Waking up to sleep disorders

Sleep disorders are very common. Prevalence estimates vary widely because of variable case definitions, but roughly 25% of adults have insomnia, 20% have troublesome snoring, and 3% have obstructive sleep apnoea syndrome (OSAS) – repetitive apnoea during sleep and daytime sleepiness. That is a lot of people: insomnia is about as common as hypertension, and sleep apnoea is about as common as diabetes mellitus.

UK practice

By international standards, the UK has been slow to adapt its health-care systems to deal with sleep disorders, and detects and treats far fewer cases than other countries. The unmanaged burden of sleep disorders is, as a result, huge. According to the UK government the population of the UK in 2005 was 60 023 900 (Office of National Statistics, 2006). The usual prevalence estimate for OSAS is 4% of adult men and 2% of adult women (this figure comes from the Wisconsin Cohort Study (Young and Peppard, 2002) but there is no reason to think UK prevalence would be markedly different).

That means there are at least 1 000 000 people in the UK with OSAS, that there are 8000 or so in a typical health authority population of 500 000, and that if you see twenty patients in a hypertension clinic at least two or three have OSAS requiring treatment. Such patients probably aren't treated: unlike in the USA where 10–20% of patients with OSAS have been diagnosed and treated (Young and Peppard, 2002), the National Institute of Health and Clinical Excellence (NICE) (2005) estimates the number currently treated in England and Wales as 20 000 – 3% of the likely total.

This is a problem. While it is true that the morbidity that results from sleep disorders has often been exaggerated, the lowest plausible estimates are high enough to require a response. In December 2005, NICE (2005) issued a 'proposed health technology appraisal' for an assessment of nasal continuous positive airway pressure (CPAP) treatment for OSAS – although the Scottish Intercollegiate Guidelines Network (SIGN) issued perfectly good guidelines in 2003. The evidence NICE will see is likely to be the same as SIGN saw, and NICE is consulting much the same people as SIGN consulted, so the result of the process is, one imagines, also likely to be much the same: 'CPAP is the first choice therapy for patients with moderate or severe OSAS that is sufficiently symptomatic to require intervention' (SIGN, 2003). That would be all to the good, but it will only benefit patients who have been diagnosed. It will do nothing for the much larger group whose OSAS is unrecognized, who will not benefit unless diagnostic services for sleep disorders in the UK are expanded.

Diagnostic services

Expanding diagnostic services is also important because dealing with sleep problems is not just a matter of diagnosing sleep disorders. An important example of the morbidity arising from sleep problems – as against sleep disorders – is the phenomenon of people falling asleep while driving. This is remarkably common.

Surveys of motor vehicle accidents by the Department for Transport (2001) in England suggest that about 20% result from drivers' sleepiness – many more than are attributed to alcohol. According to the Department for Transport there were 207 410 motor vehicle accidents in the UK in 2004, so perhaps 40 000 accidents each year are associated with sleepy drivers. That means that a typical health authority will have, every year, around 300 patients who have had a motor vehicle accident caused by sleepiness.

Many of these drivers – probably most – do not have a sleep disorder, they just have not had enough sleep. However, some of them do have a sleep disorder – in particular, quite a few will turn out to have OSAS. It is worth identifying them because treatment reduces their chance of having more accidents (Krieger et al, 1997). The odd patient will have narcolepsy, which is commoner than people think, and is also treatable.

The key point is that the majority of patients who don't have a disorder still have a problem – a life-threatening problem at that. Their problem is not obvious, because 'not having had enough sleep' is not as straightforward a concept when you look closely as it initially sounds. People who fall asleep driving need their issues with sleep and alertness sorted out, especially if they do not have a treatable sleep disorder.

Sorting out a patient who has fallen asleep driving is a slow and complicated business, and can only be done reliably in a sleep clinic with access to a sleep laboratory. The reason is a fundamental characteristic of sleep disorders: their interaction with everyday life. A middle-aged man who has fallen asleep driving on the M25 may well be found to have repetitive apnoea during sleep, because a lot of middle-aged men do, but he may also have got up at 5 am to drive to Heathrow to catch a plane, or have been woken twice during the night by prostatism. Which one matters? Around 4% of adult men have OSAS, and lots of people catch early morning flights, but most of them do not fall asleep driving. Why did this patient fall asleep today? Can he be stopped from doing it again? The key to answering these questions is painstaking clinical and laboratory assessment, usually over an extended period.

What does a hospital doctor who doesn't run a sleep laboratory need to do about sleep disorders? The authors believe that there are two issues that need to be covered routinely: OSAS as a co-morbidity, and sleepiness as a symptom.

Assessing for OSAS

Dealing with these issues is not difficult. Every patient should, as part of their admission or first clinic history, be asked (a) Do you snore loudly enough to disturb the sleep of others? and (b) Has anyone ever said you stop breathing while you are asleep? It is helpful if these questions are also directed to the patient's partner – although this is likely to be much less helpful if the partner is male.

Every patient should also have their neck circumference measured. If both (a) and (b) are answered 'No' and the neck circumference is less than 42 cm OSAS is

unlikely (less than 1%). If both questions are answered 'Yes' and the neck circumference is over 42 cm, or if one question is answered 'Yes' and the neck circumference is over 45 cm, or if the neck circumference is over 49 cm, the probability of OSAS is at least 15% (Flemons and Whitelaw, 2002).

These patients should be investigated for OSAS if they have, in addition, daytime sleepiness or fatigue, or if they suffer from hypertension, chronic lung disease or neuromuscular disease. They should probably be investigated if they have vascular disease or diabetes mellitus, or are likely to have a general anaesthetic as part of their management. This need not mean a 12-channel laboratory sleep study, but some sort of objective recording is necessary (Young and Peppard, 2002).

Assessing sleepiness

The Epworth Sleepiness Scale (ESS) (*Figure 1*) is the simplest and most robust way to quantify sleepiness. This is a much better approach than asking a patient if they are sleepy, which is of very little use for clinical purposes. Ideally, every patient should complete the ESS, and every patient likely to have OSAS and every patient complaining of poor sleep, fatigue or sleepiness must do so (Young and Peppard, 2002). The upper limit of normal is 10 or 11, and a score of 15 or above is markedly abnormal. Common acute medical illnesses – myocardial infarction, pneumonia and so on – cause sleepiness and a high ESS, although usually not as high as 15. A patient with an ESS repeatedly over 15 should normally be referred to a sleep clinic. If they drive the referral should be urgent, because an ESS this high raises a question about fitness to drive. Conversely, a patient with a complaint of poor sleep ('insomnia') and an ESS less than 10 should be offered supportive reassurance but neither investigation nor drug treatment.

Figure 1. The Epworth Sleepiness Scale (ESS). From Johns (1991).

How likely are you to doze off or fall asleep in the following situations, in contrast to feeling just tired? This refers to your usual way of life in recent times. Even if you have not done some of these things recently try to work out how they would have affected you. Use the following scale to choose the most appropriate number for each situation:

0 = no chance of dozing
1 = slight chance of dozing
2 = moderate chance of dozing
3 = high chance of dozing

Situation	Chance of dozing
Sitting and reading	
Watching TV	
Sitting inactive in a public place (e.g a theatre or a meeting)	
As a passenger in a car for an hour without a break	
Lying down to rest in the afternoon when circumstances permit	
Sitting and talking to someone	
Sitting quietly after a lunch without alcohol	
In a car, while stopped for a few minutes in traffic	

To obtain the ESS add up the points: _____

The ESS is a particularly important test in patients with accidental injury, in order to identify patients whose injury may have been caused by sleepiness. If OSAS is unlikely on clinical grounds the commonest cause of a raised ESS is too little sleep, and the commonest causes of too little sleep are circadian rhythm disorders, shift work, and long-distance commuting. These problems are not as easy to pick up as they sound. Although shift work is increasing in prevalence the increase is in areas such as banking and finance, and many people who work odd hours in these industries do not identify themselves as shift workers. Long commuting times typically result in early morning starts that cause sleep loss, but many long-distance commuters are reluctant to identify their commuting as a problem.

Assessing and managing problems with hours of work is complex and should be left to a sleep clinic, not least because there are always occupational health and safety implications. Identification of a problem, however, often results from recognizing that an accident has been caused by sleepiness, and that often falls to doctors who do not think of themselves as treating sleep disorders. **BJHM**

LG Olson/A Ambrogetti
Consultant Physician/Consultant Physician
Sleep Disorders Centre
Warner's Bay Private Hospital
Warner's Bay
Australia 2214

Department for Transport (2001) *Driver sleepiness (No. 21).* Department for Transport, London http://www.dft.gov.uk/stellent/groups/dft_rdsafety/documents/page/dft_rdsafety_504598.hcsp

Flemons W, Whitelaw W (2002) Clinical features of obstructive sleep apnea syndrome. In: McNicholas WT, Phillipson EA, eds. *Breathing Disorders in Sleep.* Saunders, London: 64–85

Johns MW (1991) A new method for measuring daytime sleepiness - the Epworth Sleepiness Scale. *Sleep* **14**: 540–5

Krieger J, Meslier N, Lebrun T et al (1997) Accidents in obstructive sleep apnea patients treated with nasal continuous positive airway pressure: A prospective study. *Chest* **112**: 1561–6

National Institute For Health And Clinical Excellence (2005) *Proposed Health Technology Appraisal. Continuous positive airways pressure (CPAP) for the treatment of obstructive sleep apnoea/hypoapnoea syndrome (OSAHS).* National Institute For Health And Clinical Excellence, London www.nice.org.uk/pdf/sleepapnoea_draftscope.pdf

Office of National Statistics (2006) *Age Structure of United Kingdon 1971–2028.* Office of National Statistics, London www.statistics.gov.uk/populationestimates/svg_pyramid/UK240805.html

Scottish Intercollegiate Guidelines Network (2003) *Management of obstructive sleep apnoea/hypopnoea syndrome in adults; A national clinical guideline.* Sign Publication No 73. SIGN, Edinburgh

Young T, Peppard P (2002) Epidemiology of obstructive sleep apnea. In: McNicholas WT, Phillipson EA, eds. *Breathing Disorders in Sleep.* Saunders, London: 31–43

KEY POINTS

- Sleep disorders are common, under-recognized and under-treated.
- Obstructive sleep apnoea is even more under-recognized and under-treated in the UK than elsewhere.
- Sleep disorders are very common comorbidities, and most patients will be seen in non-sleep disorder clinics.
- Accidents caused by sleepiness are common, but most patients with sleepiness causing an accident do not have a sleep disorder.
- Sleepiness caused by lifestyle issues is just as dangerous as sleepiness caused by disease