



THE NERVE CENTER (NAMI Neurology) **Obstructive Sleep Apnea, Excessive Daytime Sleepiness and the need for Vigilance Testing**

This is the current guidance (Jan 2010) and rationale for the documentation to be included with your Aeromedical Summary to support waiver requests for history and treatment of Obstructive Sleep Apnea (OSA). All situations cannot be addressed so general guidelines are posted.

As you know, Obstructive sleep apnea is a disorder in which a person stops breathing during the night, perhaps hundreds of times, for periods of 10 seconds to several minutes in some cases. These apnea periods interrupt the natural sleep architecture resulting in non-restorative sleep. OSA inevitably causes excessive daytime sleepiness (EDS). I do not need to explain why EDS is an Aeromedical Safety Issue.

Most are unaware they have OSA or EDS, although sometimes they awaken and gasp for breath. OSA is usually accompanied by snoring. Since people who have OAS may not be aware of the condition, it is usually the sleeping partner, alarmed by episodes of loud snoring alternating with silence (apneas), who insists on medical evaluation.

People with sleep apnea usually do not remember waking up during the night. Indications of the problem may be such vague symptoms as the following: excessive daytime sleepiness, morning headache, irritability, and even impaired mental or emotional functioning, snoring, and heartburn because reflux may be responsible for some cases of sleep apnea.

Polysomnography is the current standard for evaluation of suspected OSA. It provides data on respiratory effort, airflow, oxygenation, and sleep state among other things. Sleep centers diagnose and recommend treatment for OSA and other sleep disorders.

Currently, the best treatment for OSA is a system known as nasal continuous positive airflow pressure (nasal CPAP). It is safe and effective in OSA patients who can tolerate it, about 50%. The device is a machine weighing about five pounds. A mask containing a tube connects to the device and fits over just the nose. The machine supplies a steady stream of air through a tube and applies sufficient air pressure to prevent the upper airway tissues from collapsing during sleep. Nasal CPAP has been successfully used aboard ship.

There are sophisticated systems available now called auto-CPAP devices that can customize air pressure needed to overcome airway resistance. Pressure is low when there are no problems with airflow but is raised gradually when obstructions are detected. Surgery, uvulopalatopharyngoplasty (UPPP), is also effective for about 50% of cases, in treating OSA. The procedure, cauterization or laser surgery, removes soft tissue on the back of the throat and palate.

Other treatments include weight loss and dental devices. Some dental devices are similar in appearance to sports mouth guards. The mandibular advancement device

forces the lower jaw forward, which keeps the airway open. These treatments are not as effective as nasal CPAP or UPPP.

A new technique called radiofrequency ablation uses radio waves emitted from an electrode to treat patients who snore. The radio waves destroy a small amount of tissue at the base of the tongue. It is far less invasive than standard surgery, and studies are reporting significant improvement in reduced snoring and less daytime sleepiness. It may be helpful for mild obstructive sleep apnea.

Other procedures may be appropriate to correct facial abnormalities or throat obstructions that cause OSA. They may be used alone or combined with each other or with UPPP. Some patients with OSA have nasal obstructions (such as a deviated septum) that contribute to snoring and other symptoms. Surgery for such obstruction may be helpful in reducing symptoms and improving oxygen levels (although it does not always cure the condition).

The only surgery that approaches 100% success for treatment of severe OSA is tracheostomy. However, it requires a permanent opening in the throat and is performed only if sleep apnea is life threatening. I have not had any waiver requests for aviators who have had a tracheostomy...yet.

Regardless of the treatment, a waiver is required for the condition. **The Aeromedical Summary needs to include documentation that excessive daytime sleepiness (EDS) is not present. This can be done with Maintenance of Wakefulness Test (MWT). Vigilance and sustained attention may be assessed directly as part of a neuropsychological assessment. If a comprehensive neuropsychological assessment is performed the report should address how vigilance was assessed, as well as how the patient performed on measures of executive dysfunction.** Multiple Sleep Latency testing, (MSLT) as is done for Narcolepsy is not sensitive enough for this purpose and may not be substituted for the MWT.

An aviator's self report of lack of EDS must be documented objectively. There have been several cases of individuals who have been treated successfully for OSA but on testing were found to have EDS. In some cases this is because EDS is insidious and can be caused by conditions other than OSA alone. Treatment compliance with nasal CPAP has been an issue and surgery as noted above is not 100% successful in all cases either. Improvement in the apnea index can be documented (not required in all cases) by a post treatment polysomnogram but **assessment of excessive daytime sleepiness is still necessary as noted above.**

Henry Porter, M.D.
CDR MC USN (Ret)
Head, NAMI Neurology
henry.porter@med.navy.mil