Medicine for Managers

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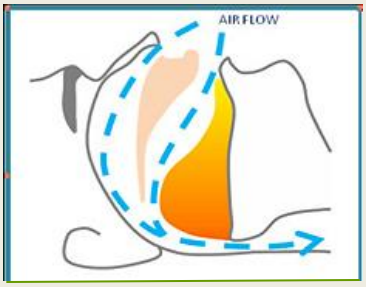
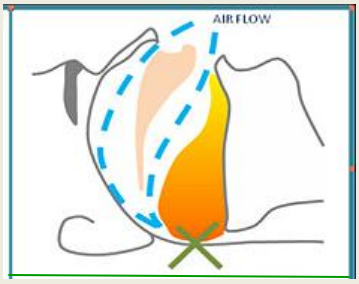
Obstructive Sleep Apnoea

Obstructive Sleep Apnoea (OSA) affects about 4-5% of middle aged men and about 2-2.5% of middle aged women and normally develops between the ages of thirty and sixty. In simple terms it is the interruption of normal breathing during sleep because the walls of the throat relax and narrow blocking or partially blocking the airway. When the airway is blocked a state of apnoea exists.



Normal airway (note space behind tongue)



Compromised airway. Tongue falling backwards

Apnoea, the Greek word meaning 'without breath, describes a cessation of breathing. There are slight variations in definition but generally the period is defined as lasting for a minimum of ten seconds and occurring at least five times an hour. Partial blockage of the airway produces abnormally shallow breathing episodes and is defined as reduction of the airway by more than 50% causing ***hypopnoea***.

One of the key features of sleep apnoea is daytime excessive sleepiness and, to understand why this is the case, it is important to appreciate what actually happens when the patient is asleep.

When the airway becomes blocked, as described above, breathing stops and carbon dioxide builds up in the blood stream, which stimulates the chemoreceptor centre in the brain to wake the patient to initiate breathing.

Blood oxygen and carbon dioxide levels then return to normal and the patient will return to sleep again.

When the airway is next compromised, the process recurs. Recurrent episodes of apnoea and waking to stimulate breathing seriously damages the sleep pattern leaving the sufferer with often severe daytime sleepiness.

Other symptoms include loud snoring and noisy breathing. To anyone either in bed with the sufferer or near enough to hear they may notice periods where all respiratory noise stops for ten to thirty seconds or sometimes even longer, followed by a loud inspiratory snore or snort and the return of noisy respiration. Apnoeics may have morning headaches, irritability, mood changes and they may display features of depression, moodiness or belligerence.

It is most commonly the case that the patient is unaware of the episodes and only those in hearing range of him or her will know. On occasion the condition may be present for many years without the individual knowing that he or she is a sufferer.

The consequences of OSA are risk of suddenly being overcome with sleepiness, which may have serious outcomes especially for example whilst driving, and there are also risks of other medical problems such as raised blood pressure, heart rhythm abnormalities and increased risk of diabetes.

OSA is more likely to occur in patients who are obese, those with a bull-neck, patients with large tonsils or adenoids or a retrusive (Class II) jaw. Medication with sedative properties, smoking and alcohol may also aggravate the problem.

The diagnosis of obstructive sleep apnoea is made following referral to a GP. After taking a history, either from the patient or more commonly from the partner who has heard the breath-holding, routine checks such as a physical examination, measurement of blood pressure and blood tests to exclude disorders which might lead to drowsiness will be arranged.

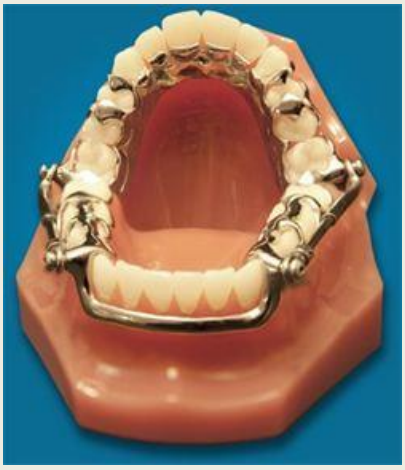
Referral may be made to a sleep centre, where the patient can be fitted with monitoring equipment and sleep the night whilst being observed.

Monitoring will include the blood oxygen, breathing by means of a respiratory sensor and often a cardiac monitor. This is, however, an expensive process and, in many cases, the sleep centre will teach the patient to set up home monitoring using portable recording equipment.

On some occasions a trained nurse may monitor the patient in his or her home, requiring only the attachment of an oxygen monitor (oximeter). The monitoring allows the condition to be classified as mild, moderate or severe depending using the number of episodes of apnoea or hypopnoea an hour using the apnoea-hypopnoea index (AHI)

The treatment of OSA is, firstly, by lifestyle changes such as weight loss, reduction of alcohol consumption, cessation of smoking and adjustment of medication which might contribute to the problem. In addition, in

mild to moderate cases, a mandibular advancement device may produce a considerable improvement or complete



resolution. In moderate to severe cases, the same device or continuous positive airway pressure (CPAP) is normally prescribed. The ***mandibular advancement device*** is a dental appliance fitted to the upper and lower teeth when the lower jaw is in protrusion. This holds the tongue forward and increases the space at the back of the airway to reduce the narrowing. The ***continuous positive airway pressure*** is a device which

consists of a small pump which delivers compressed air through a face mask to the patient.

The compressed air prevents the airway closing. The treatment, which is available through the NHS, may be difficult to tolerate initially because of mask discomfort, nasal congestion and difficulty coping with the compressed air. However it is effective at improving the breathing, reducing snoring and cutting daytime tiredness.

There is a further, much rarer type of sleep apnoea, called ***central sleep apnoea*** (CSA). In this type, responsible for less than one case in 100, the problem is not obstructive but to do with appropriate electrical impulses from the brain to stimulate breathing. Diagnosis and management are much more complex than for OSA.

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