

PATIENT NAME:

DOB:

DATE:

LOCATION:



Treatment Emergent Central Sleep Apnea

Basic Information

- Central sleep apnea refers to pauses or decreases in breathing due to decreased signals from the brain to breathe
- Treatment emergent central sleep apnea (also called complex sleep apnea) is when application of CPAP causes central sleep apnea. This is common, occurring in 15-20% of patients who are placed on CPAP
- This type of sleep apnea can be just as disruptive to sleep as obstructive sleep apnea. *It can also make using CPAP difficult, because if CPAP induces episodes of decreased breathing there may be a feeling of smothering or suffocation if awake, you may subconsciously remove the mask if asleep, or you may feel no better or even worse with use of CPAP*
- The cause of this type of sleep apnea involves carbon dioxide (CO₂), which our bodies keep in a very narrow range. CPAP, particularly at higher pressures, may cause some people (those with a high breathing drive) to breathe out so much CO₂ at times that their body responds by decreasing breathing until CO₂ gets back up into the normal range
- Common causes of a high breathing drive (and thus treatment emergent central sleep apnea) are a history of abnormal heart function, abnormal heart rhythm, or of stroke or head injury. It can also be seen in 10-20% of healthy men (very rarely in healthy women)
- In otherwise healthy patients who had severe drops in oxygen levels due to obstructive sleep apnea, the high breathing drive may have developed due to the obstructive sleep apnea itself. Therefore treatment emergent central sleep apnea may go away with regular CPAP use up to 75% of the time in these patients. In most other patients, however, it is unlikely to do so

Treatment Options

- *Side sleeping!!* For many patients there is a dramatic improvement in TE-CSA when sleeping on the side or stomach compared to sleeping on the back. It is often almost impossible to treat a patient with TE-CSA effectively when they are on their back
- Lower CPAP pressures often help, although the benefit for reducing central sleep apnea must be weighed against the decreased control of obstructive sleep apnea at lower pressures
- Adaptive servo-ventilation (ASV) is a more advanced air pressure machine which is able to give you a breath during a central apnea (CPAP cannot do this). However, an ASV machine is expensive and insurers' criteria to qualify for it are very strict
- Supplemental oxygen is often very helpful because if oxygen levels are high the likelihood of breathing so aggressively that CO₂ falls too low is greatly reduced. However, supplemental oxygen is also very expensive so insurers' criteria to qualify for it are strict
- Reducing leak of your CPAP mask is helpful because more leak allows more CO₂ to escape, increasing the likelihood that your CO₂ level will drop too low and thus trigger central sleep apnea
- Acetazolamide: This is a medicine most commonly used for "mountain sickness," as many people develop central sleep apnea at high altitudes. It makes you less sensitive to low CO₂ levels and therefore less likely to have central sleep apnea. However, it has potential side effects so whether to try using it depends on how severe your symptoms are and whether other measures are effective
- Note that BiPAP is generally not a good option because it helps you breathe out more CO₂, thus actually making central sleep apnea worse

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MESA

4555 E. INVERNESS
BLDG. 3
MESA, AZ 85206

BILTMORE

4141 N. 32ND ST.
SUITE 104
PHOENIX, AZ 85018

ARROWHEAD

6320 W. UNION HILLS
BLDG. B, SUITE 1000
GLENDALE, AZ 85308

CHANDLER

1120 S. DOBSON RD.
BLDG. B, SUITE 100
CHANDLER, AZ 85286

SCOTTSDALE

9767 N. 91ST ST.
BLDG. B, SUITE 104
SCOTTSDALE, AZ 85258