

THE JUSTIFICATION & ECONOMICS FOR HOME TITRATION OF CPAP THERAPY

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Obstructive sleep apnea has evolved from being a relatively new diagnosis to one of increased awareness by physicians and consumers who are suspected of having OSA. The traditional approach or gold standard of sleep medicine is to use one study with full polysomnography to get a clear picture of any problems a person may have resulting from sleep disordered breathing (SDB) on the first night then, if the person has OSA, a follow-up study on a second night with CPAP or "titration study" is performed to establish the therapeutic pressure that best controls the events experienced with OSA and allows the patient to sleep comfortably. Treatment for OSA is designed to alleviate symptoms of daytime somnolence, fatigue, irritability and ultimately reduce the incidence of apnea, hypopnea and arousals caused by these events. Traditional methods to diagnose OSA have involved patients attending a laboratory based sleep facility however due to access issues and the limited availability of traditional certified sleep facilities and the cost associated with the traditional approach, many sleep labs have resorted to daytime studies and split night studies in which diagnostics and titration are accomplished on the same day. In addition some managed care organizations have utilized non-traditional methods of diagnosing and titrating patients who are highly suspected of having OSA based on symptom severity and high Epworth Sleepiness Scale (ESS) scores and have accomplished this through home diagnostics using oximetry and auto-titrating CPAP. In fact the nation's largest integrated staff

model HMO uses similar methods in order to reduce issues with patient access to diagnostics and the results of their approach not only eliminates access issues but most importantly advances patients to treatment sooner potentially eliminating the need for additional resources as a result of untreated OSA. Obstructive sleep apnea is the most common sleep disorder and diagnosing and treating OSA is becoming a major health problem in the United States. Regardless of the methods used to diagnose patients for OSA, titration is an integral part to assuring successful treatment and most importantly adherence to treatment.

Dollars and Sense

Insurance concerns are often a determining factor in whether or not a split night study is performed. Although in a healthcare model [or system] that is fully integrated in which the organization is 100% at risk cost is less of an issue and access becomes the determining factor in the diagnostic approach. Some organizations have developed tertiary centers in which patients who are difficult to diagnose for SDB are referred to the sleep laboratory for traditional full polysomnography as well as titration while patients who present with severe symptoms and high ESS who are suspected of OSA are diagnosed using non-traditional methods. Daytime titration studies with full polysomnography have been successfully performed in patients with severe OSA to mitigate the issues of access when staff resources as well as "beds" in the sleep labs are limited. The implementation of daytime studies in unselected OSA patients helps to reduce the waiting lists for CPAP titrations. While traditional methods of diagnostics and titration costs \$1,500 to \$2,000, non traditional methods in many cases is half the cost. Organizations that understand the importance of overall savings and early treatment have benefited from reduced diagnostic costs and have invested the savings into successful treatment and adherence programs. This approach makes perfect sense however many payers and in particular Centers for Medicare & Medicaid Services (CMS) have failed to realize and benefit from this common sense empirical approach. Some managed care organizations have realized the need for home diagnostics however require the testing and titration be fully attended which diminishes any benefits gained from savings. There must be more emphasis placed on treatment and less on diagnostics particularly when it is clearly established in the medical literature that early treatment will reduce overall healthcare expenditures because of co-morbid diseases and conditions that develops from untreated OSA.

Titration

CPAP titration for OSA is intended to evaluate whether the delivered pressures can eliminate the events (apnea, hypopnea) and resulting arousals from upper airway resistance. Determination of this optimal pressure is accomplished by titrating CPAP pressures against respiratory events and arousals from sleep. The use of heated humidification may enhance patient

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acceptance during this process. The titration process is critical to patient adherence to therapy and proper titration to identify the ideal therapeutic pressure is paramount to assure success with CPAP treatment. Standard practice for CPAP treatment in OSA requires pressure titration during attended laboratory polysomnography. However, the gold standard or polysomnographic titration is expensive and time-consuming thus many organizations have employed alternative methods as discussed including unattended auto-adjusted titration at home. Researchers whom have evaluated these methods found no differences in the objective compliance of CPAP treatment and in the dropout rates and further conclude that unattended titration at home could lead to considerable savings in cost and improve patient access. Advances in auto-adjusting positive airway pressure technology now permit treatment initiation outside of the sleep lab environment. Several auto-CPAP machines have been approved for use in the United States and Europe and their effectiveness has been proven in large evidence based managed care organizations.

Many of the newer devices have dedicated diagnostic computers and comprehensive algorithms that measure airflow, position, and oximetry. Thus, theoretically, the same auto-titrating machine could be used to establish the presence of apnea, followed on subsequent nights by auto-CPAP titration. The current standard recommended by the American Academy of Sleep Medicine (AASM) is for an attendant technician to titrate CPAP during full polysomnography to obtain a fixed single pressure. However this approach is not necessary if there are clear guidelines established that allow for the identification of ideal candidates for home titration. Auto-titrating systems provide a method for determining a single fixed pressure, suitable for subsequent long term home treatment with a conventional CPAP device. The ultimate goal of these types of devices is to avoid increased cost and labor associated with the traditional approach to titration in a time when resources are sparse and reimbursement is a challenge. Auto-adjusting systems are intended for long term home treatment. Their goal is to improve effectiveness of event elimination and reduce the potential side effects associated with fixed pressure devices by ensuring optimal pressures for the patient's specific needs. Many patients experience night-to-night variability of pressure needs and auto-adjusting systems can meet the needs of those patients. Home care providers that partner with managed care organizations to accomplish this method of diagnostics and treatment have experienced high levels of patient satisfaction and adherence to therapy and more research must be conducted to help document the success of this approach.

Conclusion

Empirical treatment followed by stepwise approaches with increasing intervention is well established in the treatment of many diseases. The goal is to start with the least costly treatment aimed at eliminating symptoms followed by an escalating approach with further intervention and/or diagnostics as warranted by a patients response. With OSA the approach is the total opposite. The most expensive approach is typical followed by treatment that may be unsuccessful thus wasting precious healthcare dollars in a time when the goal must be to save or reduce expenses. The solution is a simple one; invest more in treatment and adherence and less in diagnostics. Technology has advanced in the area of sleep medicine such that we can now be assured that patients will in fact benefit from this sensible approach and will experience positive health outcomes and the healthcare system will benefit resulting in positive economic outcomes.

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