

SLEEP APNEA AND SLEEP Diagnostic aspects

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Abstract

Background: Patients with sleep apnea have frequent apneas and hypopneas during sleep. Apneas can be either central or obstructive. Apnea-hypopnea index (AHI) is the mean number of apneas and hypopneas per hour of sleep.

Aims: 1) To evaluate the effect of mandibular advancement device on obstructive apneas and sleep; 2) to evaluate the influence of body position on central apnea frequency; 3) to investigate whether obstructive or central apnea is related to mortality in patients with stroke; and 4) to investigate sleep and sleep positions in women.

Methods: Subjects were investigated during whole-night sleep respiratory recordings, either polysomnography including continuous recordings of EEG, EOG, EMG, airflow, respiratory effort, ECG, pulse oximetry and body position, or simplified sleep apnea recordings without EEG, EOG and EMG.

Results: The frequency of obstructive apneas, hypopneas and arousals decreased and rapid eye movement (REM) sleep increased in patients with mild, moderate and severe sleep apnea during treatment with mandibular advancement device.

Central apneas were more prevalent in the supine position compared with the non-supine position in patients with Cheyne-Stokes respiration. The mean \pm SD central AHI was 41 ± 13 in supine position and 26 ± 12 in non-supine position $p < 0.001$.

Stroke patients with obstructive sleep apnea ran an increased risk of death during 10 ± 0.6 years of follow-up with an adjusted hazard ratio of 1.76 (95% CI 1.05-2.95) compared with controls independent of hypertension, age, body-mass index, sex, smoking, diabetes mellitus, atrial fibrillation, Mini-Mental State Examination, and Barthel-ADL. Central apnea was not related to early death.

Total sleep time, sleep efficiency, rapid-eye movement sleep, slow wave and time in supine position decreased with age in women. Sleep quality in women was reduced with age, body-mass index, obstructive sleep apnea, smoking, alcohol and hypertension.

Conclusions: Obstructive sleep apneas and arousals are reduced and REM sleep is increased using mandibular advancement device in patients with mild, moderate and severe sleep apnea. The frequency of central apneas and hypopneas is increased in the supine position in patients with Cheyne-Stokes respiration. Stroke patients with obstructive sleep apnea run an increased risk of early death. Central sleep apnea was not related to early death among the present patients. Normal values for sleep stages and sleeping positions are presented in a population-based sample of women. Age, body-mass index, obstructive sleep apnea, smoking, alcohol and hypertension reduce sleep quality in women.

Key words: Sleep apnea syndromes; Polysomnography; Sleep stages; Supine position; Women; Stroke; Prognosis; Cheyne-Stokes respiration