Editorial

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It gave me great pleasure to personally meet the pioneers in the field of sleep medicine shortly after my return from the United States at the end of 1996. The session '30 Years Sleep Apnea Syndrome' at the 38th Congress of the German Society of Pneumology was well attended and featured outstanding national and international presentations.

W. Kuhl gave his personal historical overview of clinical research on the sleep apnea syndrome. He reported his experience of the early days of polysomnography, from the cumbersome EISAGRAPH (EEG Interval Spectrum Analysis) to the MESAM equipment, a portable screening device for the sleep apnea syndrome. He then described his own experience with a patient with the Pickwickian syndrome who improved dramatically after tracheostomy. In that patient, nocturnal ventilation as well as blood gases normalized, and daytime sleepiness disappeared.

Next, E. Lugaresi gave a remarkable overview of the impact of heavy snoring on health. He discussed the clinical, pathophysiological and epidemiological aspects of heavy snoring. He contended that snoring and obstructive sleep apnea constitute the end points of the same syndrome, which is an enhancement of upper airway resistance during sleep. He advanced the hypothesis that heavy snoring could also lead to chronic arterial hypertension. In May 1967, when hosting the first international meeting on sleep disorders in Bologna, E. Lugaresi presented the first endesophageal pressure recordings during sleep.

In his extensively referenced article, D. Köhler raised the controversial question of the importance of the differentiation between apnea and hypopnea. He discussed the hypothesis that apnea and hypopnea (hypoventilation) may be two different disease entities which can occur in the same patient. Sleep apnea is a disorder associated with recurrent arousals and chronic activation of the sympathetic nervous system leading to daytime sleepiness and disturbances in the autonomic system. Hypoventilation results from reduced alveolar ventilation and is associated with hypercapnia. In most cases hypoventilation is secondary to an underlying disorder and a strategy of the body to avoid respiratory muscle failure. Unloading treatment with long-term oxygen and/or home mechanical ventilation improves arterial blood gases, physical activity and prognosis.

E. Fletcher gives an excellent overview of sympathetic activity and blood pressure in the sleep apnea syndrome. Recurrent episodic hypoxia seems to acutely stimulate sympathetic activity. Both adrenal and renal sympathetics may be involved, as well as local endothelial factors. He raised the possibility that hypoxia could cause elaboration of endothelial factors causing vasoconstriction, or actual muscular remodelling of the arterial wall. This could lead to chronic

systemic blood pressure elevation, which is diagnosed in up to 90% of patients with obstructive sleep apnea syndrome.

Next, K.H. Rühle discussed the significance of the upper airway resistance syndrome. After defining it as a syndrome characterized by snoring and chronic sleepiness in the absence of frank apneas and hypopneas, he offers several alternative methods of diagnosing the disease without having to insert a cumbersome esophageal pressure gauge. These new methods include: measuring the flattening index of the inspiratory flow contour; a forced

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oscillation technique which measures respiratory impedance; measurement of pulse transit time, and assessing the phase angle shift between thoracic and abdominal movements. In addition, a systolic blood pressure profile could give additional diagnostic clues.

In the next chapter, G.M. Barthlen gave an overview of patients with neuromuscular disease who often will require noninvasive nocturnal ventilation. The physiological reduction in muscle tone during sleep can become life-threatening in patients with impaired muscle strength.

Polysomnographic findings in patients with the postpolio syndrome, amyotrophic lateral sclerosis, myasthenia gravis and muscular dystrophies are discussed. Treatment options consist of continuous positive airway pressure, bilevel positive airway pressure, intermittent positive pressure ventilation and – rarely – tracheostomy, oxygen, or protriptyline. She concludes that physicians should

be attentive to the neuromuscular patient who complains of nocturnal air hunger, intermittent snoring or breathing, nocturnal restlessness and daytime sleepiness and should not hesitate to order polysomnographic evaluation in these patients.

The last article by J. Fischer and F. Raschke dealt with the economic and medical significance of sleep-related breathing disorders. Immense costs arise from sequelae and concomitant illnesses of untreated sleep-related breathing disorders. In addition, excessive daytime sleepiness at workplace leads to impaired performance. Making a cost-benefit analysis, a mean annual net benefit of DEM 2.3 billion can be assumed over 10 years with treatment in Germany. This compares to a mere DEM 100 million annual expenditure arising from diagnosing and treating sleep-related breathing disorders.