

APPLICATIONS OF AUTO CPAP

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Sleep disordered breathing is prevalent in approximately one out of every four males and one out of every ten females in the U.S. Obstructive sleep apnea (OSA) accounts for a large percentage of these disorders. Historically, the treatment of choice was CPAP, which has proven an effective treatment for OSA even though it has limitations, (which Auto CPAP can often overcome).

Auto CPAP provides a variable pressure which responds to apnea, hyponea and changes in flow based upon a computerized algorithm. Auto CPAP is setup utilizing a physician prescribed minimum and maximum pressure. When the device is turned on, the flow generator will begin at the minimum pressure and slowly increase in pressure in response to apneas and/or hyponeas. Numerous manufacturers allow a time period to be set when the system is turned on during which the Auto CPAP does not change pressure. This allows the patient to settle in and fall asleep at the minimum pressure setting. The goal of this feature is similar to the ramp feature on a fixed pressure CPAP, which is to provide maximum comfort when the patient is falling asleep.

The utilization of Auto CPAP in home care can be divided into short and long term applications. Short term usage is generally related to determining the optimal pressure for CPAP therapy. The titration for determining the patient's optimal fixed CPAP pressure is generally ascertained by polysomnogram. This can be

challenging for the sleep professional if the patient has difficulty acclimating to the CPAP interface and does not sleep for a sufficient length of time to adequately titrate the pressure. A split night polysomnogram is another potential area for inadequate time to titrate the patient's optimal fixed CPAP pressure. When a split night polysomnogram is performed, the first half of the study is dedicated to diagnostic testing which determines if the patient has sleep apnea or another type of sleep disordered breathing. If after the first half of the test is performed sleep apnea is determined to be present, the second half of the study is dedicated to a trial of CPAP to determine the optimal pressure. Optimal pressure is achieved when the sleep professional has titrated the CPAP pressure to a level which prevents the majority of the apneas and/or hyponeas from occurring. If the optimal pressure has not been determined in the sleep lab, then a trial of Auto CPAP can be used to assist in determining the optimal pressure. The patient utilizes the Auto CPAP for several nights at home and the data collected by the Auto CPAP is retrieved for review to determine the optimal pressure.

A trial of Auto CPAP can be beneficial because the pressure needed to maintain a patient's upper airway can vary from night to night due to body positioning, sleep state and other factors. Some sleep professionals theorize that using data from multiple nights sleep in conjunction with a titration in the sleep lab can provide a more accurate determination of the optimal pressure for fixed pressure CPAP. Patients who have been on fixed pressure CPAP for a period of time, who either continue to demonstrate or have a return of their daytime symptoms can benefit from a trial of Auto CPAP to determine if a change is indicated.

Some patients cannot tolerate fixed pressure CPAP as treatment for their OSA. Traditionally, bi-level therapy was the only option when a patient could not tolerate fixed pressure CPAP (due to the inability to exhale comfortably against the prescribed pressure). Auto CPAP is an alternative bi-level therapy for some of these patients since it has the ability to provide only the pressure necessary to meet the needs of the patient. This results in a lower mean pressure in the interface which can make the therapy more comfortable for the patient. Long term utilization of Auto CPAP may also be advantageous since it has been theorized that a patient's CPAP requirements may change over time due to changes in the properties of the upper airway and variations in a patient's weight. There have been limited studies which conclude that Auto CPAP may improve compliance over fixed pressure CPAP but more research is needed in this area.

Economically, auto CPAP is more expensive than fixed pressure CPAP since Medicare and the majority of private insurance carriers reimburse for both types of devices in the same amount. However, there are situations where Auto CPAP has clinical advantages over fixed pressure CPAP. The clinician needs to be alert to these situations and cognizant of the advantages in one system over another in order to provide the best possible outcome for their patients.

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