Difficult OSA patients!!!

Tricks for successful therapy

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Objectives

- To treat or not to treat
- Devices
- Scenarios
- Common challenges with PAP
- Future - phenotype/personalized therapy

To treat or not to treat?

- AHI or RDI at 15 events per hour
- AHI or RDI below 15 with symptoms (REM AHI >5, NREM AHI<5?)
  - EDS
  - Cognitive impairment/Mood disorders
  - HTN
  - CAD
  - Arrrythmias
  - Stroke
  - Pulmonary HTN
- UARS - RERAs with symptoms (AHI usually less than 5)
- Preventative therapy??????

Devices…..many options

Basic devices

- CPAP
- BPAP (S mode)
- Flexible PAP, expiratory pressure relief
- AutoCPAP

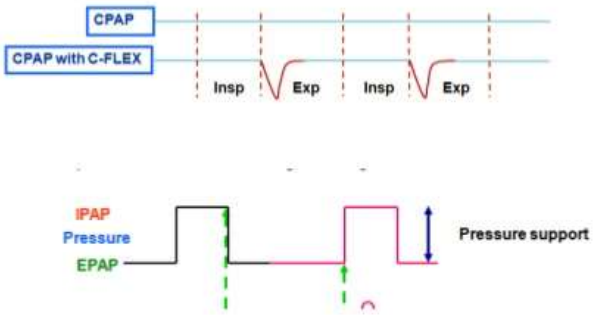
Advanced devises

- Auto BPAP
- BPAP S/T
- Adaptive Servoventilation

CPAP

CPAP with pressure relief

BPAP



APAP vs. CPAP

Auto-CPAP
Standard of care???
Adjust the CPAP throughout night adapt to…
positional changes
sleep dependent changes (REM vs NREM)
Alcohol/sedative effects
May adapt to infections/colds
Helpful with fluctuations in weight
Increase arousal index?

CPAP
static pressure
usually requires PSG usually to be confident in static pressure
maybe able to determine static pressure based on download on APAP
better for sleep architecture
better for low arousal threshold
loop gain benefits

BPAP in OSA

- EPAP eliminates **obstructive apnea**
- IPAP eliminates
  - **Hypopnea**
  - **RERA**
  - **Snoring**
- IPAP-EPAP provides Tv

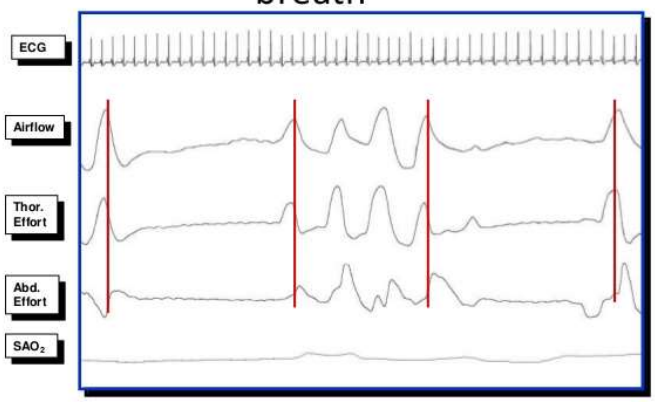
BPAP

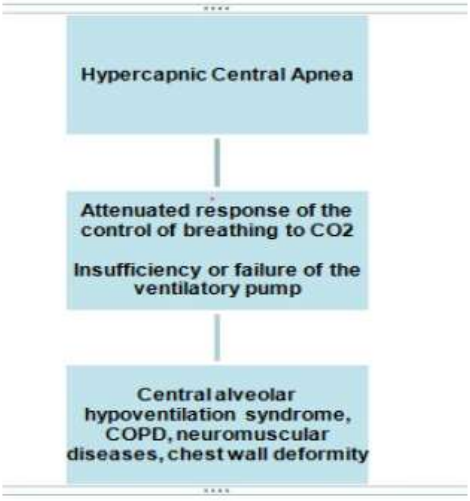
- Patients requiring a CPAP pressure more than 15 cm
- Patients who have barotrauma complications like ear infections and bloating with high pressure CPAP
- Patients with hypoventilation

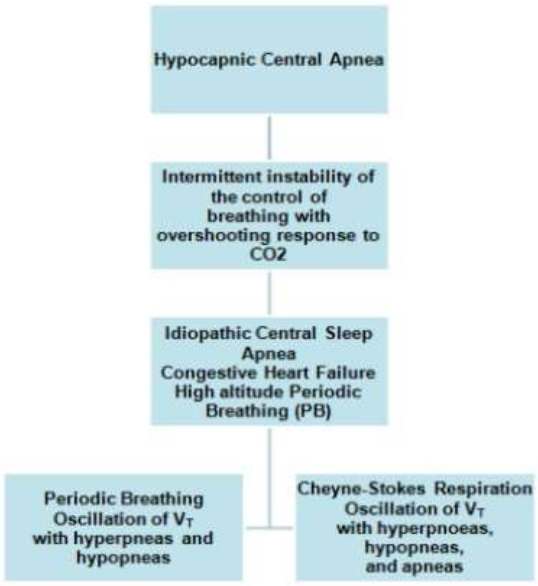
No additional advantage

Compliance similar ?

Central Apnea: Patient forgets to take breath







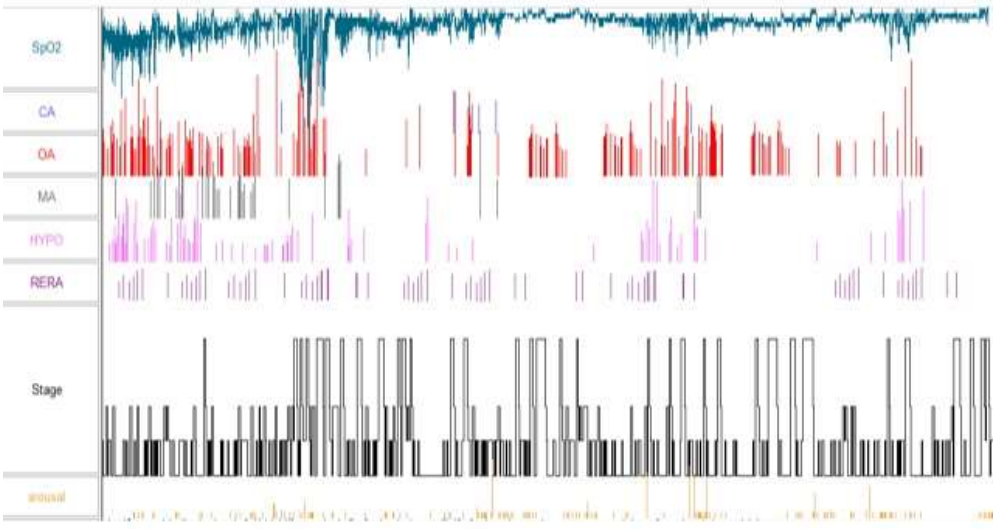
Options available

- In lab full night titration
- Split night study
- Home AutoCPAP titration

Example

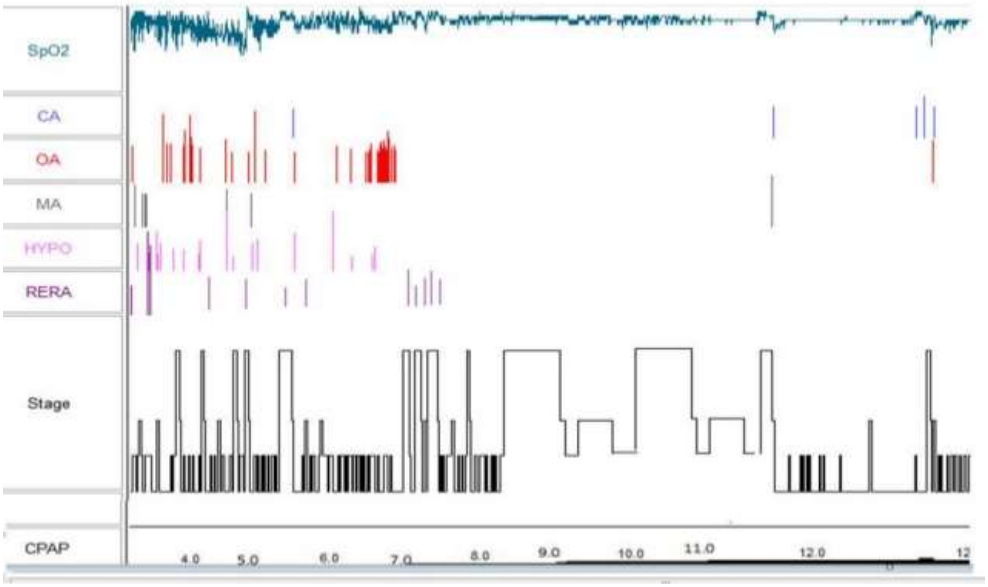
- 45 year/M
- Non smoker
- EDS Not able to drive, sleeps in meetings
- BMI 29.1 kg/m2
- History of HTN on Amlodipine 5 mg OD
- No history of dyspnea, chest pain
- PFT Normal

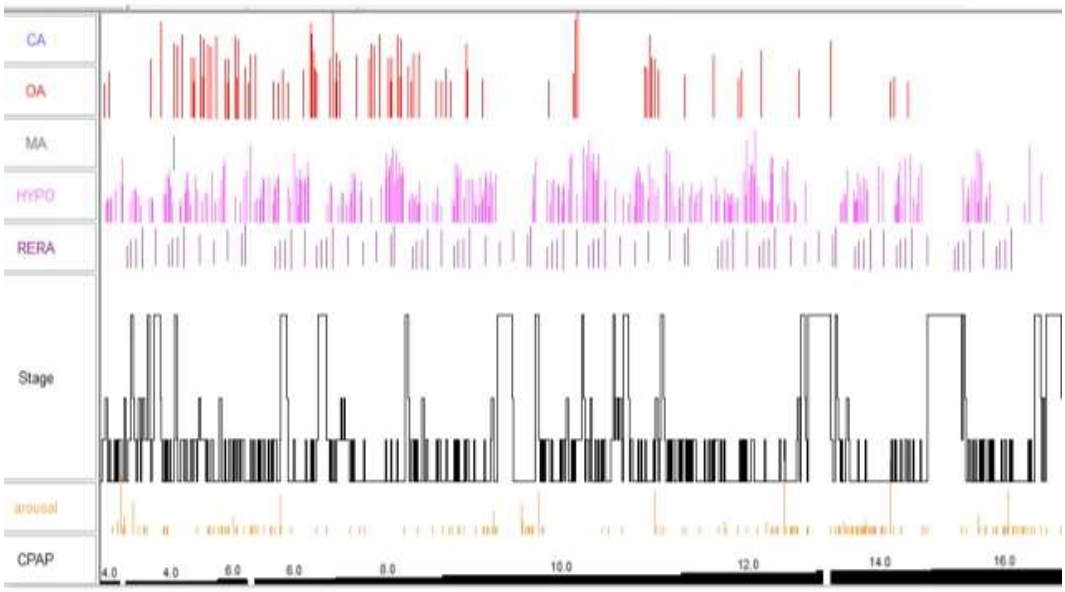
Overnight in Lab PSG



- AHI: 45.6/hr
- RDI: 51.8/hr
- Diagnosis: Severe OSA
- Patient is called next day for InLab titration
- You show him his report and tell him that his sleep breaks about 45 times per hour which is the cause of his EDS
- You give him oronasal mask and explain the procedure

CPAP titration





Causes of failure of CPAP titration

- Intolerance: Pressure relief technology
- Air leaks:
  - Proper mask fit
  - Chin strap
  - Change mask
- Treatment emergent complex sleep apnea:
  - Decrease pressure
  - Shift to BPAP S/T

When to switch to BPAP

- Patient is uncomfortable or intolerant of high CPAP
- When CPAP is > 15 cm and respiratory disturbance continue
- Hypoxia
- Hypercarbia
- OSA with OHS
- OSA with COPD overlap syndrome
- OSA with chronic lung disease

BPAP

- Beginning EPAP:
  - At 4 cm or
  - The CPAP where obstructive apnea was obliterated
- Beginning IPAP: 4 cm higher

Complex sleep apnea

- ❑ > 50% of the residual respiratory events on PAP are **central apneas** or **central hypopneas**
- ❑ Central AHI ≥ 5/hr
- ❑ Total AHI ≥ 5/hr

- To increase CPAP only until the obstructive apneas and hypopneas are eliminated

Overlap syndrome (OSA + COPD)

- Prevalence of OSA in COPD is the same as the general population
- Predisposes OSA patients to more severe arterial oxygen desaturation
- Hypercapnia may occur in OLS at FEV1 values greater than typically associated with hypercapnia in patients with COPD without OSA

Treatment of overlap syndrome

- PAP (CPAP or BPAP), BPAP may be better tolerated
- Supplemental oxygen if needed (low awake or baseline sleeping SaO2)
- Bronchodilator treatment and smoking cessation
- May be associated with significant hypercapnia during sleep and worse outcomes

Prognosis of overlap syndrome

- OLS patients who adhere to CPAP (in addition to oxygen if needed) have a better outcome

Machado MCL, Vollmer WM, Togeiro SM, et al: CPAP and survival in moderate to severe obstructive sleep apnea syndrome and hypoxemic COPD. Eur Respir J 2010;35:132–137

- OLS patients have an increased risk of death and hospitalization due to severe COPD exacerbations Treatment with CPAP may improve survival of OLS patients and decrease hospitalizations

Marin JM, Soriano JB, Carrizo SJ, et al: Outcomes in patients with chronic obstructive pulmonary disease and obstructive sleep apnea. Am J Respir Crit Care Med 2010;182:325–331

Common Challenges

- Lack of education
- Wrong size/style mask
- Difficulty tolerating forced air
- Dry, stuffy nose
- Claustrophobia
- Skin Irritation/Pressure Sores
- Difficulty Falling Asleep
- Dry Mouth
- Unconsciously taking off cpap mask

Caption

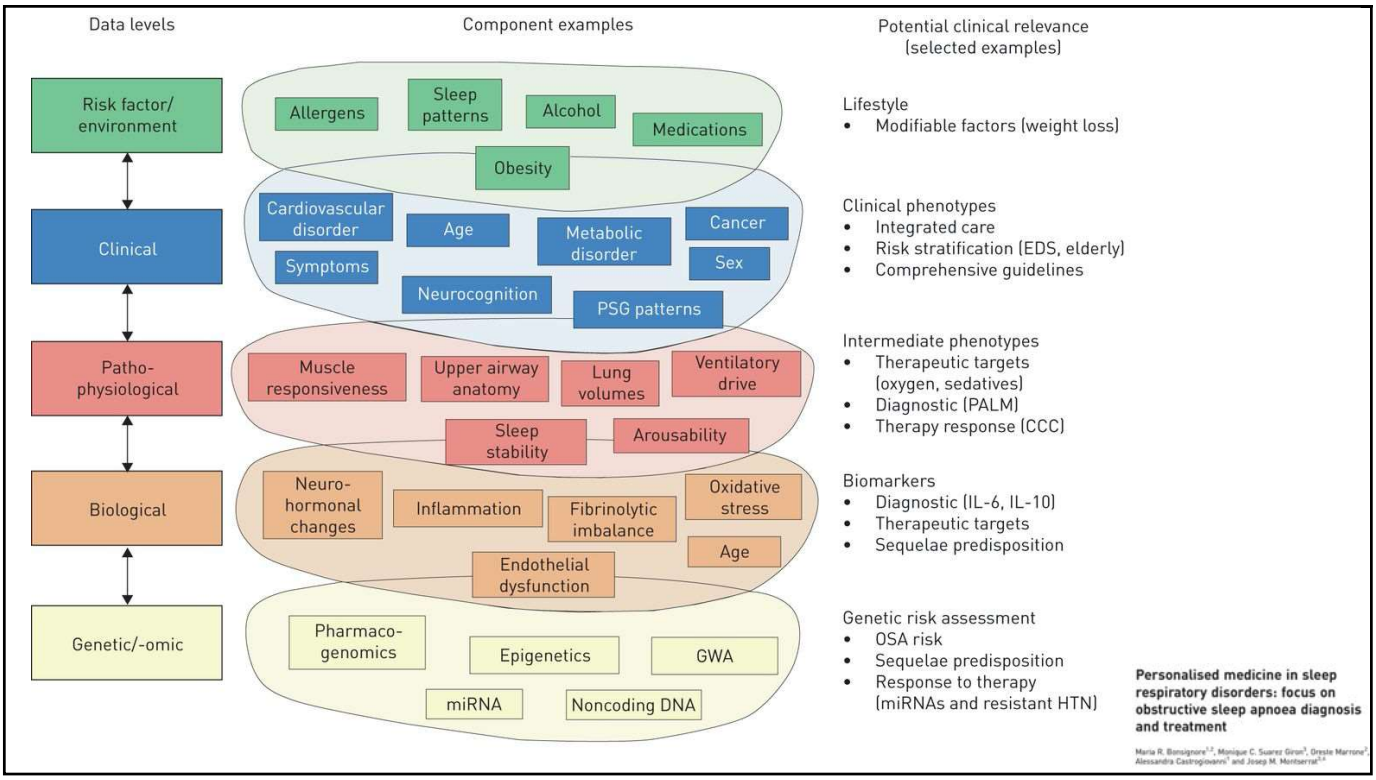
Common Challenges

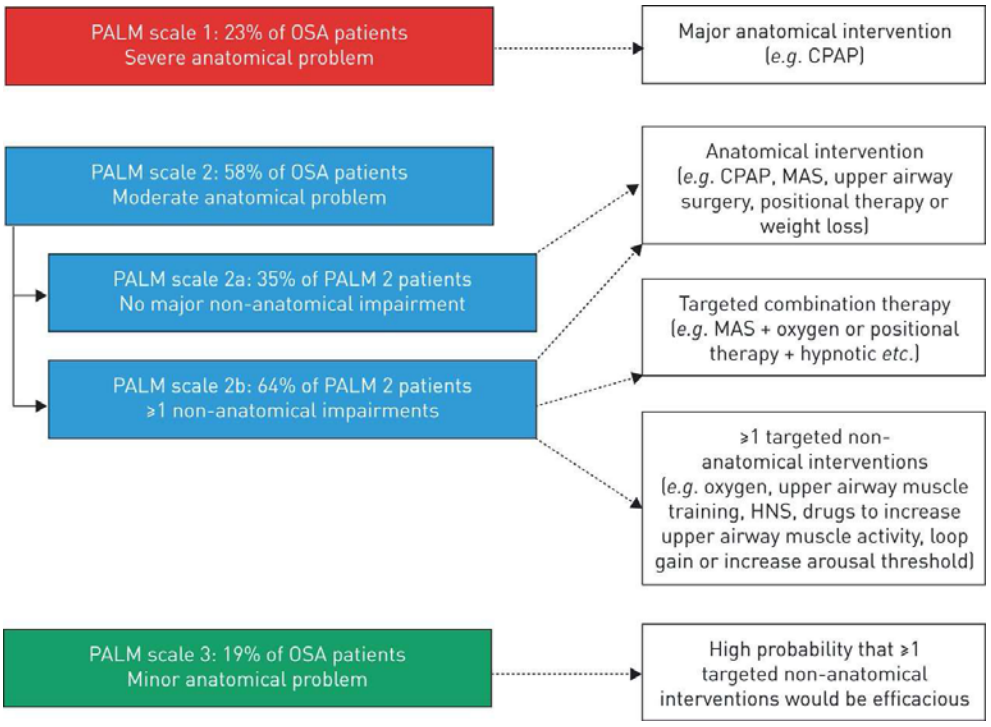
- Headaches
- Sinus issues
- Dental issues
- Hearing issues
- Facial Hair
- Aerophagia
- Condensation

Caption

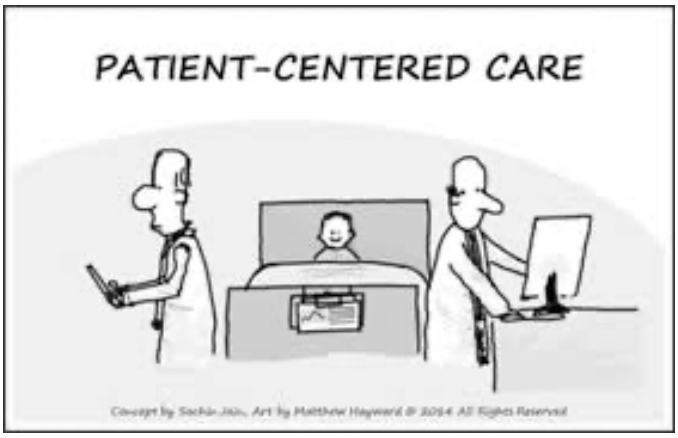
Education: Things to tell patients….

- Safer than using medications
- Not a breathing machine - the patient will not die if they come off the unit
- Pneumatic splint - no O2
- Noise level - less than snoring; white noise
- Consider desensitization
  - wear your CPAP while watching TV
  - PAPNAP?





Personalised medicine in sleep respiratory disorders: focus on obstructive sleep apnoea diagnosis and treatment



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