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Comparison of REM-Dependent Obstructive Sleep Apnea (OSA) Patients with NREM-Dependent OSA Patients: Clinical and Polysomnographic Differences

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Objectives: Although there are some clues that suggest phenotypic and genetic heterogeneity, Obstructive sleep apnea (OSA) is still considered as a homogeneous disorder. We aimed to compare the clinical and polysomnographic differences among the patients with REM dependent OSA and NREM dependent OSA.

Methods: We retrospectively reviewed the polysomnography files of 204 (93F/111 M) OSA patients [apnea-hypopnea index (AHI) $\geq 5/h$] who underwent polysomnography between 2011 and 2014. We compared symptoms, comorbidities, and polysomnographic findings of the patients.

Results: There were 37 patients (19 F/18 M) in group 1 and 167 patients (74 F/93 M) in group 2. Female patients with NREM dependent OSA had slightly more obese and older than female patients with group 1, there was no statistically significant difference between two groups in terms of gender, age and body mass index ($p=0.275$, $p=0.834$, $p=0.962$; respectively). Similarly, Epworth sleepiness scale was slightly higher in group 1 than group 2, the difference was not statistically significant ($p=0.086$). And also, the frequency and distribution of the OSA-related symptoms were similar among the two groups ($p>0.05$). The mean total AHI and NREM AHI were 26.5 and 3.1 respectively in the group 1. Indeed, total AHI and nocturnal oxygen desaturation percentages were more prominent in the group 2 patients, but the difference was not statistically significant ($p=0.085$, $p=0.803$, respectively). Similarly, there was no difference between the two groups in terms of total sleep time, sleep onset, sleep efficiency, and arousal index ($p=0.136$, $p=0.561$, $p=0.844$, $p=0.817$; respectively). The all percent of sleep stages except of REM sleep were similar among the groups ($p=0.964$, $p=0.251$, $p=0.78$, $p=0.036$ respectively). While the majority of patients with REM-related OSA had mild-moderate OSA (72.9%), the severe OSA was significantly lower in this group (27.1%), the severe OSA percentage was 41.3 in the patients with NREM dependent OSA. Hypertension was statistically significant most detected in the patients with REM-dependent OSA ($p=0.047$). There was no difference between the two groups in terms of other comorbid diseases including depression.

Conclusion: REM dependent OSA ratio was 18.1% in our study. Female dominance was not found in our study. Our study showed that although patients with REM-dependent OSA had more mild-moderate OSA, they had similar clinical findings and polysomnographic characteristics with NREM dependent OSA. Moreover, hypertension was detected as a frequent comorbid disease in this group, for that reason REM-dependent OSA should be as an important trouble for patients, especially with increasing age.

Keywords: Obstructive sleep apnea, REM dependent OSA, NREM dependent OSA