



## CHANGE PAGE

## Upper airway surgery should not be first line treatment for obstructive sleep apnoea in adults

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**The clinical problem**

The prevalence of obstructive sleep apnoea in high income countries is estimated to be 20% for mild disease and 6-7% for moderate or severe disease. The condition is associated with multiple morbidities, motor vehicle crashes, and reduced health related quality of life.<sup>1</sup> Clinical guidelines recommend continuous positive airway pressure (CPAP) with weight and alcohol management (if indicated) as first line treatment for symptomatic, moderate to severe obstructive sleep apnoea.<sup>2,3</sup> Upper airway surgery (such as uvulopalatopharyngoplasty) may also be done, but evidence does not support its use.<sup>4</sup> However, use of surgical procedures is widespread and increasing in Australia and elsewhere (such as the Nordic countries).<sup>5,6</sup> We propose that upper airway surgery should not be first line treatment for obstructive sleep apnoea in adults.

**The evidence for change**

An array of surgical procedures is used either concurrently or stepwise over multiple operations. A recent multicentre retrospective audit revealed substantial procedural variability; the observed cohort (n=94) received 41 varying combinations of surgical procedures.<sup>5</sup> In a Cochrane review of seven randomised controlled trials (n=412) in 2005, the results of surgery were inconsistent: significant improvement in polysomnography occurred in only three trials (combined n=225), and health related quality of life improved in only four trials (combined n=138).<sup>4</sup> Comments on the clinical significance of both these measures were limited, and the review concluded that surgery had a lack of an impact on symptoms (except in two trials) and that overall significant benefit was not shown.<sup>4</sup> Even where improvements in quality of life have been shown immediately after surgery, these were rarely sustained beyond 12-24 months.<sup>2,4,6</sup>

A recent systematic review of 48 studies (4 randomised controlled trials, 17 prospective studies of various designs, 23 retrospective case series, 4 unspecified design) found that up to 62% of 21 346 patients who had surgery reported persistent adverse effects,<sup>6</sup> such as persistent dry throat, globus sensation, difficulty in swallowing (including spontaneous nasal regurgitation), voice changes, and disturbances of smell and taste. Up to 22% regretted having surgery.

An additional meta-analysis evaluated 18 surgical studies (n=385; 17 level four audits, one randomised controlled trial).<sup>7</sup> Success, as measured by the number

of patients achieving a post-surgery apnoea/hypopnoea index of 5 or less (a clinically significant standard against which CPAP is judged), was limited.<sup>8</sup> Pooled success rates were 13% for phase I procedures including uvulopalatopharyngoplasty (14 studies, n=347) and 43% for phase II procedures including osteotomies (four studies, n=38).

**Barriers to change**

Conservative weight management is recommended as an adjunctive treatment, as it tackles a primary risk factor for obstructive sleep apnoea (on the basis of two randomised trials, combined n=91, and two non-randomised concurrently controlled studies, n=41).<sup>9</sup> Weight loss and other lifestyle modification can be difficult to achieve, however. CPAP also depends on acceptance and adherence by patients; its benefits in mild to moderate obstructive sleep apnoea seem inconclusive,<sup>3,10</sup> making surgical "cure" seem more attractive. Furthermore, in Australia, such surgery is mainly done in the private sector, which has different incentive mechanisms from the public system. However, given the lack of clear benefit from surgery and the potential for harm indicated by currently available evidence, guidelines recommend CPAP as first line treatment for obstructive sleep apnoea generally.<sup>2,3</sup> When CPAP treatment fails, mandibular advancement devices may be considered (with conservative management) as second line treatment (16 randomised trials, n=745).<sup>2,11</sup>

**How should we change our practice?**

CPAP remains the recommended first line treatment for obstructive sleep apnoea in adults.<sup>2,3,10</sup> Conservative weight management (as a primary risk factor) is

**Search methods**

We searched Medline, the Cochrane Library, and the International Network of Agencies for Health Technology Assessment database. We selected randomised controlled trials, systematic reviews, and practice guidelines that assessed the safety and efficacy of upper airway surgical procedures in the treatment of obstructive sleep apnoea in adults. We did bibliometric searches of identified articles, including our own published results, and communicated with specialist surgeons and sleep medicine physicians to identify relevant published evidence.

Change Page aims to alert clinicians to the immediate need for a change in practice to make it consistent with current evidence.

The change must be implementable and must offer therapeutic or diagnostic advantage for a reasonably common clinical problem.

Compelling and robust evidence must underpin the proposal for change.

**Useful reading**

Young T, Peppard P, Gottlieb D. Epidemiology of obstructive sleep apnea: a population health perspective. *Am J Respir Crit Care Med* 2002;165:1217-39

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recommended as adjunctive treatment.<sup>9</sup> When CPAP treatment fails, mandibular advancement devices may be considered (with conservative management) as second line treatment.<sup>211</sup> Surgery for obstructive sleep apnoea should be done within controlled clinical trials. Patients should be informed about the trial, as well as of the inconsistent results of surgery, the associated pain, the potential side effects, and the potential for relapse.

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**Competing interests:** JEH and GJM are respectively directors of AHTA and ASERNIP-S, organisations that evaluate health technologies including surgical procedures. JRM is a consultant on health technology assessment to the Australian Government Department of Health and Ageing. AGE: none declared.

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## My first and best role model

As final year medical students, we had an obligatory two weeks' rotation in the hospital's dermatology department. Although we could appreciate how common, important, and revealing skin problems were, dermatology was way off the mainstream for us.

Our young American dermatology instructor beckoned me at the end of one morning session. "What does a handsome young man like you need those for?" were his exact words, indicating two moles that I had on my face. He undertook to remove them for me, explaining that this could be easily done and would not take more than a few minutes.

I was taken by surprise. I never gave it a thought before. The moles were just there, just as my nose was, although they were quite disturbing—one above my left eye, and the other in the middle of my right cheek. The dermatology instructor's empathy and enthusiasm were catching, however. When I stalled a bit, he was encouraging but neither pressing nor offended, leaving me the option to decide. Soon, I agreed wholeheartedly, and both moles were removed in a matter of minutes by a shave biopsy under local anaesthetic.

Soon, there was no sign the moles had ever existed, and I remain deeply grateful to my instructor, whom I never saw again. I felt so much better afterwards, that I seriously believe that my self image improved and even my dating

and falling in love with my future wife was a direct consequence of my short sojourn in dermatology that year.

Now, as a member of the faculty in the same medical school where I used to be a student, I often think of the essential subtle ingredients of the much discussed doctor-patient relationship. I realise that my dermatology instructor was the perfect embodiment of the best physician—observant (or he would not have noticed two small moles in a class of 10 students), keen to recognise and easy to appreciate the best in his patient (I was a much loved only son, but this was the first time that anyone had said I was handsome), sensitive and with insight (being able to see things from the other's point of view and sense how potentially noxious those moles really were), taking the lead and showing authority (not hesitating to take the initiative and point out the best solution), committed (not minding the extra work and responsibility involved, nor the total lack of any reward), and highly professional (impeccably performing the operation and follow-up).

I hope he may read this, as the smallest of tokens that he deserves. He remains my first and best role model and a symbol of how exemplary physicians affect the lives of their patients.

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