*OSA, CSA:

- hypothyroidism is related to OSA
- problem is in airflow not oxygenation, ↓airflow → ↓O2

STOPBANG

STOP Questionnaire	BANG
• Snoring	• BMI >35
• Tiredness	• Age >50
• Observed you stop breathing	• Neck circumference >40 cm (>15.7")
• Blood Pressure	• Gender male

High risk: Yes to ≥3 items → Refer for sleep testing

Sensitivity of STOPBANG score of 3 or more to detect moderate to severe OSA is 93% and severe OSA is 100%.
NPP are 90% and 100% .
0-2: low risk for moderate to severe OSA
5-8 : high risk for moderate to severe OSA
3-4 :Further criteria are required like if BMI is more than 35 then risk increases .

- **Apnea** : 90% or more reduction in airflow or complete cessation of air flow for 10 seconds.
  Oxygen desaturation is not a criteria.
- **Obstructive apnea**: Apnea with evidence of continued respiratory effort i.e, Chest movement persists
- **Central apnea** : Apnea with absent respiratory effort .i.e, No chest movement .
- **Mixed apnea**: if inspiratory effort is absent at the beginning of the event but resumes in the second portion of the event .

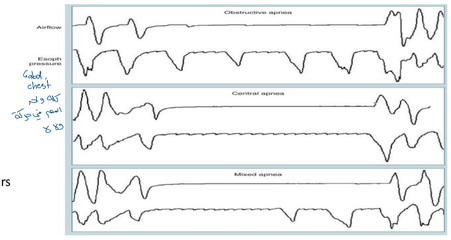
- Hypopnea definition
- ↓ flow ≥ 30% from baseline for at least 10 seconds
- *1A. (AASM)* with 3% O_2 desaturation OR arousal
  - ✓ *Requires EEG monitoring*
- *1B. (CMS)* with 4% O_2 desaturation.

- Respiratory Effort Related Arousal (RERA)
- Flattening of inspiratory portion of nasal pressure (or PAP flow) with increasing respiratory effort leading to arousal
- No associated desaturation
  - ✓ *Requires EEG monitoring*

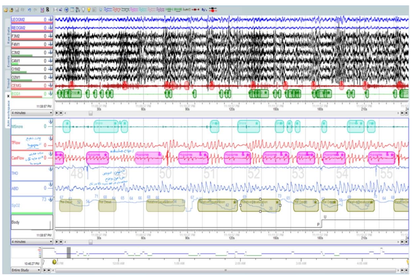
- N3 is the deepest stage of sleep

Apnea Hypopnea Index

- AHI = (# apneas + # hypopneas) / sleep hours
  - AHI < 5: normal
  - AHI 5 – 15 :mild
  - AHI 15 –29 :moderate
  - AHI 30 or above : severe
- RDI = (# apneas + # hypopneas + # RERAs) / sleep hours



- SpO_2 → OSA → decrease after event
  → CSA → decrease during event

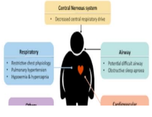


Treatment

- Weight loss ,avoid sedatives and alcohol
- Stop smoking
- CPAP
- Surgery
- Dental appliances → mild to moderate only

Definition of OHS

- Obesity hypoventilation syndrome (OHS) is defined as a combination of obesity (body mass index ⩾30 kg·m−2 **AND**
- daytime hypercapnia (arterial carbon dioxide tension ⩾45 mmHg) occurring in the absence of an alternative neuromuscular, mechanical or metabolic explanation for hypoventilation .

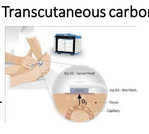


OHS with sleep hypoventilation → mainly during REM

- The American Academy of Sleep Medicine (AASM) has arbitrarily defined **sleep hypoventilation** in adults by the following criteria:
  - PaCO2 >55 mmHg for >10 min or
  - An increase in PaCO2 (or surrogate as end-tidal carbon dioxide tension or TcCo2) >10 mmHg compared to an awake supine value to a value >50 mmHg for >10 min .

OHS pt. with OSA ← mild / moderate / severe → should check if he has sleep hypoventilation
- so for pt with OHS I do sleep study for 2 reasons
  1. check if he has OSA
  2. check if there is hypoventilation during sleep

Transcutaneous carbon dioxide

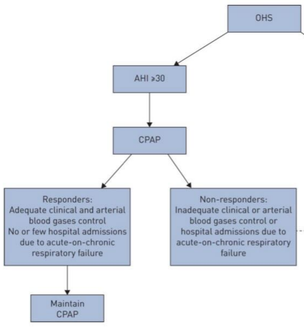


Criteria for diagnosis

- Room air arterial blood gas.

Supportive tests for diagnosis :
- Elevated serum bicarbonate levels >27 mmol/L....? **Early stage** . NPPV → CO_2
- And hypoxaemia

Obesity hypoventilation syndrome (OHS) management strategy.



Juan F. Masa et al. Eur Respir Rev 2019;28:180097

AHI < 30 → bipap
AHI > 30 → cpap
OHS with severe OSA