DISORDERS CENTER OF VIRGINIA

Say Goodnight Virginia

Policies & Procedures

CPAP Titration CHILD Under the age of 12

ALL Locations

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Patient Care

1. All patients coming in for a split night or CPAP titration study will have had a brief introduction to CPAP during his/her initial office visit but it is still helpful to review CPAP with them before bedtime.
2. Show the CPAP to the patient and remind them in simple terms how it works. Allow the patient to try several different masks, including nasal pillows. Help the patient to try on the mask without attached airflow. Encourage the parents/guardians to participate in this with you. Let the child know that they should tell you if their nose becomes stuffy during the night or if they have any other problems. Reassure them that most people adjust very well to the mask and to the pressure during the first night and that they adjust even much further during the first month.
3. Tell the patient that you may be waking them occasionally, especially during the early part of the night, to make adjustments to the mask fit if there is a leak.
4. Give the patient time to lie down with the CPAP mask on for a while to get used to the mask. Keep CPAP pressure at 4 cm H_2O unless the patient requests a higher pressure.

Recording Flow

- The patient's airflow should be recorded from the CPAP unit
- Placing a thermistor under the mask is not acceptable

Titration of CPAP for Full or Split Night

- CPAP pressure should start at 4 cm H_2O unless a patient requests higher for comfort. Start CPAP with the patient supine if he/she can fall asleep in that position. Since apneas are usually worse when the patient is supine and in REM sleep, CPAP effectiveness can best be demonstrated while the patient is supine and in REM.
- Use a CPAP machine with an in-line heated humidifier.
- CPAP should be increased until all the following are eliminated: apneas, hypopneas, RERAs, snoring, $P_{ET}CO_2$ remains no more than 5 mmHg above the waking level or until the maximum recommended CPAP is reached.

- Increase CPAP for the following:
    - At least 1 obstructive event
    - At least 1 hypopnea.
    - At least 3 RERAs
    - At least 1 minute of unambiguous snoring.
    - Increasing $P_{ET}CO_2$ or $P_{ET}CO_2$ remains no more than 5 mmHg above the waking level
- CPAP should be increased by 2 cm H_2O. Wait at least 20 minutes between pressures changes so that response to each pressure can be documented. If only a few snoring or respiratory events continue longer at that pressure to determine if change in pressure is really needed. **Do not increase the pressure until the patient's sleep has stabilized**. The only exception would be the patient with severe apnea who clearly requires higher pressures. In these patients CPAP pressure can be increased fairly rapidly (no quicker than 5 minute intervals) until sleep quality improves.
- If continuous snoring or inspiratory flow limitation is present without apneas/hypopneas, increase CPAP by 1 cm H_2O.
- ***Do not*** *adjust CPAP after a major awakening or body movement,* because central apneas may be normal after an awakening or large body movement. Allow the patient's sleep to stabilize. This is particularly important if you see central apneas. **Do not increase CPAP for central apneas if the patient is having trouble establishing sleep on CPAP.**
- You may need to adjust CPAP later in the night if the patient changes position or starts snoring again. Be suspicious of air leaks if you have to keep adjusting CPAP and still see apneas occurring. If you have difficulty stabilizing saturation, check the leakage. If there appears to be a leak then go into the patient room and check the mask fit. Fix leak before making any adjustments in CPAP pressure.
- Maximum pressure for **children** = 15 cm H_2O.
- Testing out CPAP at a higher pressure to eliminate flow limitation is acceptable but should not exceed 5 cm H_2O over the effective pressure.
- Reduce pressure if the patient awakens

Central Apneas

There are a number of reasons why central apneas occur. They may be seen in a diagnostic study in patients with Cheyne-Stokes Respiration associated with heart failure or stroke. Other individuals have Idiopathic Central Sleep Apnea. Most often, however they occur as a result of arousals from sleep. This is often the case in patients with obstructive sleep apnea during their CPAP titrations. CPAP can cause arousals and also slightly lowers the patient's carbon dioxide levels and this contributes to central apneas.

1. If central apneas with arousals are observed during CPAP titration, do not continue to increase the pressure. Hold the pressure constant or reduce it until the patient is in stable sleep without frequent arousals. If the centrals disappear then resume titrating.
2. If the centrals continue without arousals but snoring is noted then continue increasing CPAP pressure until snoring alleviated.
3. If the centrals continue with no snoring and, despite stable sleep with no arousals, then switch call the doctor to see if he/she wants the patient switched toASV.

Acceptable Titrations – Anything less than an Optimal or Good Titration may need to be repeated.

Optimal Titration:
- RDI < 5 for at least 15 minutes and include supine REM without continuous arousals.

Good Titration
- RDI <10 or a 50% reduction in event frequency if starting RDI < 15. Should include supine REM sleep that is not continuously interrupted by arousals.

If you have not had a chance to see supine REM sleep at your optimal pressure it is okay to wake the patient and have them turn over.

Oxygen Supplementation During Titration- Add oxygen if either of the following occur:
- The awake, supine SpO_2 on room air is ≤ 88%.
- SpO_2 is ≤ 88% for ≥ 5 minutes in the absence of obstructive respiratory events with or without PAP.
- See the oxygen titration policy for the protocol