What is sleep apnoea anyway?

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AIMS: To discuss the AHI, ODI, RDI, T90 and other metrics related to sleep-disordered breathing and their predictive values and implications.

TARGET AUDIENCE: Sleep physicians, respirologists, epidemiologists

AIMS

- To explain why definitions of sleep apnea and its components matter
- To discuss some of the sources of variability in sleep apnea definitions and criteria
- To review the role of symptoms, especially sleepiness
- To summarize what we know and don’t know, and suggest a way forward.

SUMMARY

We don’t know what sleep apnea is because definitions and metrics have changed frequently; definitions and metrics have not been consistently validated; and inter scorer reliability is generally poor unless oximetric measures are included. Because we don’t know what sleep apnea is, we don't know its true prevalence or consequences, or who needs to be treated.

Measures of sleep-disordered breathing (SDB) that require some metric of oxygenation (typically, 3 or 4 % desaturation, time spent below 90%, or lowest saturation) are more reliable and predictive of symptoms and outcomes in sleep apnea patients. In those who might have sleep apnea, symptoms and comorbidities have significant impact on outcomes, especially the symptom of sleepiness.

One way to go forward would be to define OSA based on a combination of oximetric measures (T90, ODI, LoSat) and symptoms/comorbidities that might be expected to improve with treatment. We need to collect data and analyze outcomes prospectively.

Many people can benefit in many ways from treatment, especially with CPAP. But others don’t. Because CPAP is safe, cheap and effective we should probably have a low threshold for initiating CPAP treatment, but maybe also for discontinuing it and trying something else.

We should also try to avoid stigmatizing OSA (a basic public health principal for any prevalent, deadly disease) and perhaps pay more attention to clinical presentation than to squiggly lines.
REFERENCES


FACULTY DISCLOSURE

Prof. Barbara Phillips has a leadership position in American College of Chest Physicians and National Board of Respiratory Care. She also receives a honoraria from CHEST Review, CCM International, American Thoracic Society, Temple Clinic Baylor, NIH. She was also an expert witness in 3 legal cases about commercial drivers and wrongful death.

EVALUATION

1. Hypopnea is:
   a. a 50% reduction in airflow measured with a thermocouple and an associated arousal
   b. a 30% reduction in airflow measured with a pressure transducer and a 3% oxygen desaturation.
   c. a flat thermocouple signal and an arousal
   d. I am not sure.

2. Sleep apnea is:
   a. and AHI of 5, with symptoms
   b. an RDI of 15, with or without symptoms
   c. an AHI of 15
   d. I am not sure

3. Inter scorer reliability for respiratory events is best when which of the following is a requirement for scoreability?
   a. oximetry
   b. airflow reduction measured by a pressure transducer
   c. an EEG arousal
   d. airflow measured with a thermocouple

4. Which of the following is true of sleepiness in sleep apnea patients?
   a. it must be measured with multiple sleep latency testing (MSLT) to be useful clinically.
   b. it predicts mortality and CPAP adherence
   c. it is one of the consequences of OSA not yet shown to be improved with CPAP
   d. it is not predictive of vehicular crash