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Sleep Medicine 2 (2001) 75–76

SLEEP MEDICINE

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Journal search and commentary

Article reviewed: Sleep onset REM periods during multiple sleep latency tests in patients evaluated for sleep apnea ☆

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Objectives

To determine the predictive clinical significance of two or more sleep onset REM periods during the Multiple Sleep Latency Test (MSLT) in patients with obstructive sleep apnea.

Study design

Retrospective record review of a consecutive patient series.

Study population

1145 Consecutively studied patients who had suspected or confirmed to have obstructive sleep apnea (OSA), but not narcolepsy. All patients were free of psychoactive drugs and had a diagnostic PSG followed by a MSLT on the next day. Patients were excluded if: (a) the reason for the study had been narcolepsy or this condition was confirmed at a later state (b) they had any indications for study or any major diagnoses that could explain excessive daytime sleepiness other than sleep apnea, and (c) had either absence of REM or NREM sleep on their polysomnographic (PSG).

Subjects' mean age was 45 ± 13 years, 30% of which were female.

Methods

Clinical, PSG and MSLT data were retrospectively reviewed. The relative contribution of different clinical and sleep features were analyzed by means of a multiple logistic regression.

Results

Two or more sleep onset REM periods (SOREMPs) occurred on the MSLT for 4.7% of the subjects. were factors that independently predicted the existence of two or more SOREMPs during the MSLT were: two or more SOREMPs on the MSLT, MSLT mean sleep latency less than 5 min, a night-time REM sleep latency less than 90 min and decrease in minimal recorded oxygen saturation by at least 15%. However, no association was found between the number of daytime SOREMPS and reduced amounts of nocturnal REM sleep.

Conclusions

The authors conclude that among patients suspected or confirmed to have OSA, one or more of these variables could reflect neurophysiological mechanisms responsible for increased REM sleep propensity during

☆ R.D. Chervin, M.S. Aldrich (Am J Respir Crit Care Med 2000;161:426-431).

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PII: S1389-9457(00)00093-9

the day. Patients diagnosed with OSA (without concomitant disorders causing excessive daytime sleepiness) may have two or more SOREMPs during the MSLT. Although this raises questions about the clinical value of the MSLT in the differential diagnosis between OSA and narcolepsy, the MSLT remains clinically useful when an objective assessment of sleepiness is particularly important.

Comment

Soon after the first description of an increased daytime REM-sleep propensity in patients with narcolepsy, the presence of two or more SOREMPs became an important diagnostic tool for the diagnosis of this disorder. In fact, the increased number of SOREMPs reflects a state of REM-sleep disinhibition during the daytime, which is thought to play a key role in the pathophysiology of narcolepsy. There is, however, still a controversy about whether non-cataplectic patients with excessive daytime sleepiness and two or more SOREMPs should be classified as narcoleptics. Although the characteristics of MSLTs have been extensively studied for narcolepsy, there is a lack of systematic analysis on other conditions with excessive daytime sleepiness. For example, it has been known for a long time that patients with sleep apnea can have an increased number of SOREMPs, and the common assumption has been that it was caused by a night-time REM-sleep suppression. This paper, however, suggests this is not the case.

The current study represents the largest series of MSLTs in the literature of OSA. It shows that some OSA patients have an increased number of SOREMPs, questioning thereby any diagnostic specificity for narcolepsy. Furthermore, as the authors state, it raises more questions than answers about the causal mechanisms of increased REM pressure during the daytime in OSA patients, especially since no correlation between night-time REM sleep suppression and the number of SOREMPs could be found. Also contrary to the common expectation, no association between number of SOREMPs and the apnea/hypopnea index was observed. The finding that SOREMPs correlates with objective sleepiness (as measured on the MSLT) suggests that excessive sleepiness might be one cause of SOREMPs, as it has been shown in healthy subjects undergoing sleep deprivation. In addition, the association of SOREMPs with male gender, shortened REM sleep latency at night, and night-time hypoxia raises additional questions to be answered in normal, sleep deprived and COPD populations. It would be also important to investigate the effects of treatment with CPAP on the number of SOREMPs in MSLTs.

In the meantime, and until better diagnostic markers are found, MSLTs should be considered a valuable auxiliary tool for the confirmatory diagnosis of narcolepsy. With the current study (and the previous literature) in perspective, the presence of two or more SOREMPs on the MSLT can by no means be considered pathognomonic for narcolepsy. A requisite for its interpretation should be to have ruled out previously factors like sleep deprivation, circadian disruption, pharmacological REM sleep suppression, and sleep apnea.