

Editorial

Sleep Apnoea - Where do we stand now??

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Received: May 28, 2015; **Accepted:** June 08, 2015;

Published: June 10, 2015

Abstract

Sleep apnoea is a significant disease that has been appreciated for more than 30 yrs now. The prevalence of this is increasing with the burden of obesity and the simplification of diagnostic tools. With more patients being diagnosed, there is also more scepticism as to the success of treatment and the adherence to therapy in the longer term. There is also argument on, if we are using the right tools to stratify these patients.

Introduction

Sleep apnoea is due to repetitive narrowing and closure of the upper airway in sleep. This causes repetitive transient hypoxia, arousals from sleep and autonomic dysfunction. These lead to excessive daytime sleepiness, fatigue and poor concentration on a day to basis and in the long term leads to cardiovascular and neurocognitive impairment.

There is wealth of evidence to prove that sleep apnoea is prevalent [1] and is associated with increased morbidity and mortality [2]. There is increased evidence that treatment of sleep apnoea is associated with improved outcome measures [2].

Although patients with sleep apnoea have traditionally been grouped together as a single group, there are significant differences in the causes and the manifestation of sleep-disordered breathing between patients [3]. The heterogeneity has implications for treatment. If all patients are viewed and treated homogeneously as a single group, there is genuine room for failures of treatment.

The general public seems to have awareness of sleep apnoea and there are increased number of diagnostic centres predominantly in private sector and a sizable proportion in the public sector.

We do well in diagnosing them; what about treatment.

Choices in treatment for sleep apnoea include weight loss, Continuous Positive Airway Pressure therapy (CPAP), Mandibular advancement splints (MAS), ENT surgical options and other novel therapies such as dilator muscle stimulator [4] and possibly medications in some group of patients with low arousal threshold [5].

The most efficacious of treatment of all is the CPAP therapy. There is wealth evidence to show how well CPAP controls the upper airway closure in patients with obstructive sleep apnoea. All sleep physicians would have had the privilege of observing the amazing difference in sleep architecture, oxygenation, reduction in arousals and number of respiratory events with CPAP therapy. As a sleep physician myself, I have been happy many times by the excellent outcome this device makes in a patients with sleep apnoea.

But we are struggling is to get these patients to adhere to their

treatments in the long term. Many long term follow up studies have shown very poor adherence to therapy including one of our own audit within our service [6,7].

If we have an ideal treatment option which is almost 100% efficacious, why are failing to get these patients to be so **poorly adherent**. Many factors are obviously could be blamed.

Starting from patient factors, many patients have nasal congestion, nasal obstruction and septal deviation which make their nasal passage less than ideal route for positive airway pressure delivery.

We routinely do not make a good assessment of this fact in our assessments of our patients. We may not have the skills, the tools or the time needed to assess them or simply we do not have the help of ENT surgeons who could this for us.

An important factor in establishing treatment on a patient is increased perseverance by the patient, but more so by the treating physician. There are many factors involved, where a simple CPAP machine and a mask may not have be good enough for the patient. Obviously patient may not have the best anatomical structure conducive to treatment as mentioned above, or the pressure of the device may not be right for the patient and the patient may need a titration sleep study to obtain this correct information.

We should all realise that CPAP mask is indeed an intrusive device on a patients' face, particularly at a time the patient wants to relax and get some rest. It will take a lot of effort to get the patient to adhere to therapy, if the patient does not perceive the benefit on a day to basis.

All these facts lead to a lengthy delay in commencing proper treatment and the physician loses interest and the patient is lost to follow up as they are not convinced that this treatment is important to them.

Way forward may be to combined clinics with ENT surgeons or Sleep multidisciplinary meetings to discuss the patients for the need for more input.

The other aspect is the availability of devices and the cost of the accessories. Most of the public patients do have access to publicly

funded CPAP machines, but the accessories like the CPAP masks are not publicly funded. Although these masks may be cheaper for public enterprises when bought in bulk, they are certainly a big cost on a pensioner's budget with each mask costing more than \$200. Some of our patients may not go beyond the first phase of treatment despite of obtaining a free device through public funds. This obviously deprives them of the benefits of therapy.

As with any therapy one would imagine that there needs to be some follow up, this is one of the other aspects that we do not do well. There are no set guidelines for physicians on how, how often and who should follow up the patients with CPAP therapy. There are number of practices that prevail currently. It is different within Institutions and physicians. Obviously there is limited resources and within the sleep services to follow up on the large number of patients commenced on therapy. Perhaps the primary care physicians or the practice nurses may have the time to do it. Since Sleep apnoea has been dealt by specialised physicians and staff within the sleep services, there have not been many efforts directed at the education at primary care level. There is some evidence to suggest that treatment by primary care services give equal or even better outcome for the patient for investigation and treatment of sleep apnoea [8].

Turning the focus on the other modalities of treatment...

Mandibular advancement splints (MAS) have recently been showed to be comparable to gold standard CPAP therapy, when you factor in the slightly lower efficacy with better adherence compared to better efficacy and lower adherence for CPAP therapy [9]. There is no public funding available for any of the MAS devices in the state sector and cost of devices are again is not within the reach of many patients.

ENT surgery as a treatment modality is an important aspect of the treatment of sleep apnoea. This could be nasal clearance surgery to facilitate CPAP delivery, Adenotonsillectomy in the selected patients and UPPP in some patients. Again physicians' review of patients with sleep apnoea needs to include an adequate review looking for any problems that could be treated surgically.

Weight loss is an important and integral part of treatment plan for sleep apnoea, however there is no funding within the public facility for such intervention. We do know morbidly obese patients tend to utilise more healthcare resources, but knowing this we do not have publicly funded resources within sleep services for dieticians or for bariatric surgery. There seem to be a real disconnect between the needs of the sleep services and the funding of services.

Are we stratifying the patients correctly

Beyond the specific problems on the treatment of sleep apnoea, there are lot of variations with the sleep study parameters which could be linked to outcome measures. Traditionally and to date we have linked the severity of sleep apnoea to the numbers of apnoea/hypopnoea per hour. We have to date looked at the outcomes in research based on this magic number. We do know that this magic

number does not always correspond to the clinical outcomes in the patients. For example 2 patients with the same number of apnoea per hour may behave differently if the oxygen desaturation may be different or the arousals caused by apnoea are different. We are yet slow to adopt these factors into treatment guidelines. We as Sleep physicians may have to target these patients differently which may lead to a meaningful outcome rather than to group all the patients into the 3 severity groups as we have done so far.

Also there seem to be some scepticism amongst the physicians mainly non sleep physicians on the outcomes of sleep apnoea. This is perhaps due to the field relying on the numbers of apnoea, as a risk stratification tool. Personally I have seen many patients who do not at times have the outcomes you think that they should have when you stratify according to the apnoea numbers and wonder within myself, if we should have considered another variable within the sleep parameter. I am sure each and every physician has a different view on this, but we do need to come together and our researchers need to back us up.

Although this field has about 30-35 year history, there are lots more to be done by sleep physicians to advance this field forward.

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