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Patofiziologija obstruktivne apneje v spanju – hipoteza

Obstructive Sleep Apnea Pathophysiology – Hypothesis

IZVLEČEK

KLJUČNE BESEDE: dihanje, ovirana dihalna pot, hipokapnija, hipoksemija, nadzor dihanja

IZHODIŠČA. Obstruktivna apneja v spanju je klinično dobro opredeljena motnja dihanja, za katero se povečuje zanimanje v zadnjih desetletjih. Patofiziologija motnje – vpliv oviranega dihanja na nastanek zastojev dihanja in na povezane srčno-žilne ter presnovne motnje – ni povsem jasna. METODE. Za razjasnitev obstruktivne apneje v spanju smo analizirali zapise poligrafije, opravljene s sistemom ApneaGraph® pri dvajsetih osebah z znano obstruktivno apnejo v spanju in pri štirih z neoviranim dihanjem. Spreminjanje tlaka v požiralniku, nasičenost arterijske krvi s kisikom in hitrost pretoka zraka med dihanjem v spanju smo analizirali z znanimi fizikalnimi in fiziološkimi principi. REZULTATI in RAZPRAVA. Rezultati prikazujejo obstruktivno apnejo v spanju kot prilagoditev dihanja na sočasno in vztrajno nižanje ravni kisika in ogljikovega dioksida v krvi, ki je posledica ovirane ventilacije in nizkega metaboličnega ustvarjanja ogljikovega dioksida med spanjem.

ABSTRACT

KEY WORDS: breathing, airway obstruction, hypocapnia, hypoxemia, breathing control

BACKGROUND. Obstructive sleep apnea is a clinically well-defined disorder gaining growing interest in recent decades. Its pathophysiology and the relationship between upper airway obstruction, breathing stops during sleep, and consequent comorbidities are not entirely understood. METHODS. To clarify obstructive sleep apnea, we analyzed polygraphic recordings performed with the ApneaGraph® system in twenty persons with confirmed obstructive sleep apnea and four with unobstructed breathing. The dynamics of esophageal pressure, oxygen hemoglobin saturation, and airflow velocity were analyzed with physical and physiological principles. RESULTS and DISCUSSION. The results suggest a sequence of causally related events that present obstructive sleep apnea breathing as a respiratory adjustment to simultaneous and persistently increasing hypocapnia and hypoxemia, which is a consequence of obstructed ventilation and low metabolic carbon dioxide production in sleeping.

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