Understanding primary insomnia in older people

Tony Gillam considers the evidence for the treatment of insomnia and the advice nurses can offer patients to improve their quality of life

Summary

An adequate quantity and quality of sleep are important to maintain health. Insomnia is common and can result in significant distress and impaired daytime functioning. This article seeks to raise nurses’ awareness of the evidence surrounding insomnia and the guidance relating to its management. It focuses particularly on the role of the hormone melatonin and recent developments in the use of synthesised melatonin as a treatment for primary insomnia in people aged over 55.

Keywords
Insomnia, melatonin, sleep

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SLEEP IS important to maintain physical and mental health. Sleep can be defined as the regular period in every 24 hours when we are unconscious and unaware of our surroundings. Most adults need around seven to eight hours sleep each night (Royal College of Psychiatrists (RCP) 2005).

There are two main types of sleep: rapid eye movement (REM) sleep and non-REM sleep. During REM sleep the eyes move rapidly from side to side. REM sleep comes and goes throughout the night and constitutes about one fifth of sleep time. During REM sleep the brain is active and the muscles relaxed. Dreams also occur during this phase. In contrast, during non-REM sleep, the brain is quiet but the body may be restless. Hormones are released during non-REM sleep and the body repairs itself.

Sleep problems
Occasional lack of sleep has no adverse health consequences but, after several sleepless nights, people will:
- Feel tired all the time.
- Fall asleep during the day.

Have difficulty concentrating.
- Have impaired decision making.
- Start to feel depressed.

Sleep disturbance can be secondary to a range of mental health problems, substance misuse or physical conditions. Insomnia can, however, occur as a difficulty in its own right. It is important to distinguish between insomnia that is secondary to another condition, for example a depressive illness, and insomnia that is primary or idiopathic – that is, has no known cause (American Psychiatric Association 2000).

Insomnia
The Concise Oxford English Dictionary (Soanes and Stevenson 2006) defines insomnia as ‘habitual sleeplessness’, but medical dictionaries define it further as the inability to obtain an adequate amount or quality of sleep. The difficulty can be in falling asleep, remaining asleep, or both. People with insomnia do not feel refreshed when they wake up the next day. Insomnia is a common symptom affecting millions of people that may be caused by many conditions, diseases or circumstances. An inadequate quantity of sleep can be measured in a sleep laboratory but the concept of ‘sleep quality’ is more difficult to measure objectively and, as Wade et al (2007) point out, the ‘depth’ and ‘restfulness’ of sleep are subjective phenomena.

While all of us will have experienced the occasional sleepless night, insomnia can be a serious problem for many people. It is associated with significant daytime distress and impaired next day functioning, adversely affecting psychosocial, physical and occupational functioning. Most often this is characterised by fatigue and lethargy, mood disturbances, cognitive inefficiency and motor impairments, social discomfort and non-specific physical ailments (Lemoine et al 2007).
National Institute for Health and Clinical Excellence (NICE) guidance on the treatment of insomnia states that consideration should first be given to non-pharmacological measures (NICE 2004). Thus, patients should be encouraged to practise ‘sleep hygiene’; that is, behaviours that promote continuous and effective sleep (Box 1).

Treatment

Medicines used for insomnia are classified as ‘hypnotics’. Benzodiazepines and non-benzodiazepines are the most commonly prescribed hypnotics. Benzodiazepines include nitrazepam, temazepam, diazepam and lorazepam. Non-benzodiazepine hypnotics include zaleplon, zolpidem and zopiclone; hence they are sometimes referred to as the ‘Z-drugs’. The NICE (2004) guidance recommends that, because of the lack of compelling evidence to distinguish between the Z-drugs and benzodiazepines, the drug with the lowest purchase cost should be prescribed.

Hypnotics are not without their problems. It has been estimated that 10 to 30 per cent of chronic benzodiazepine users are physically dependent on the drugs and half of all users experience withdrawal symptoms (NICE 2004). The sedative effects of the Z-drugs may also persist into the next day and can cause tolerance, dependence and withdrawal symptoms (NICE 2004).

Hypnotics have been criticised for primarily addressing sleep quantity rather than sleep quality and for failing to improve and even adversely affecting daytime vigilance (Wade et al 2007). This has led to a search for newer treatments for insomnia with more favourable daytime consequences. Melatonin is one substance that has attracted considerable interest.

Circadian rhythms

Melatonin is a hormone produced in the pineal gland. As its secretion is stimulated by the dark and inhibited by light it is naturally produced, particularly at night. Tryptophan is converted to serotonin and finally converted to melatonin which helps to regulate sleep. Melatonin is closely associated with the body’s ‘circadian’ rhythms – the cycles or rhythms affecting the main physiological functions such as core body temperature, hormone production, heart rate, blood pressure, gastric activity and the sleep/wake cycle. The circadian cycle lasts approximately 25 hours, the word ‘circadian’ coming from the Latin ‘circa’ (about) and ‘dia’ (a day). Circadian rhythms are usually synchronised by an internal biological clock, and reset daily to the 24-hour day/night cycle by external time cues – variation in sunlight and increase in activity in the environment around us (Hastings et al 2007).

Changes to the natural daily pattern can disrupt circadian rhythms and thus lead to sleep disturbance, including insomnia. Two obvious examples are working night shifts and travelling across time zones. Working night shifts involves trying to remain alert and active throughout the night time, when circadian rhythms drop to their lowest, and then attempting to sleep during the daytime, when circadian rhythms are on the rise. Similarly, long distance travel that involves crossing time zones at a rapid rate results in the phenomenon of ‘jet lag’. This is particularly marked in west to east travel. An east to west flight is easier to adapt to because there is a longer day, which fits better with the 25-hour circadian rhythm.

Given the link between melatonin and circadian rhythms it is unsurprising that, for some time, melatonin has been a popular ‘over-the-counter’ treatment for jet lag and other sleep disturbances. Though not licensed for sale in UK pharmacies it has long been available in health food shops and over the internet. Some GPs will prescribe it ‘off-licence’; that is, where the prescribing doctor is prepared to take personal liability for any side effects. Its popularity does not seem to have been affected by Buscemi et al’s (2006) study, which found no evidence that melatonin is helpful for secondary sleep disorders or sleep disturbance associated with jet lag or shift work.

Melatonin and insomnia

In recent years, the link between melatonin and insomnia has led to research focusing specifically on insomnia in older people. Around 50 per cent of the older population report insomnia and overall dissatisfaction with sleep quality (Dement et al 1982).

Box 1 Behaviours that promote continuous and effective sleep

■ Reduce caffeine – avoid any food, drugs or drinks that contain caffeine or other stimulants for six hours before bedtime.
■ Avoid smoking within six hours before bedtime.
■ Avoid drinking alcohol for a few hours before bedtime.
■ Avoid heavy meals just before bedtime, although a light snack may be helpful.
■ Avoid exercising within a few hours of bedtime, but take some regular exercise during the day or early evening.
■ Body rhythms – try to maintain a routine of wakefulness and activity during the day, and sleepiness and relaxation at night.
■ Make sure the bed and bedroom are quiet, comfortable and relaxing.
■ Try to relax properly with a ‘wind-down’ routine before going to bed.
■ If you cannot get off to sleep after 20-30 minutes then get up, go into another room and do something else such as read, watch television or listen to quiet music before going back to bed when sleepy.

(RCP 2005)
Melatonin levels naturally decrease with ageing and it is thought that this decrease may contribute to the deterioration of sleep quality in older people (Sharma et al 1989, Haimov et al 1994, Wade et al 2007).

The link between ageing and decreasing melatonin levels has led to further research exploring whether sleep in older people could be improved by treatment with melatonin substitution (Wade et al 2007). Wade et al (2007) used prolonged release formulation of melatonin – PR-melatonin – to see if it would improve quality of sleep and next-day alertness in older patients with primary insomnia. The study concluded that the safety and efficacy profile of PR-melatonin supported its use in the treatment of primary insomnia in patients over the age of 55 years (Wade et al 2007). Subsequently, PR-melatonin has been licensed for the short-term treatment of primary insomnia in people aged over 55.

Role of the nurse
Nurses have an important role to play in supporting patients with insomnia. Nurses can educate, encourage and support patients in practising sleep hygiene and, where necessary, in the safe and judicious use of appropriate medication.

Many patients value the opportunity to talk, in confidence, to someone they can trust and who is non-judgemental. Patients may feel their insomnia is too trivial to merit discussion with a health professional and, in these cases, the nurse can assess the effect on the patient’s functioning and quality of life and provide strategies for its management. Other patients might expect to receive a prescription of ‘sleeping tablets’ and would benefit from sleep hygiene advice as a first-line treatment. Still other patients will have been prescribed hypnotics for too long without being reviewed. The nurse’s role here may involve managing withdrawal from medication, in liaison with medical colleagues.

Where the patient is over 55 years of age, the nurse may discuss the possibility of PR-melatonin with the patient and GP. Medical colleagues may not be fully aware of the latest research or newer treatment options so nurses could find themselves in an educational role, raising awareness of primary insomnia not only among patients but also among colleagues.

ABBREVIATED PRESCRIBING INFORMATION
ARICEPT® (donepezil hydrochloride film-coated tablet) ARICEPT EVESS® (donepezil hydrochloride orodispersible tablets)

Please refer to the SmPC before prescribing ARICEPT 5 mg, ARICEPT 10 mg, ARICEPT EVESS 5 mg or ARICEPT EVESS 10 mg.

Indication: Symptomatic treatment of mild to moderately severe Alzheimer’s dementia. Dose and administration: Adults/elderly: 5 mg daily which may be increased to 10 mg once daily after at least one month. Aricept Evess orodispersible tablets should be placed on the tongue and allowed to disintegrate before swallowing with or without water. Aricept film-coated tablets are taken orally. Treatment with Aricept or Aricept Evess should be initiated and supervised by a physician with experience of Alzheimer’s dementia. A caregiver should be available to monitor compliance. Monitor regularly to ensure continued therapeutic benefit, consider discontinuation when evidence of a therapeutic effect ceases. No dose adjustment necessary for patients with renal impairment. Dose escalation, according to tolerability, should be performed in patients with mild to moderate hepatic impairment. Children: Not recommended. Contra-Indications: Hypersensitivity to donepezil, piperidine derivatives or any excipients used in Aricept or Aricept Evess. Pregnancy: Donepezil should not be used unless clearly necessary. Lactation: Excretion into human breast milk unknown. Women on donepezil should not breast feed. Warnings and Precautions: Exaggeration of succinylcholine-type muscle relaxation. Avoid concurrent use of anticholinesterases, cholinergic agonists, cholinergic antagonists. Possibility of vagotonic effect on the heart which may be particularly important with “sick sinus syndrome”, and supraventricular conduction conditions. There have been reports of syncope and seizures – in such patients the possibility of heart block or long sinus pauses should be considered. Careful monitoring of patients at risk of ulcer disease including those receiving NSAIDs. Cholinomimetics may cause bladder outflow obstruction. Seizures occur in Alzheimer’s disease and cholinomimetics have the potential to cause seizures and they may also have the potential to exacerbate or induce extrapyramidal symptoms. Care in patients suffering from asthma and obstructive pulmonary disease. No data available for patients with acute hepatic impairment. In three 6-month clinical trials in individuals with vascular dementia (VaD), the combined mortality rate was numerically higher in the placebo group (1.7%) than in the placebo group (1.1%), but this difference was not statistically significant. In pooled Alzheimer’s disease studies (n=4146), and in Alzheimer’s disease studies pooled with other dementia studies including vascular dementia studies (total n=6888), the mortality rate was numerically higher in the placebo group than in the donepezil group. Aricept film-coated tablets contain lactose and should not be used in patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption. Donepezil has minor or moderate influence on ability to drive/use machines so this should be routinely evaluated. Drug Interactions: Interaction possible with inhibitors or inducers of cytochrome P450; use such combinations with care. May interfere with anticholinergic agents. Possible synergistic activity with succinylcholine-type muscle relaxants, beta-blockers, cholinergic agents. Side effects: Most commonly diahdrea, muscle cramps, fatigue, nausea, vomiting, and insomnia. Very common effects (≥1/10): dizziness, tiredness, headache. Common effects (≥1/100, <1/10): common cold, anorexia, hallucinations, agitation, aggressive behaviour, syncope, dizziness, insomnia, vomiting, abdominal discomfort, rash, pruritis, muscle cramps, urinary incontinence, fatigue, pain, accident. Uncommon effects (≥1/1000, <1/100): seizures, bradycardia, gastrointestinal haemorrhage, gastric & duodenal ulcers, minor increase in serum creatine kinase. Rare (≥1/10000, <1/1000): extrapyramidal symptoms, sinal-atrial block, atrioventricular block, liver dysfunction including hepatitis. Presentation and basic NHS cost: Blister packed in strips of 14. ARICEPT 5 mg: white, film coated tablets marked 5 and Aricept, packs of 28 £63.54. ARICEPT 10 mg: yellow, film coated tablets marked 10 and Aricept, packs of 28 £89.06. ARICEPT EVESS 5 mg: white, embossed, orodispersible tablets marked 5 and Aricept, packs of 28 £63.54. ARICEPT EVESS 10 mg: yellow, embossed, orodispersible tablets marked 10 and Aricept, packs of 28 £89.06. Marketing authorisation numbers: ARICEPT 5 mg: PL 10555/0006. ARICEPT 10 mg: PL 10555/0007. ARICEPT EVESS 5 mg: PL 10555/0019. ARICEPT EVESS 10 mg: PL 10555/0020. Marketing authorisation holder: Eisai Ltd. Further Information from/Marketed by: Eisai Ltd, Hammersmith International Centre, 3 Shortlands, London, W6 8EE and Pfizer Limited, Walton Oaks, Dorking Road, Tadworth, Surrey KT20 7NS. Legal category: POM. Date of preparation: June 2008.

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Conclusion
Adequate sleep is essential to physical and mental health and insomnia can adversely affect psychosocial, physical and occupational functioning. With increased awareness of the importance of sleep, the current evidence surrounding insomnia and the guidance relating to its management, nurses can help ensure that the millions of people affected by insomnia – increasingly so in an ageing population – can enjoy a better quality of life.

What next?

Implications for practice
Nurses can educate and support patients who are experiencing insomnia to practise sleep hygiene and, where necessary, use appropriate medication.

Action points
If a patient is aged over 55, consider the use of PR-melatonin for short-term treatment of primary insomnia.

Further reading

References


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