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Obstructive sleep apnoea: latest surgical advances and considerations during the COVID-19 pandemic



Multilevel upper airway surgery could be more effective in reducing the frequency of sleep apnoeas and daytime sleepiness in patients with moderate or severe obstructive sleep apnoea (OSA) compared with medical management (eg, weight loss) according to a study by Stuart MacKay and colleagues. The multicentre, randomised controlled trial is the first of its kind to assess multilevel airway surgery in this patient population. The study provides “arguably the highest quality evidence for surgical therapy of OSA”, according to Professor Atul Malhotra from The University of California San Diego (CA, USA).

Lead author MacKay stated there is a “misconception” that surgery is not effective; “What distinguishes ours from other single level randomised controlled trials is that those were performed in carefully selected, anatomically appropriate patients with, for example, greater tonsil size or smaller tongues. Our trial actually tests this [surgery] with all different types of anatomy.”

Patients were randomly assigned to the surgery group (n=51) or to the control group (n=51). The primary outcome was baseline-adjusted difference between the groups in Apnoea Hypopnea Index (AHI) and Epworth Sleepiness Scale (ESS) at 6 months. Surgery reduced the AHI (mean baseline-adjusted between-group difference -17.6 events/h [95% CI -26.8 to -8.4]; $p < 0.001$) and ESS (-6.7 [-8.2 to -5.2]; $p < 0.001$) when compared with the control group. However, Malhotra notes that although “the improvement in ESS seen in the study is quite striking... subjective outcomes need to be interpreted cautiously in an unblinded study”.

Although treatment of OSA varies depending on severity and across

countries, continuous positive airway pressure (CPAP) is the most widely used and recommended treatment. However, up to 50% of patients are either unable to tolerate these therapies, use them inconsistently, or achieve suboptimal results. One study found that for patients with acute cardiovascular syndrome and OSA, CPAP treatment did not result in a significantly lower prevalence of cardiovascular events than did usual care after a median follow-up of 3-35 years.

Conversely, a UK study found that CPAP plus standard care (sleep counselling) led to improved quality of life (SF-36), reduced self-reported sleepiness (ESS), and reduced levels of depression (Hospital Anxiety and Depression Scale) compared with standard care alone after 3 months. Notably, 81% of patients wished to continue CPAP treatment after study completion.

Nonetheless, MacKay emphasises that “The current therapies for OSA are limited by adherence, availability, and perhaps cost...[surgery] can significantly improve patients’ quality of life and reduce symptoms...if the patients don’t have to wear a device long term, then they tend to relay a significant degree of gratitude for having gone through the intervention”. As with any medical treatment, it is important to balance the risk and benefits, as well as the patient’s perspective.

Evidence suggests that OSA is likely to be a growing problem in the coming years, due to the worldwide obesity epidemic and the ageing population. In the first study to report global prevalence of OSA, Adam Benjafield and colleagues emphasise the huge economic and societal burden that OSA carries. Around 8 million people aged 30–69 years might be affected

by OSA in the UK alone. More efforts are needed to establish the efficacy of upper airway surgery for OSA and which treatments are cost effective.

Today, any disease has to be managed within the context of the COVID-19 pandemic. Although there is no direct evidence to support that OSA is an independent risk factor for COVID-19, the existence of OSA might exacerbate inflammation of COVID-19-related sepsis or acute respiratory disease syndrome, according to a study by Colin Suen and colleagues. Many patients with OSA have other long-term health complications that could increase their risk of becoming infected, such as hypertension. However, as the longer-term mental health effects of the pandemic begin to emerge, there have been significant associations between high COVID-19 anxiety and suicidal thinking. Sleep abnormalities are also a stand-alone risk factor for suicide.

According to Benjafield and colleagues, many of the symptoms associated with OSA are often attributed to other causes and many people with OSA do not realise they have it, meaning it is underdiagnosed and undertreated. This is a risk factor in itself because without appropriate treatment, symptoms persist, including mood changes, which might be exacerbated by the COVID-19 pandemic.

Despite the uncertainties in the management and treatment of COVID-19, sleep problems such as OSA can be effectively treated. Improving sleep is likely to have a direct impact on reducing suicidal ideation and quality of life for many individuals with OSA and the study by MacKay and colleagues is at the forefront of that endeavour.

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For the study by MacKay and colleagues see *JAMA* 2020; **324**: 1168–79

For the study on ACS and OSA see *Articles* in *Lancet Respir Med* 2020; **8**: 359–67

For the UK study on CPAP in mild OSA see *Articles* in *Lancet Respir Med* 2020; **8**: 349–58

For the study by Benjafield and colleagues see *Articles* in *Lancet Respir Med* 2019; **7**: 687–98

For the study by Suen and colleagues see *Anesth Analg* 2020; **131**: 318–22

For more on COVID-19 anxiety and suicidal thinking see *Sleep Med* 2020; **70**: 124