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CPAP ADVERSE EFFECTS
Presentation and references at www.sleepmed.com

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Talk objectives

- Understand the present status of adherence to CPAP therapy.
- Review adverse effects/side effects associated with CPAP.
- Discuss solutions, both general and specific.
Outline

- Facts about CPAP compliance
- Facts about side effects
- General problems with CPAP
- Interface (mask) related problems
- Problems related to nasal route
- Pressure or airflow related problems
- Suggested solutions
CPAP remains the predominant therapy for obstructive sleep apnea syndrome. It has been demonstrated to resolve sleep-disordered breathing events and several clinical outcomes.
CPAP Adherence—The status quo.

- Subjective adherence is 65-90% Kribbs et al. 1993
- Most pts overestimate use.
Traditional definition of compliance- “4 hrs X 70% of nights”


40% use

Compliance ≠ Success
Barriers to CPAP Use

FIRST- Acceptance/Adoption of CPAP (5-20% don’t)

THEN- The actual difficulties involved with its use.
Factors influencing pts’ decision and commitment to use.

1. Disease and patient factors
2. Technological and side effect factors
3. Psychological and social factors
Side effects and CPAP adherence—a complicated relationship

- Approx. 2/3 of CPAP users experience side effects (Engleman, Wilde. 2003.)
- Poor mask fit
- Improper pressure levels
- Inadequate bedside coaching
General Problems with CPAP

- Social unacceptability
- Interference with intimacy
- Claustrophobia
- Delayed sleep onset
- Inconvenient for travel
- Restriction of sleep position
- Interferes with TV or reading
- Agitated pets
- Triggers mood disorders
Mask (interface) related problems

- Skin abrasion or rash
- Contact dermatitis facial and/or scalp (neoprene, rarely silicone)
- Bruising
- Sores
- Keratitis from air leaks
- Nasal folliculitis (nasal pillows)
- Water in the nose
Mask (Interface) related (cont)

- Maxillary arch tenderness.
- Teeth movement in the maxillary arch, (diastoma)
- Mask anxiety (COPD pts)
- TMJ discomfort related to chin strap use
- Earache secondary to TM dysfunction
- TMD-pain, joint clicking, crepitus
- Bruxism/clenching-related to need to prevent mouth vents.
- Hose entanglement.
- Noise
Problems related to the nasal route

- Rhinorrhea, sneezing
- Nasal congestion
- Nasal/oral drying
- Epistaxis (may be massive)
- Insufflation of tear ducts
- Insufflation of middle ear
- TM rupture
- Increased intraocular pressure
Pressure/airflow related

- Chest discomfort
- Suffocating sensation
- Arousals due to mouth venting
- Excessive cooling
- Aerophagia
- Sinus discomfort
- Difficulty exhaling (stacking breaths)
- Flatulence
Pressure/airflow related (cont)

- Nausea
- Cardiac arrhythmia
- Pneumothorax (very rare)
- Pneumomediastinum (very rare)
- Edema (ANP suppression)
- Subcutaneous emphysema (very rare)
Solutions
Improving CPAP adherence. (Sawyer et al)

1. Treatment goals
2. Pt. education
3. Anticipatory guidance for common problems
4. Assisted initial exposure to CPAP
5. Include a support person
6. Interaction with other CPAP users
7. “Early and often” follow-up
8. Available resources for problem solving
9. Clinical follow up with the sleep team
General Problems with CPAP

- Social unacceptability - Attitude
- Interference with intimacy - work around it.
- Claustrophobia - Desensitize
- Inconvenient for travel - Improving
- Restriction of sleep position - not necessary. Quick tubing disconnects
- Interferes with TV or reading - change interface
Mask (interface) related problems. *Comfort = Usage*

- Skin abrasion or rash - Contact dermatitis? Skin oils? Headgear change, cotton padding
- Sores - Loosen, padding.
- Keratitis from air leaks - Interface change
- Nasal folliculitis (nasal pillows) - Change to OTN; topical abx. Cleaning regimen
- Water in the nose - Humidity control
Fit mask while lying down with pressure ON. For nasal/oral masks fit with jaw relaxed.
Mask (interface) related (cont)

- Maxillary arch tenderness - Tension; interface change..
- Mask anxiety (COPD pts) - desens. ?anxiolytics. VC breaths
- TMD - pain, joint clicking, crepitus - related to bruxism and tongue thrust (chin strap)
- Hose entanglement - positioning, suspension systems
- Noise - blowing/hissing mask adjustment
Problems related to the nasal route

- Rhinorrhea, sneezing - Can do Afrin/steroid combo in selected pts
- Nasal congestion
- Nasal/oral drying - Pillows vs. Mask; adjust humidity
- Nosebleeds
The only nasal response to cooling, drying, allergic challenge or mechanical irritation:

BLOOD FLUX
Laminar vs. Turbulent Flow
Pressure/airflow related

- Chest discomfort-usually self limited; pressure adjustment
- Suffocating sensation- VC breaths; pressure relief
- Arousals due to mouth venting- (chin straps)- full face mask, increase humidity?
- Excessive cooling- adjustment
- Aerophagia – pressure adjustment; pressure relief
- Difficulty exhaling (stacking breaths) VC breaths, pressure relief
- Flatulence
Use it, clean it.
Persevere.