Short Communication

Sleep-Related Problems Affecting Different Life Activity Areas in OSAS Patients

Marlit Veldi1,2*, Marika Tamm1, Sven Janno2 and Priit Kasenõmm1

1Department of ORL, Ear Clinic of Tartu University Hospital, Estonia
2Department of Psychiatry, Tartu University, Estonia

Abstract

Objective: The obstructive sleep apnea syndrome (OSAS) is a chronic disease, which causes not only medical but also social problems. The aim of the present study is to evaluate the quality of sleep and life as well as night-time and day-time disorders in severe type of OSAS patients.

Methods: The study subjects included OSAS patients (70) of the severe type diagnosed by polysomnography (PSG). Subjects completed a ten-point (Sheehan disability visual scale) questionnaire on how sleep-related problems had impacted their 1) work-related activity (WRA), 2) social life activity (SLA), and 3) family- and home-related activity (F/HRA). They also completed a three-point scale questionnaire, providing information on their experiences with the following disorders: nocturnal urination habits, nocturnal tachycardia, nocturnal sweating, snoring, nocturnal breathing disorders, nocturnal coughing, morning headache, pain, morning fatigue, day-time sleepiness, and quality of sleep. We used the Epworth Sleepiness Scale (ESS) to evaluate subjective day-time somnolence.

Results: It was found, using Sheehan’s disability scale, sleep problems affect work-related activity (WRA) (5.1±3.1) and family- and home-related activity (F/HRA) (5.0±3.0) as well as social-life-related activity (SLA) (3.6±2.8) in the study group of OSAS patients. The questionnaire revealed that patients in the study group suffered from nocturnal urination (62%), nocturnal tachycardia (38%), nocturnal sweating (47%), snoring (88%), nocturnal breathing disorders (85%), nocturnal coughing (31%), headaches (38%), pain (24%), morning fatigue (91%), daytime sleepiness (83%), and quality of sleep (94%).

Conclusion: OSAS patients of the severe type experience not only medical but also social problems. ESS is not adequate enough to evaluate subjective day-time disorders.

INTRODUCTION

According to the International Classification of Sleep Disorders, in addition to restless legs disorder and psychophysiological insomnia, obstructive sleep apnea syndrome (OSAS) is the most common sleep disorder found among society today [1].

OSAS has been traditionally defined according to the apnea-hypopnea index (AHI), calculated as the sum of apneas and hypopneas per hour of sleep during polysomnography (PSG). The severity of OSAS is measured by AHI values 5–15, 15–30, and more than 30, which are defined as mild, moderate, and severe OSA, respectively. The severity of OSA, according to the classification of the American Academy of Sleep Medicine, is diagnosed on the basis of both AHI and the degree of day-time sleepiness [2]. A combination of sleep fragmentation, repeated arousal, and a pnea-related episodic hypoxemia increases sympathetic activity in OSA patients. Increased sympathetic activity may play a major pathogenic role in the development of cardiovascular complications [3,4]. A number of OSAS studies show on one hand, the presence of increased sympathetic nerve activity while, on the other hand, cognitive dysfunction [5,6]. Common day-time effects include excessive sleepiness, irritability, decreased concentration and memory, headaches, decreased energy, and depressive symptoms. Not only is OSAS associated with cognitive behavior and activity of the sympathetic nervous system (SNS) [7,8], it is
a chronic disease and a serious public health problem from both a medical and social perspective.

The aim of the present study is to evaluate the quality of sleep and life as well as night-time and day-time disorders in OSAS patients of the severe type. Our study is based on a questionnaire which investigates sleep and day-time disorders, using the Sheehan disability scale to evaluate 1) work-related activity (WRA), 3) social life activity (SLA), and 4) family and home related activity (F/HRA) in apnea patients.

MATERIALS AND METHODS

The study is based on 70 patients who underwent polysomnography (PSG) at the Sleep Laboratory, located at Tartu University Hospital. This study group was composed of 70 patients (58 men and 12 women) who had the severe type of OSAS by PSG. Standard medical interviews were conducted, which included gathering information about patients’ diseases from family doctors.

OSAS was diagnosed by means of the apnea-hypopnea index (AHI), which is calculated as the sum of apneas and hypopneas per hour of sleep. The severe forms of OSAS were evaluated by AHI and the percentages of oxygen saturation, slow-wave sleep, and apnea-related disorders [2].

The study subjects completed a questionnaire, using a ten-point visual scale (Sheehan disability scale), describing how sleep-related problems affected them (no change – significantly impaired) for each of the following activities: 1) work-related activity (WRA), 2) social life activity (SLA), 3) family-and-home-related activity (F/HRA). The Epworth Sleepiness Scale (ESS) was also used to evaluate subjective day-time somnolence. The patients also completed a three-point-scale questionnaire (decrease, no change, increase) to assess the following disorders: nocturnal urination habits, nocturnal tachycardia, nocturnal sweating, snoring, nocturnal breathing disorders, nocturnal coughing, morning headache, pain, morning fatigue, day-time sleepiness, and quality of sleep.

Statistics

Statistical analysis was performed by means of the Statistica 10 software package (StatSoft Inc., Tulsa OK): the frequency tables and Nonparametrics–Friedman ANOVA; the Wilcoxon pairs test (the marked tests are significant at p<0.05).

Ethical approval

Permission to carry out the study was granted by the Research Ethic Committee of the University of Tartu (216/T-3).

RESULTS AND DISCUSSION

Study results indicated that sleep problems affected work-related activity (WRA) and family- and home-related activity (F/HRA) in OSAS patients, while a few studies demonstrated the relationship between work limitation, OSAS, and sleepiness [11,12]. Additionally, it was found that patients’ sleep problems affected their social life activity to a much lesser degree.

However, it should be noted that the study group consisted of patients with a severe degree of OSAS, which demonstrates that non-treated apnea patients are no longer as interested in their social life. The poor quality of sleep, excessive day-time sleepiness, and neurocognitive dysfunction, all associated with OSA, adversely affect neurocognitive performance [7–10]. Earlier studies indicated that OSAS patients might be somewhat more neurotic. Such personality factors as neurotism are associated with a poorer quality of life [9,13] (Table 1).

The present study indicates the frequency of the following sleep and day-time disorders: nocturnal urination (62%), nocturnal tachycardia (38%), nocturnal sweating (47%), snoring (88%), nocturnal breathing disorders (85%), nocturnal coughing (31%), headaches (38%), pain (24%), morning fatigue (91%), day-time sleepiness (83%), and quality of sleep (94%), all of which characterize sympathetic activity disorders (Figure 1).

CONCLUSIONS

A simple questionnaire was used to evaluate sympathetic activity disorders, while the Sheehan disability scale was used to evaluate work-related activity (WRA) and family- and home-related activity (F/HRA) in OSAS patients of the severe type. Our method is based on a questionnaire which investigates sleep and day-time disorders, using the Sheehan disability scale to evaluate work-related activity (WRA), social life activity (SLA), and family and home related activity (F/HRA) in apnea patients.

Table 1: Demographic and study characteristics of OSAS patients [n = 70].

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean ± SD</th>
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<tbody>
<tr>
<td>Male gender</td>
<td>32</td>
</tr>
<tr>
<td>Age (yr)</td>
<td>55.6±10.2</td>
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<tr>
<td>BMI (kg/m²)</td>
<td>37.9±6.4</td>
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<tr>
<td>ESS</td>
<td>11.5±4.7</td>
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<tr>
<td>AHI</td>
<td>49.3±24.7</td>
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<td>Baseline oxygen saturation (%)</td>
<td>89.8±5.3</td>
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<tr>
<td>Slow-wave sleep (%)</td>
<td>8.2±7.9</td>
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<td>BMI: Body Mass Index; ESS: Epworth Sleepiness Scale; AHI: Sum of Apneas and Hypopneas per Hour of Sleep. Data presented as mean±SD.</td>
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Figure 1: Sleep problems affect work-related activity (WRA) (5.1±3.1), family- and home-related activity (F/HRA) (5.0±3.0), and social life activity (SLA) (3.6±2.0). Comparison of WRA and SLA reveals a statistically significant difference, p<0.01; a similar difference exists between F/HRA and SLA, p<0.01. WRA and F/HRA had affected similarly the activity of life in apnea patients, p>0.05. The marked tests are significant at p<0.05.
related activity (F/HRA) in OSAS patients. It was determined that ESS is not adequate enough to evaluate subjective day-time disorders. These study methods could be easily used by family physicians to evaluate the medical condition and life activity in apnea patients. They can also help to identify symptoms of the sleep apnea syndrome to better assist their patients.

REFERENCES