

## Original Research Article

# Characteristics of patients with rapid eye movement-related obstructive sleep apnea: a retrospective review of 52 patients at a tertiary care center

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## ABSTRACT

**Background:** The term “rapid eye movement (REM)-related obstructive sleep apnea (OSA)” is commonly used to describe sleep disordered breathing that occurs exclusively in REM sleep. The prevalence of REM-related OSA ranges from 10% to 36%. Despite the presence of reports describing the features of REM-related OSA, there is still much more to be known about it.

**Methods:** In this study we did retrospective review of 734 patients who had a diagnostic sleep study in a sleep lab at a tertiary center between January 2014 and August 2016 were reviewed.

**Results:** We found that hypertension was found in the charts of 50 patients, 36 of them were diagnosed with hypertension and on medical therapy (72%), 11 patients (out of 50) had diabetes (22%) and 9 (out of 49) had dyslipidemia. 2 patients (out of 49) had Ischemic heart disease (4%), 1 patient (out of 49) had stroke (2%) and 3 patients (out of 49) had arrhythmias (6%). 8 patients (out of 49) had thyroid disease (16%).

**Conclusions:** In conclusion Most patients had mild REM related OSA and most did not have subjective EDS. Hypertension was the most common comorbidity among our patients.

**Keywords:** REM-related OSA, Retrospective review, Comorbidity

## INTRODUCTION

Obstructive sleep apnea (OSA) is a sleep-related breathing disorder characterized by full or partial occlusion of the upper airway during sleep.<sup>1</sup> An obstructive apnea is a 10-second pause in respiration associated with ongoing ventilatory effort. Obstructive hypopneas are decreases in, but not complete cessation of, ventilation. There is associated with fall in oxygen saturation or arousal. A diagnosis of OSA syndrome is accepted when a patient has an apnea-hypopnea index (AHI; number of apneas and hypopneas per hour of sleep) more than 5 per hour and

clinical symptoms suggestive of OSA such as excessive daytime sleepiness.<sup>2,3</sup>

Although upper airway collapse can occur in rapid eye movement (REM) and non-REM (NREM) sleep, the withdrawal of excitatory noradrenergic and serotonergic inputs to upper airway motor neurons during REM sleep further reduces pharyngeal muscle activity and substantially increases the propensity for upper airway collapse.<sup>4,5</sup> OSA generally tends to worsen during REM sleep as it increases in frequency with worsening in oxygen desaturations. The term “REM-related OSA” is commonly used to describe disordered sleep breathing that occurs

exclusively in REM sleep. The prevalence of REM-related OSA ranges from 10% to 36%.<sup>4-9</sup> Despite the presence of reports describing the features of REM-related OSA, few details are known about its features.<sup>10-14</sup>

### Objectives

The aim of this study is to explore the characteristics of patients with REM- related OSA in our sleep lab. We looked at the prevalence of REM-related OSA among patients who had a diagnostic sleep study in our sleep lab, including their mean age, severity, gender prevalence, subjective excessive daytime sleepiness (EDS), and clinical comorbidities.

### METHODS

#### Study design

This was a Single-centered retrospective cohort study. Retrospective review of the charts of 734 patients who had a diagnostic sleep study in a sleep lab at a tertiary center between January 2014 and August 2016. All studies were in the diagnostic sleep lab (level 1). The inclusion criteria an age of more than 12, total AHI <5/h, and a REM AHI >5/h. Therapeutic studies, split studies, patients younger than 12 years, patients with normal both total and REM AHI, patients with a high central apnea index (CAI >5/h), and those with other sleep- related breathing disorders were excluded.

### RESULTS

Of the 734 diagnostic sleep studies conducted between January 2014 and August 2016, we identified 52 patients (7%) who met our inclusion criteria and identified as REM- related OSA. The mean age was 41. Men were slightly more affected (54%) than women (46%). The REM sleep disordered breathing was mild (5-15/h) in 34 patients (65%), moderate (15-30/h) in 14 patients (26%), and severe (>30/h) in 4 patients (8%). The mean REM apnea hypopnea index (AHI) was 16.3/h. The Epworth sleeping scale (ESS) was obtained from 48 patients, and the mean score was 9.5/24, indicating no subjective excessive daytime sleepiness (EDS) among this population. Information about hypertension was found in the charts of 50 patients: 36 of them were diagnosed with hypertension and on medical therapy (72%). 11 patients (out of 50) had diabetes (22%), and 9 (out of 49) had dyslipidemia. 2 patients (out of 49) had ischemic heart disease (4%), 1 patient (out of 49) had stroke (2%), and 3 patients (out of 49) had arrhythmias (6%), and 8 patients (out of 49) had thyroid disease (16%).

### DISCUSSION

The previous evidence suggesting that the prevalence of REM-related OSA ranges from 10% to 36%.<sup>4-9</sup> This was a retrospective study in a sleep lab in a tertiary center. Only a small percentage of patients met our inclusion criteria

suggesting that REM- related OSA is rare at in our population. Most of patients had mild disease with little subjective excessive daytime sleepiness according to Epworth sleeping scale. Hypertension was the most common comorbidity in our population perhaps because hypertension is a complication or a risk factor of REM-related OSA.

### CONCLUSION

REM- related OSA was rare in our population. Most patients had mild REM- related OSA and most did not have subjective EDS. Hypertension was the most common comorbidity.

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