Sleep Disordered Breathing

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Disclosure

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Definition of Sleep Disordered Breathing(SDB)

Sleep Disturbances causing abnormal breathing patterns.

Fast Facts on SDB

30% of our lives are spent sleeping

Snoring incidence is approximately 25% in adults and 50% of middle aged men

Snoring/OSA incidence is 3% in children

Annual economic burden in the US due to adult OSA is **$149 Billion**

$87 Billion due to lost productivity

$26 Billion due to motor vehicle accidents

$6 Billion due to workplace accidents

Annual cost for healthcare utilization due to undiagnosed OSA is **$30 Billion**

Common Types of Sleep Disordered Breathing

- Snoring
- Upper Airway Resistance Syndrome(UARS)
- Obstructive sleep apnea-hypopnea syndrome(OSAHS)

These types exist along a spectrum

SDB risk factors

Male

Obese

Nasal blockage

Retrognathia

Alcohol/Sedative use

Smoking

Snoring Definition

Respiratory sound generated in the upper airway during sleep that typically occurs during inspiration but may also occur in expiration, without episodes of apnea or hypoventilation

Only sound, no medical consequences

Snoring Diagnosis

Common for the patient to have no memory of snoring

Usually reported by bed partner or family member

Culturally not considered a feminine trait and underreported in women

May complain of daytime sleepiness

Upper Airway Resistance Syndrome(UARS)

Definition:

Excessive daytime sleepiness without a clear cause after a sleep study.

Upper Airway Resistance Syndrome(UARS)

15% of population

Characterized by Respiratory Effort Related Arousals(RERA's)

Fatigue and excessive daytime sleepiness

No oxygen desaturation

Episodes last at least 10 seconds

Obstructive Sleep Apnea-Hypopnea Syndrome (OSAHS)

Recurrent episodes of partial or complete airway obstruction during sleep due to repetitive obstruction of the upper airway, necessitating recurrent awakenings or arousals to re-establish airway patency, often with oxygen desaturation

Obstructive Sleep Apnea

Cessation of airflow but with continued respiratory effort

Hypopnea

10-second event during which there is continued breathing but in which ventilation during sleep is reduced by at least 50% from baseline

Evaluation Tools

Detailed History

Physical Exam

Epworth questionnaire

Sleep Study

Epworth Sleepiness Scale

Self reporting tool to measure daytime sleepiness.

Scale of 0-24

0-9 Considered normal

10-24 should seek a medical evaluation

Epworth Sleepiness Scale

How likely are you to doze off or fall asleep in the following situations?
Use the following scale to choose the most appropriate number:

0 no chance	1 slight chance	2 moderate chance	3 high chance

Sitting and reading	0 1 2 3
Watching television	0 1 2 3
Sitting inactive, in a public space	0 1 2 3
Lying down to rest in the afternoon when circumstances permit	0 1 2 3
Sitting and talking to someone	0 1 2 3
Sitting quietly after a lunch without alcohol	0 1 2 3
As a passenger in car for an hour without a break	0 1 2 3
In a car, while stopped for a few minutes in traffic	0 1 2 3

Total Score:

Types of Sleep Studies

Polysomnography

Split Study

Home Sleep Study

Polysomnography

Diagnostic for OSA, hypopnea, central sleep apnea, periodic limb movements and other disorders.

Only measures sleeping parameters, not therapy:

- EEG, EMG, EKG
- Pulse oximetry, nasal airflow
- 0xygen saturation
- Apnea/Hypopnea episodes per hour(AHI)

Split Study

Standard Polysomnography that includes a trial of Continuous Positive Airway Pressure(CPAP) mask if initial study is positive for pathology.

Mask is fitted and pressure titrated and then results reported.

Can document improvement with CPAP

Negatives for Polysomography/Split Study

Expensive

Patient is sleeping in a foreign environment

Only 1night of data

Home Sleep Study

Typically 5X less expensive

Patient administered at home

Multiple nights of data

Reliable

Interpretation

Report will diagnose obstructive vs central apnea.

Apnea/Hypopnea Index greater than 5 is significant

>5 but <15 : Mild

<15 but <30 : Moderate

<30 : Severe

Treatment

Lifestyle modification

Surgery to correct anatomic abnormalities

Oral Appliance

CPAP

Tracheotomy

Lifestyle Modification

Weight loss

Alcohol/Sedative cessation

Sleep positioning

Oral Appliance

CPAP

Childhood OSA

Most commonly due to hypertrophic tonsils and/or adenoids

Treatment is adenotonsillectomy

Success rate of surgery is greater than 80%

Sleep studies are of no more diagnostic valuable than a good history and physical exam.

Special Considerations

Incidence of OSAHS in Down Syndrome (Trisomy 21) is 50% or greater

Questions?