

SLEEP APNEA AND CONTROL OF BREATHING

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Introduction: Abnormalities of ventilatory control have been associated with sleep apnea since the description in the literature. Defective respiratory control was recognized as part the "Pickwickian" syndrome. One group of patients with sleep apnea and hypercapnic respiratory failure show a low or absent hypoxic responsiveness. Many patients with severe sleep apnea (with normal awake blood gases) displayed augmented ventilatory response to hypoxia. **Aim:** To compare the chemoresponsiveness between younger and older sleep apnea patients. **Material and methods:** The study was performed to test the resting and ventilatory drive from arterial chemoreceptors in three groups of patients with sleep apnea: · I. 6 patients 40-50 years old, obstructive sleep apnea, normal awake blood gases; · II. 15 patients 51-60 years old, obstructive sleep apnea, 10 with normal awake blood gases, 5 with hypercapnic respiratory failure; · III. 8 patients 60-75, mixed sleep apnea; 5 with normal awake blood gases, 3 with awake hypercapnia. The resting ventilatory drive from arterial chemoreceptors was measured as a reduction of ventilation during one min of breathing pure oxygen (the modified Dejour's test). In order to activate the arterial chemoreceptors the progressive normo- and isocapnic hypoxia test was applied. Three age – matched groups of healthy volunteers (controls) were compared with the patients. **Results and Conclusion:** The following physiological events were found: 1. The augmented resting and hypoxic peripheral chemoreceptor drive in the group I. 2. Attenuation of hypoxic chemosensitivity with age. 3. Decrease in hypoxic chemoreceptor drive in sleep apnea patients from II. and III. groups. We suggest that repetitive hypoxia during apnea events may induce a sustained increase in respiratory drive in the awake state, whereas prolonged hypoxia (older groups, probably longer duration of disease) may favor depression. Different levels of hypoxia and exposure durations would be expected to produce different effects. 77-304