep
- finds unexplained damage at home in the morning or evidence of missing food
- finds starting or changing medication has affected their sleep.

Good sleep hygiene

About 30 per cent of patients with primary insomnia improve by practising sleep hygiene. Advice includes:

- do not smoke, have caffeine or other stimulants for six hours before bedtime; some people avoid caffeine completely
- do not drink alcohol within six hours of bedtime (alcohol reduces the time to onset of sleep, but disrupts it later in the night)
- avoid heavy meals just before bedtime, although a light snack may help
- avoid strenuous exercise within four hours of bedtime; exercising earlier in the day helps
- have a routine of wakefulness during the day and sleepiness at night; avoid sleeping during the day
- go to bed only when sleepy or tired in late evening and switch the light off straight away
- get up at the same time each day. Do not lie in even after a poor night's sleep and do not use weekends to catch up on sleep, as this upsets the natural body rhythm
- keep the bedroom quiet and relaxing – not too hot, cold or noisy; earplugs and eye masks can be helpful if you have a snoring or wakeful partner
- keep the bedroom dark – good curtains keep out early morning sunlight
- use the bedroom for sleeping, not for work, eating or television
- make sure your bed is comfortable
- hide the clock under the bed; clock-watching does not help you get to sleep
- relax and wind down with a routine before bedtime
- avoid anything mentally demanding within 90 minutes of bedtime
- if you cannot sleep after 20 to 30 minutes, get up, go into another room and do something quiet like reading, going back to bed when sleepy; repeat until asleep
- using a computer or phone in the hours before bed may delay sleep onset.

Pharmacological treatment

Anxiolytics and sedatives can cause physical and psychological dependence and tolerance, causing rebound insomnia and a withdrawal syndrome when a drug is stopped. Tolerance to their effects develops within three to 14 days of continuous use. Hypnotics and anxiolytics should be used in short courses for acute conditions. The prescribing of hypnotics for children is not justified except for occasional use for problems such as sleepwalking or night terrors.

Benzodiazepines are the most commonly used anxiolytics and hypnotics. They should only be used to treat insomnia that is severe, disabling or causing the patient extreme distress. Zaleplon, zolpidem and zopiclone (the Z-drugs) are non-benzodiazepine hypnotics that act at the benzodiazepine receptor. They are not licensed for long-term use. Zolpidem and zopiclone have a short duration of action; zaleplon is very short-acting.

Benzodiazepines and the Z-drugs should be avoided in older people because they are at greater risk of becoming ataxic and confused, leading to falls and injury. Nice recommends zaleplon, zolpidem and zopiclone for short-term management of severe insomnia that interferes with normal daily life and that they should be prescribed for short periods only.

Patients need to be made aware that hypnotics and anxiolytics affect the ability to drive or operate machinery, and hangover effects from a night dose may affect them the following day; they also increase the

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effects of alcohol. The Driving and Vehicle Licensing Authority (DVLA) advises that anyone suffering from excessive awake-time sleepiness, regardless of cause (including the insomnia itself), should not drive until there is satisfactory control of symptoms.

Patients who are stopping or reducing their dose of hypnotics that have been used longer term should know sleep may be disturbed before a normal rhythm is re-established; broken sleep with vivid dreams may persist for several weeks.

Melatonin is a pineal hormone licensed for the short-term treatment of insomnia (up to 13 weeks) in patients aged over 55 years.

The antihistamines diphenhydramine and promethazine are available over the counter for occasional insomnia. Their prolonged duration of action can cause drowsiness the following day. The sedative effect may diminish after a few days' continual treatment. Antihistamines are associated with headache, psychomotor impairment and antimuscarinic effects. Promethazine is popular for use in children but this is not usually justified.

Patients using nicotine replacement therapy can experience sleep disruption and can benefit from reviewing what they are using with a pharmacist.

Herbal remedies such as lavender, jasmine, camomile, valerian, hops, passion flower, skullcap and Jamaica dogwood are all available in various forms and combinations to aid sleep. Although there is little evidence of efficacy and they are not recommended, some patients find them helpful.

Anxiety about sleeping or being tired the next day exacerbates sleeping problems. It helps to know what normal sleep patterns are and practise good sleep hygiene. Relaxation techniques, daytime exercise and cognitive behavioural therapy (CBT) can all improve sleep. Some people may think they have a sleeping problem when they are actually getting enough sleep but just not what they expected. In these cases, keeping a sleep diary can be helpful.

Useful resources

- Patient.co.uk: tinyurl.com/sleepwell9
- NHS Choices: nhs.uk/pages/homepage.aspx
- The Sleep Council: sleepcouncil.org.uk
- A self-help leaflet is available on the Northumberland, Tyne and Wear NHS Foundation Trust website: tinyurl.com/sleepwell10

References

- nhs.uk (accessed 13/03/2014)
- mind.org.uk (accessed 13/03/2014)
- tinyurl.com/sleepwell10 (accessed 13/03/2014)
- patient.co.uk (accessed 13/03/2014)
- sleepcouncil.org.uk (accessed 13/03/2014)

5 minute test

■ Sign up to take the 5 Minute Test and get your answers marked online: chemistanddruggist.co.uk/update

Take the 5 Minute Test

1. Around half of older people report suffering from insomnia.
True or false?
2. During quiet or deep sleep, the brain is very active, the body is limp and the eyes move rapidly.
True or false?
3. The main cause of primary insomnia is snoring.
True or false?
4. Drugs that may cause insomnia include beta-blockers, corticosteroids and antidepressants.
True or false?
5. Snoring affects up to 40 per cent of the UK population.
True or false?
6. Shift workers can use anchor sleep to stabilise their biological clock.
True or false?
7. Nice does not recommend zaleplon or zolpidem for the short-term management of severe insomnia.
True or false?
8. Melatonin is licensed for the short-term treatment of insomnia in patients over 55.
True or false?
9. Diphenhydramine and promethazine are recommended because they do not cause drowsiness the following day.
True or false?
10. Patients who use nicotine replacement therapy may experience sleep disruption.
True or false?

Tips for your CPD entry on sleep disorders

Reflect **What happens during a normal night's sleep? Which drugs can cause insomnia? How can jet lag be avoided? What is good sleep hygiene?**

Plan **This article discusses common sleep problems and the advice that pharmacists can give to those suffering from them. It includes information about normal sleep patterns, the causes of insomnia and sleep disorders, good sleep hygiene and pharmacological treatments.**

Act **Read the Update article and the suggested reading (below), then take the 5 Minute Test (above). Update and Update Plus subscribers can then access their answers and a pre-filled CPD logsheet at chemistanddruggist.co.uk/mycpd.**

Find out more about sleeping disorders on the Royal College of Psychiatrists (RCPSYCH) website
tinyurl.com/sleepwell11

Read more about sleep apnoea and jet lag management on the NHS Choices website
tinyurl.com/sleepwell14
tinyurl.com/sleepwell15

Read the information about relaxation and other therapies on the Sleep Council website, which also contains sections with sleeping tips for teenagers, shift workers and those aged over 50 years
tinyurl.com/sleepwell16

Revise your knowledge of the drugs used to treat insomnia from the *BNF* section 4.1.1 Hypnotics

Evaluate

Are you now confident in your knowledge of common sleep disorders? Could you give advice about the management of these problems with good sleep hygiene and medication?

ASK THE EXPERT

April is neurology month and our expert is on hand to answer your queries. From neuropathic pain to Alzheimer's disease, submit your questions by email: **pooja.sisodia@ubm.com**