Eurasian J Pulmonol 2015; 17: 184-5

A Different Clinical Type of OSAS: REM Related OSAS

Dear Editor,

The study titled "A Different Clinical Type of OSAS: REM-Related OSAS" (1) published in August issue of your journal is important with respect to the evaluation of the relation of obstructive sleep apnea syndrome (OSAS) with different sleep stages and clinical types.

Obstructive sleep apnea syndrome is a disease occurring at the rate of 4% in men and at 2% (increasing in postmenopausal period at rates similar to those in men) in women and is characterized by recurrent, complete, or partial obstruction of the upper airways during sleep. Recurrent hypoxemia and sleep fragmentation associated with recurrent upper respiratory tract obstruction during sleep resulted in serious clinical results such as excessive daytime sleepiness, neurocognitive disorders, cardiovascular diseases (hypertension, arrhythmia, coronary artery disease, etc.), and cerebrovascular diseases (2). For this reason, early disease recognition and identification of different clinical types is important for early treatment of the disease.

Rapid eye movement (REM) stage in sleep stages constitutes 20%–25% of sleep during the entire night. Upper respiratory tract collapse in patients with OSAS occurs in both REM and NREM stages. However, as a result of the weakening of noradrenergic and serotonergic stimuli stimulating motor neurons in the upper airways at the REM stage, pharyngeal muscle activity decreases and upper airway collapsibility increases. Consequently, as the frequency of respiratory events increases at the REM stage in the patients with OSAS, their duration extends and results in more severe hypoxemia (3).

REM-associated OSAS was first defined by Kass et al. (4) in 1996. In this study, authors found respiratory disturbance index (RDI) of <10 on performing polysomnography of 34 cases having excessive daytime sleepiness, and they considered OSAS in the prediagnosis. However, by detecting more excessive daytime sleepiness in 17 patients having an RDI of >15 at REM, although the total RDI was <10, they defined this as REM-specific respiratory disorder. In the later years, patients whose respiratory events occurred as primarily and in an explosive manner during REM on performing polysomnography were defined as REM-associated OSAS; the values of apnea/hypoapnea index (AHI) of >5 and REM-AHI/NREM-AHI of >2 were accepted as the criteria. In the studies conducted according to this criteria, the prevalence of REM-associated OSAS was found to be at a rate of 10%–36% (3, 5).

The discussions about REM-associated OSAS definition continues, and it is considered that only the criteria of REM-AHI/NREM-AHI of >2 would not be sufficient. Even if the ratio is over 2 (e.g., in the patient who has REM-AHI: 65/NREM-AHI: 30; ratio of >2) in patients and NREM-AHI is high, can these patients be accepted as REM-dependent patients? The respiratory events occurring in a short time in the patients who sleep the REM stage very short may cause the index to be high. For instance, if three respiratory events are seen during a 6-min REM sleep, REM-AHI is 30. Can this case be accepted as REM-associated OSAS? Mokhlesi et al. (3) determined some criteria for the REM-associated OSAS for the purpose of overcoming contradictions; these criteria were NREM-AHI of <5 and REM-AHI of >5 during at least 30 min of REM sleep. The authors of the study published in this issue, which is in line with the criteria described by Mokhlesi, defined the cases sleeping at least 30 min of REM and those with a total AHI of >5 and REM-AHI/NREM-AHI of >2 as REM-associated OSAS. However, because mean NREM-AHI value of the REM-associated OSAS patients was not given, it could not be understood whether it met the first criteria of Mokhlesi (1).

Although in some studies, it was detected that the respiratory events in NREM stage led to more excessive day time sleepiness, in other studies, it was indicated that there was no difference with respect to excessive day time sleepiness between the patients having REM-associated OSAS and those having non-REM-associated OSAS (NREM-OSAS) (3,5). In this study, the authors detected that there was no difference between the patients with REM-OSAS and NREM-OSAS with regard to excessive day time sleepiness and other symptoms; therefore, they concluded that REM-associated OSAS was not the early stage of OSAS, but is a different clinical type (1).

In many studies, there were lesser symptoms in the patients with REM-associated OSAS, and OSAS severity was milder. On the other hand, the respiratory events occurring in REM stage led to more severe hypoxemia, and they increase the risk of cardiovascular and metabolic diseases

by resulting in an increase in sympathetic activity. These results make us think that even if REM-associated OSAS is less severe, it is as important as NREM-OSAS and necessitates continuous positive airway pressure (CPAP) treatment (3, 5). In this study, although total AHI level was lower (8.4 and 38.8; p<0.001, respectively) in the patients with REM-OSAS, there was no difference with regard to diseases coexisting with the patients having NREM-OSAS (1). This result supports the hypothesis of the authors and reveals the importance of REM-associated OSAS.

In the study conducted by Su et al. (6), the patients with REM-OSAS and NREM-OSAS were compared before and after CPAP treatment, and although mean AHI value in the patients with REM-OSAS was lower, there was no difference found with respect to CPAP concordance, life quality associated with the treatment, and improvement of excessive day time sleepiness. The study conducted by Su was criticized by Mokhlesi for the same issue of the journal with respect to accepting the cases having NREM-AHI of <15 as REM-OSAS and for the inclusion of more symptomatic cases and daily use of >4 h for CPAP concordance; it was reported that studies on this issue should be continued (5).

In the current study, one of the limitations of the study was the few number of patients with REM-OSAS (REM-OSAS: 35, NREM-OSAS: 294), as suggested by the authors; the other limitation was that the rate of positional OSAS was significantly higher in the patients with REM-OSAS compared with the patients with NREM-OSAS (45.7% and 19.7%, p<0.001, respectively). It is known that the frequency and severity of the respiratory events increase in the supine position in the patients with OSAS. Thus, it is disputable whether the cases in this study are REM-dependent or position-dependent. However, the authors did not detect position as an independent factor with linear regression analysis conducted by them (1).

Consequently, despite the limitations and deficiencies of the current study, when the results are taken into consideration, it may be considered that REM-associated OSAS should be taken as a different clinical type than mild non-REM-associated OSAS and that CPAP treatment should be applied. To overcome the contradictions in the definition of REM-associated OSAS, further studies conducted with more patients are necessary.

Banu Musaffa Salepçi
Clinic of Chest Diseases, Dr. Lütfi Kırdar Kartal Training and Research Hospital, İstanbul

Received Date: 17.08.2015
Accepted Date: 19.08.2015
Available Online Date: 09.11.2015

DOI: 10.5152/ejp.2015.44227

Corresponding Author
Banu Musaffa Salepçi
E-mail: bsalepci@yahoo.com

• Available online at www.eurasianjpulmonol.com

REFERENCES

1. İnönü Köseoğlu H, Kanbay A, Demir O. A different clinical type of OSAS: Rem-Related OSAS. Eurasian J Pulmonol 2015; 17: 92-7. [CrossRef]
2. Partinen M, Hublin C. Epidemiology of sleep disorders. In: Kryger MH, Roth T, Dement WC, editors. Principles and practice of sleep medicine, 4th edition. Philadelphia: Elsevier; 2005: 626-47. [CrossRef]
3. Mokhlesi B, Punjabi NM. "REM-related" obstructive sleep apnea: an epiphenomenon or a clinically important entity? Sleep 2012; 35: 5-7. [CrossRef]
4. Kass JE, Akers SM, Bartter TC, Pratter MR. Rapid-eye-movement-specific sleep-disordered breathing: a possible cause of excessive daytime sleepiness. Am J Respir Crit Care Med 1996; 154: 167-9. [CrossRef]
5. Mokhlesi B. REM-related obstructive sleep apnea: To treat or not to treat ? Commentary on Su et al. Journal of Clinical Sleep Medicine 2012; 8: 249-50.
6. Su CS, Liu KT, Panjapornpon K, Andrews N. Functional Outcomes in Patients with REM-Related Obstructive Sleep Apnea Treated with Positive Airway Pressure Therapy. J Clin Sleep Med 2012; 8: 243-7. [CrossRef]