



Title Obstructive Sleep Apnea Syndrome – Report of a Joint Nordic Project.
A Systematic Literature Review

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Aim

To investigate:

- Consequences of obstructive sleep apnea syndrome (OSAS) on cardiovascular morbidity, diabetes mellitus, death, and traffic accidents
- How to diagnose OSAS
- Effects of various treatment modalities, including compliance and adverse effects.

Conclusions and results

Cardiovascular complications, diabetes mellitus, and death: OSAS covaries with cardiovascular disease, including stroke and early death in men, but evidence on women is insufficient. Scientific evidence is insufficient on a relationship between OSAS and arterial hypertension or diabetes mellitus.

Traffic accidents: OSAS covaries with traffic accidents independent of daytime sleepiness and driving exposure among men.

Diagnostic procedures: The apnea-hypopnea index (AHI) shows good agreement between 2 nights of polysomnographic recordings. Manually scored portable devices during one night of sleep have high sensitivity and specificity to identify a pathologic AHI compared with polysomnography. Automatic scoring of the results of portable devices has high sensitivity and identifies most patients with a pathologic AHI, but specificity is low. Automatic scoring programs cannot score sleep time and it is unclear whether these programs can differentiate obstructive from central apneas. Pulse oximetry with results from the oxygen desaturation index is insufficient to identify a pathologic AHI, and there is a high risk that patients with sleep apnea syndrome will be incorrectly classified as normal.

A global impression from a case history and a physical examination alone are insufficient to identify or to rule out OSAS.

Treatments: Strong evidence shows that *continuous positive airway pressure (CPAP)* therapy reduces daytime sleepiness regardless of the severity of OSAS and is effective in reducing obstructive sleep apneas. Scientific evidence is contradictory on the effect of CPAP on quality of life or arterial blood pressure. Tolerance and compliance with CPAP is good. Mild to moderate discomfort from the CPAP mask are common adverse effects. Custom-made *mandibular repositioning appliances (MRAs)* reduce daytime sleepiness in patients with mild to moderate sleep apnea syndrome. They reduce apnea frequency, but to a lesser extent than CPAP. Most patients experience mild adverse effects, eg, discomfort in the teeth, during the first few months. There is insufficient scientific evidence for the effect of any *surgical modality* on daytime sleepiness or quality of life.

No studies meeting the inclusion criteria show that *other treatments and lifestyle modifications* (eg, weight reduction programs, drugs, pacemakers) have any effect on OSAS.

Methods

Systematic literature review including meta analyses.

Further research/reviews required

Controlled trials for efficacy and long-term followup for adverse effects are required if surgery for OSAS or snoring is to be considered in the future. Covariation between cardiovascular disease and OSAS needs further study. The effects of CPAP and/or MRAs on traffic accidents, morbidity, and mortality remain unknown. Effects of lifestyle changes are important issues since patients with OSAS often have other risk factors for conditions such as obesity.