The 'Tennis-Ball' as a Therapeutic Strategy for Obstructive Sleep Apnoea

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Abstract. Obstructive sleep apnoea (OSA) is a common problem which is more frequently seen in men than in women. It is associated with heavy snoring, cessation of breathing, destruction of the sleep architecture and results in burdensome daytime somnolence. Nasal continuous positive airway pressure (nCPAP) is the widely accepted and practiced therapy but is often not tolerated by patients. Therefore, in less severe cases a physiotherapeutic attempt, avoiding the body lying on the back (i.e. by a tennis-ball in the pyjama), can be an effective treatment.

Key words: obstructive sleep apnoea (OSA), snoring, nasal continuous positive airway pressure (nCPAP)

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INTRODUCTION

A 56-year-old man suffered from heavy snoring interrupted by periods of apnoea with lengths of up to one minute. These symptoms were observed by his alarmed wife. Obstructive sleep apnoea was diagnosed by his family physician with an ambulant screening system the patient took home over night. With 76 kg body weight and a height of 174 cm he was slightly overweight. Otherwise this patient was in a healthy condition and did not complain of day-time somnolence which is a common constituent of severe 'obstructive sleep apnoea syndrome' (OSAS).

CASE DESCRIPTION

Polysomnography in our department determined oxygen saturation, heart rate, body position, respiratory events (air flow, thoracic and abdominal movement), sleeping stage (electroencephalogram, electrooculogram, electromyogram), and snoring (SAC-System, Stimotron Inc., Wendelstein, Germany). The patient had a total of 32.6 respiratory

events per hour during his sleeping time, mostly obstructive hypopnoeas (>50% reduced air flow, paradox breathing), resulting in oxygen desaturations down to 79% (baseline 94%). The somnography showed markedly reduced periods of deep sleep stages (4.5% of total sleeping time) and only one period with rapid eye movement (REM), the time of dreaming. The sleep was interrupted by 53 arousals. Further analysis showed a strong correlation of the respiratory events with the body in the supine position.

The patient did not tolerate treatment by nasal continuous positive airway pressure (nCPAP)¹⁾. So, as a concept for avoiding the body lying in the back position during sleep, we offered a yellow tennis-ball (Dunlop, Sunderland, Great Britain) placed in the middle of the bed.

A second polysomnography under this treatment registered 4.4 respiratory events per hour with no relevant desaturations (baseline 95%, deepest desaturation 89%), which indicated normalized conditions²⁾. There were five REM periods (13% of total sleeping time). Arousals were reduced to a total of 37, resulting in a more steady sleeping architecture.

DISCUSSION

By avoiding the body lying on the back, obstructive sleep apnoea events could be markedly reduced. This strategy might be a first step to treat less severe cases of obstructive sleep apnoea without burdensome daytime somnolence, when polysomnography has proved a correlation between respiratory events and the body position. The use of nasal continuous positive airway pressure (nCPAP) treatment is expensive and limited due to incomplete compliance in up to 70% of these cases³.

CONCLUSION

In less severe cases of obstructive sleep apnoea a tennis-ball can bring benefit to patients and their partners suffering from the snorer. Weight reduction, smoking cessation, and prohibition of alcohol consumption will be of further benefit³. It is still being discussed whether a high index of sleep ap-

noeas is associated with an increased risk of myocardial infarction and other coronary heart diseases⁴). The risk for accidents is markedly increased in persons with daytime sleepiness. Therefore, in more severe cases with extensive daytime somnolence, nCPAP treatment will remain the only adequate therapy for medical and forensic reasons.

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