The problems of self help

Dentists are on the frontline of dealing with sleep-disordered breathing (SDB) issues like sleep apnoea and snoring. But with the range of self-prescribed devices now available over the counter, treatment of the disease has become more difficult to manage, especially with patients who discover the hard way the 'help yourself approach' is not always the best. This month, we explore the range of SDB issues, the importance of treatment by qualified professionals and confronting the dangers when patients risk their health with a self-prescribed approach.

BY: John Burfitt

Earlier this year, the ADA put the proliferation of 'do-it-yourself' dental appliances available in the Australian marketplace on the national health agenda.

The ADA raised its concerns about the impact many of the self-prescribed devices is having on patients when treating such serious health issues as sleep apnoea and snoring, that require diagnosis and treatment by qualified dentists and other medical practitioners.

In a letter to the Dental Board of Australia, Dr Hugo Sachs, ADA Federal President, expressed concern about the significant number of companies supplying a range of self-prescribed appliances and the health impacts these could be having on patient safety.

Dr Sachs requested the Board initiate investigations into these companies and their practice of dentistry outside of what is allowed under the National Law.

Oral appliances are universally regarded as an appropriate treatment for snoring and some forms of sleep apnoea. Oral appliances are worn during sleep and function by holding the jaw slightly forward, so the tongue and tissues at the back of the throat don't collapse and obstruct the airway during sleep and collapse into the passage of airflow.

BEST PRACTICE POLICIES

The ADA has recently developed a new policy on the supply of mail order dentistry (see Policy 2.2.10). As stated in this and other ADA policies, dentists are the only dental practitioners qualified to manage oral appliance therapy of SDB.

Such practise by others is a direct contravention of the Board's scope of practice standard, which states, 'Dental prosthetists may take impressions and

records required for the manufacture of various types of splints; sleep apnoea/anti-snoring devices, immediate dentures and immediate additions to existing dentures. These procedures require written referrals to and from dentists and any appliance or device manufactured under such arrangement must be planned, issued and managed by the treating dentist'.

Dr Sachs also expressed concern that patients, who may be undiagnosed, may believe it's safe to self-prescribe these devices, and some suppliers are supplying custom fitted devices without any diagnosis, prescription, referral or follow up. With such a number of self-prescribed unsupervised patients, it could be creating a potential health crisis in the future, as the 'over-the-counter' devices can result in side-effects in as many as 80-85 per cent of patients. It can also take up to 18 months for the side-effects to become evident.

TREATMENT PLANS

Understanding the various mechanisms of sleep apnoea as well as the treatment options has become a vital part of dental practice in Australia.

SDB is a group of disorders characterised by abnormalities of breathing or respiratory pattern or the quantity of ventilation during sleep.

Snoring is the most common form of SDB and is a sign of upper airway obstruction. Obstructive sleep apnoea (OSA) is a form of SDB that involves snoring but is caused by a more significant upper airway obstruction with consequent sleep fragmentation, hypoxaemia or both.

According to the Sleep Health Foundation, the two most commonly used treatments for moderate to severe OSA are nasal continuous positive airway pressure (CPAP) machines or an oral appliance.

BY DEFINITION

OBSTRUCTIVE SLEEP APNOEA

'Patients with OSA have repeated episodes of partial or complete obstruction of the throat during sleep. A narrow floppy throat is also more likely to vibrate during sleep, causes snoring.

If partial or complete obstructions occur, breathing is reduced or stops for a short time – from 10 seconds up to a minute or more – and blood oxygen levels fall as a result. A brief interruption to sleep that lasts for as little as three seconds before breathing starts again may happen hundreds of times overnight.'

SNORING

'People snore when parts of the throat vibrate during sleep. The part of the throat that vibrates is the pharynx, but during sleep, these muscles relax, and it makes it vibrate more easily. It also becomes narrower and the narrower it is, the more easily it will vibrate and the louder the snoring. About 40 per cent of men have mild snoring, while with women, it's around 30 per cent. About 15 per cent of people snore on most nights.'

Edited sections from sleephealthfoundation.org.au

TRAINING DAY

Studies show that dentists receive only an average of three hours of education in dental sleep medicine throughout an undergraduate course.

"It's totally inadequate for practising in the field," Dr Harry Ball says. "It is important to be discriminating in the training program you choose."

The Dental Sleep Medicine Course is conducted by the Dental Sleep Medicine Council of the ASA and will be held this year in Brisbane from 17-19 October.

It will include some of Australia's leading sleep physicians, ENT surgeons and dentists. The keynote speaker is Swedish orthodontist Professor Marie Marklund, a world-leading clinician and researcher. More details at sleep.org.au

CPAP uses a pump to deliver air to a mask that covers the patient's nose. This holds the throat open during the night and stops the snoring. It often takes patients a while, however, to get used to the CPAP machine.

An oral appliance – or mandibular advancement device – fitted by a dentist, is like a double mouthguard that goes over both the upper and lower teeth. The upper and lower mouthguards clip together, so that the jaw is held forward during the night and this helps keep the airway open.

The choice of oral appliance can depend on factors including the number of teeth, the width of the dental arches of the palate and lower jaw, the degree of jaw protrusion and size of the tongue.

"Oral devices are highly effective but there is great individual variability," Dr Mark Knapp of Mansfield's Delatite Dental says. "One-third of users will achieve a complete resolution of OSA, another third will have a substantial reduction while the remaining third will show little improvement.

"Perhaps more importantly, oral devices do lead to significant health improvements, comparable to CPAP use. One study showed daytime sleepiness and blood pressure improved, as did simulated driving performance. Nightly usage is estimated at 77 per cent, which is higher than that for CPAP."

MATTERS FOR CONCERN

Dentist Dr Andrew Gikas is on the Dental Sleep Medicine Council of the Australasian Sleep Association (ASA), and also the past president of the ADA Victorian Branch. Dr Gikas says the wide availability of unsupervised dental appliances to consumers is something to be concerned about.

"We can't underestimate the number of people buying them," Dr Gikas says. "You can now buy these devices next to television sets at the electrical appliance stores. Having somebody without any dental or medical qualifications recommending and selling these devices is not the best way of delivering healthcare.

"If a person is self-diagnosing, they are risking their health, and if they are self-prescribing and self-wearing these things, they are at serious risk of potentially damaging their teeth, changing their bites or affecting their jaws."

In the ADA's Policy Statement on Mail Order Dentistry, key concerns about the proliferation of self-prescribed sleeping devices include minimal regulation of the manufacturers, a lack of on-going maintenance, patients having little or no redress for problems or damage caused to their oral health and oral structures.

Unregulated devices may indeed improve snoring but in doing so, may also mask the symptoms of OSA. Also, consumers may be left with permanent changes to their teeth, damage to their jaws, and substantial levels of pain within their orofacial muscles unless these devices are fitted and monitored by appropriately trained dentists.

Dr Gikas says he has treated a number of patients who have ended up in his chair after using a self-prescribed device.

"It's after they've been using them for three or four months you see the dental changes," he says. "The good thing is if you catch it early enough and get the patient to stop wearing them, then most of the dental issues resolves. But the bigger issue is that untreated or under-treated OSA is a serious health risk to individuals, as well as making them a safety risk on the road and in the workplace. The potential to do real damage increases as time goes by."

THE COST TO THE COMMUNITY

Poor sleep is increasingly common amongst Australians, with one in three people regularly struggling with their sleep. SDB is associated with a range of diseases and conditions, including depression, diabetes and stroke, as well as workplace injuries and motor vehicle accidents.

According to the *Re-Awakening Australia – The Economic Cost of Sleep Disorders in Australia* report commissioned by the Sleep Health Foundation, SDB cost the Australian economy more than $36.4 billion a year in health care and indirect costs.

The report highlights that more than 1.5 million Australian adults now suffer from SDB – almost nine per cent of the adult population.

The report also noted that better diagnosis and detection of the sleep conditions, together with increasing obesity, ageing and stress levels, has increased the prominence of sleep apnoea and snoring.

DENTISTS IN A CENTRAL ROLE

Dr Andrew Gikas says dentists have a key role in treating SDB issues. "Sleep apnoea and snoring are the two conditions that dentists are concerned about, but it's not just about the airway and breathing. We are seeing patients with more complex coexisting sleep disorders like insomnia and restless legs syndrome being managed within our multidisciplinary teams," he says.

"As dentists, we're in a unique position because we get the opportunity to look into our patient's mouths regularly, see what they've got going on and ask questions in regard to snoring and sleep apnoea.

"From there, we can make recommendations on whether they should be diagnosed properly by a sleep medicine practitioner and the specialist team. In that respect, we can be the first person to pick up what's going on and refer them, and once they're diagnosed, they come back to us for treatment with devices if they are deemed to be unsuitable."

Dr Harry Ball is co-chair of the ASA's Dental Sleep Medicine Council, and the principal of Melbourne's SleepWise Clinic, which specialises in dental sleep medicine.

"There are aspects of dental sleep medicine, which differ from any other area of dentistry, and this can lead to confusion," Dr Ball says.

"As dentists we are free to diagnose and treat dental conditions without any input from another dental or medical practitioner. This is not the case with providing oral appliance therapy for OSA and snoring."

Dr Ball explains that when dealing with such conditions, the ASA have practice guidelines outlining the way dentists can only proceed with treatment based on the recommendations of the diagnosing physician.

"OSA is an important medical condition, with potentially significant health consequences, and physicians are also responsible for assessment of the effectiveness of oral appliance therapy," he explains. "Another area of confusion is the number of controversial areas in the field, with often unsubstantiated, non-evidence-based claims made about appliances, equipment and techniques."

SO, WHAT'S THE DIFFERENCE?

Generally, prescription units are sturdier and built with a higher quality resin. They are form-fitted to a patient's teeth from moulds taken of their teeth, and have the advantage of multiple visits with a dentists who will adjust the device until it fits properly and to maximise its effectiveness, and deal with any on-going maintenance.

The non-prescription snoring mouthpieces mimic the apnoea mouthpieces in appearance and function, but as they are mass manufactured, the best result that can be achieved is from using generic thermoplastic resins that follow the 'boil-and-bite' procedure. Without a qualified dental professional checking on effectiveness, the results are not as reliable.

The biggest difference between the bespoke and generic devices, however, is in the fact the self-prescribed appliances are not designed for sleep apnoea. They are designed for patients with benign snoring issues and without any apnoea issues. The self-fitted versions also cannot be adjusted to suit particular individual conditions, nor can they be adjusted.

CORRECTING THE MISTAKES

Dr Maree Barnes is a sleep physician at the Institute for Breathing and Sleep at Melbourne's Austin Hospital. She often treats patients after their self-prescribed devices have not worked. Some of them have side-effects which are usually difficult to manage.

"This is a worry because the most common symptom of sleep apnoea is snoring, and these self-help devices may well treat the snoring, but they don't treat the patient's sleep apnoea, so their blood pressure is still out of control," she says. "The other thing is they can lead to side effects which go unrecognised until they can become, in some cases, permanent and disabling."

Dr Barnes says many of the patients she works with often thought they were doing the right thing by using these self-prescribed devices, only to discover there is a problem when they encounter significant tooth damage, facial pain and jaw misalignment.

"Until somebody actually does a sleep study and determines what is really going on, that piece of plastic they bought off the shelf and stick inside their mouth every night might be doing nothing for apnoea," she says. "The snoring problem might seem to be solved, but what it's doing is masking the symptoms of the underlying disease. That's when I need to send them to a dentist who can help get their mouths and teeth back into working order."

Even in the hands of the best dentist, and with the most well-fitted device, there is still scope, Dr Barnes adds, for serious issues to arise. The main problems involve non-compliance and patients who never return for a follow-up.

"A well fitted appliance might involve bands or screws, so that might need a few adjustments along the way. It is also, after all, a piece of plastic so it's going to need to be changed or replaced in two or three years. This is when the patient needs a good dentist who can recognise these complications and prevent them before they happen."

INTO THE FUTURE

While there is continuing concern about the wide availability of many of these devices on the open market, Dr Barnes says advances made in Australia in recent years places the country as one of the world leaders in treating sleeping disorders.

"We do this really well, we have a great deal of expertise, have a fantastic research and clinical track record, but we need to be capitalising on this," she says. "We need to be managing these patients a whole lot better, so they can contribute better to society. The laws are in place to provide protection to patients against harm being done to them, so we do need to continue to be careful."

The issue was further explored earlier this year at the Sleep Summit, when a range of national bodies, including the ADA and ASA, discussed the need for raising awareness and working towards a better educational approach to the issue.

"We put together a communiqué which we all signed off on and which has been presented to the government to agitate for a bipartisan national sleep enquiry to look at all these issues, and come up with appropriate solutions," Dr Barnes adds.

"It's all a matter of training the patients, the dentists and the sleep physicians to all work together – and it's really not that hard. It's just a matter of working together to achieve the best result, with the people who know what they're doing in charge. To help facilitate this, the ASA currently has a working party that is developing an assessment process, so sleep physicians, patients and GPs will know who are the well-trained dentists in this field."

CHANGES THAT HELP

Aside from oral devices and CPAP machines, a range of behavioural changes can also play a part in resolving SDB. Weight loss is important as weight can add deposits of fat into and around the soft palate, tongue and neck, reducing the size of the airway. Weight loss can reverse this by enlarging the airway size, thereby reducing snoring.

Avoiding alcohol, cigarettes, coffee and sleeping pills can also assist in resolving the issue. Sleeping pills relax the muscles of the throat and can worsen snoring and sleep apnoea. Cigarettes and caffeine can swell nasal and throat issue, while alcohol should be avoided prior to bedtime.