



The Combination of Fibromyalgia and Obstructive Sleep Apnea Syndrome: A Case Report and Review of the Literature

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Abstract

Fibromyalgia is a disease characterized by widespread pain accompanied by sleep disorders, affective impairments, chronic fatigue, functional deficiency and emotional disorders. Sleep disorders in FMS patients have been widely reported in literature. Obstructive sleep apnea syndrome (OSAS) is a syndrome characterized by repeated periods of upper respiratory tract obstruction and frequently a reduction in blood oxygen saturation during sleep. To make a diagnosis and define severity with the Apnea-Hypopnea Index (AHI), it is necessary to conduct a polysomnography (PSG) study throughout the night. OSAS cases suffer from frequent sleep disruption, are unable to enter the deep sleep phase and cannot physically rest. Therefore, as both OSAS and FMS cases have sleep disorders with symptoms such as a need for daytime sleep and headaches in the morning, it is thought that there may be a relationship between OSAS and FMS. The case is here presented of a 43-year old female FMS patient with symptoms including an 8-year history of widespread pain and fatigue, inability to get up in the mornings, excessive sleepiness during the day and snoring, who was determined with moderate level OSAS as a result of polysomnography examination.

Key Words: Fibromyalgia, sleep disorders, polysomnography

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Introduction

Fibromyalgia is a disease characterized by widespread pain accompanied by sleep disorders, affective impairments, chronic fatigue, functional deficiency and emotional disorders [1-3]. Several factors have been held responsible for the pathophysiology of FMS, such as neuroendocrine and autonomic nerve system abnormalities, genetic factors, psychosocial changes and environmental stresses [3]. FMS affects 1-2% of the general population and the majority of cases are female aged 40-55 years [1-3].

Sleep disorders in FMS patients have been widely reported in literature [4-5]. In some studies, prevalence has been determined at almost 100% [6]. Sleep disorders include findings such as insomnia, waking during the night, restless sleep and inability to get up in the morning [7-10]. In addition, daytime sleepiness is one of the most frequently seen symptoms [11]. In FMS patients, sleep waves are slow and REM sleep and total sleep time are reduced [6]. In studies researching sleep disorders in FMS, the causes of sleep disorders have been determined as abnormalities in the slow wave sleep-delta wave sleep of the deep sleep phase (NREM stage 3), which is the physical rest period. This abnormality has been evaluated as entering the delta wave sleep in the sleep rest period of the alpha wave pattern seen during REM and waking. With the labelling of Alpha-EEG as non-REM, this situation has been determined as caused by non-restful sleep [6,12].

Obstructive sleep apnea syndrome (OSAS) is a syndrome characterized by repeated periods of upper respiratory tract obstruction and frequently a reduction in blood oxygen saturation during sleep [13]. Current prevalence of OSAS in the adult population is accepted as 1.2-2.5% in females and 1-5% in males. Three major symptoms of the disease are snoring, witnessed apnea and excessive daytime sleepiness [14]. To make a diagnosis and define severity with the Apnea-Hypopnea Index (AHI), it is necessary to conduct a polysomnography (PSG) study throughout the night [15]. AHI of 5-15 is accepted as mild OSAS, 16-30 as moderate and ≥ 30 as severe [16].

The characteristic PSG findings observed in OSAS cases is an increase in superficial sleep (NREM stage 1 and stage 2) and a decrease in the deep sleep period (NREM stage 3). OSAS cases suffer from frequent sleep disruption, are unable to enter the deep sleep phase and cannot physically rest.

Therefore, as both OSAS and FMS cases have sleep disorders with symptoms such as a need for daytime sleep and headaches in the morning, it is thought that there may be a relationship between OSAS and FMS [17].

The case is here presented of a 43-year old female FMS patient who was determined with moderate OSAS as a result of polysomnography examination.

Case

A 43-year old female patient with complaints of an 8-year history of widespread pain, tiredness and inability to get up in the morning was diagnosed with FMS and was being monitored in the Physical Therapy and Rehabilitation Outpatient Clinic. The pain decreased with analgesic and non-steroid anti-inflammatory drugs. Although there was a partial and temporary decrease in the pain with anti-depressant medication and physical therapy, a complete recovery could not be achieved. Even with minimum pain, the patient complained of accompanying symptoms such as fatigue, inability to get up in the morning and feeling the need to sleep throughout the day. The tiredness started early in the morning and was not related to physical exertion. However much sleep she had at night, she could not get up in the morning and was excessively sleepy during the day. A headache started in the morning on waking and continued throughout the day. She also had the complaint of mild snoring which had started recently.

In the physical examination, Body Mass Index was determined as 21.3 kg/m^2 , the systemic musculoskeletal system examination was normal and there was no neurological deficit. Of the 18 fibromyalgia sensitivity points, 16 were sensitive on palpation and the patient met the American College of Rheumatology (ACR) FMS diagnostic criteria. In the laboratory tests, full blood count, erythrocyte sedimentation rate, C-reactive protein, biochemical tests and thyroid function values were normal. There were no comorbidities.

The patient was referred to the Neurology Outpatient Clinic with complaints of headache, inability to get up in the mornings, excessive daytime sleepiness and snoring. With an initial diagnosis of OSAS, a PSG examination was made. The patient was admitted for 1 night to the Sleep Disorders Unit of the Neurology Outpatient Clinic and the PSG was applied with a 16 double channel polysomnography device (SensorMedics, Germany, Hochberg). During the

PSG examination, 2 channel EEG (C3A2 or C4A1), 2 channel EOG, ECG and EMG were recorded and measurements were taken of oro-nasal air flow, thoraco-abdominal movements, body position, and oxygen saturation from the finger end with a pulse oximeter. The International Classification of Sleep Disorders (ICSD-2) as the basis for OSAS diagnosis, states criteria of the patient having one or more of the symptoms of snoring, witnessed apnea or excessive daytime sleepiness and the criteria was used of an Apnea-Hypopnea Index (AHI) score of 5 or above (AHI=5-15 mild OSAS, AHI=16-30 moderate OSAS and AHI $\geq$ 30 severe OSAS) [18].

As a result of the PSG examination, the patient was determined with AHI of 27.6 and diagnosed with moderate OSAS (Table 1). Monitoring in the Sleep Disorder Unit was started.

Table 1. Polysomnographic data.

Parameters	Values
Apnea hypopnea index	27.6
Arousal index	4.21
Sleep efficacy, (%)	81.6
Stage1	12.3
Stage2	74.5
Stage3	8.0
REM, (%)	5.2
Duration of sleep (min.)	370
Oxygen saturation, (%)	96

Discussion

Sleep disorders have been reported in FMS since 1975 [19]. Several studies have researched the reasons for sleep disorders in FMS patients by conducting polysomnographic analysis in sleep laboratories [6,20]. In most studies, sleep disorders have been found at a high rate in these patients [4,5].

In the FMS case presented here, the symptoms observed were an 8-year history of pain widespread throughout the body, an inability to get up in the morning, snoring and excessive

daytime sleepiness. As a result of the PSG examination, AHI of 27.6 was determined. This value explains the patient complaints of not being able to have any restful sleep. From the clinical and PSG evaluation, the patient was accepted as moderate OSAS.

In a study by May K.P. et al, researching the prevalence of sleep apnea in males with diagnosed FMS, PSG was applied to 92 females with FMS and 25 male FMS patients. Sleep apnea was determined in 2 of the female patients and 11 of the male patients. While the frequency of sleep apnea was not significant in the female FMS patients, it was determined to be greater in the male FMS patients and the conclusion was reached that fibromyalgia could be an indicator for sleep apnea in males [21].

Sepici et al applied PSG to a 55-year old female with a 10-year history of FMS with complaints of tiredness in the morning on rising, non-restful sleep, sleepiness during the day and snoring and severe OSAS (AHI=41.8) was determined. It was concluded that 'OSAS should be investigated in female patients with FMS [22].

Molony et al evaluated 11 male patients with sleep apnea in respect of FMS and FMS was determined in 3 patients (27.3%). Seven female FMS patients were also evaluated in respect of sleep apnea but it was not determined in any [23].

In a study by Alvarez et al, 30 patients diagnosed with sleep apnea syndrome at mean AHI of 30 were evaluated in respect of FMS, which was determined in 1 (3%) of the 30 patients [24]. In studies by Jennum et al, sleep disorders were evaluated in female FMS patients and high rates of waking from sleep were determined [25].

Germanowicz et al applied PSG to 50 individuals with complaints of snoring, apnea and excessive daytime sleepiness and evaluation was made in respect of FMS. A total of 11 patients were determined with FMS; 9 of 18 females and 2 of 32 males. In the same study, the groups were compared in terms of OSAS severity with FMS frequency and no significant difference was determined between the groups [26].

PSG was applied by Fumiharu et al to 26 patients with chronic fatigue syndrome and to 26 healthy individuals as a control group and FMS was determined in 12 of the 26 patients with chronic fatigue syndrome. When the patients with and without FMS were compared, no difference was found in the percentages of stage 1 and stage 2 REM sleep [27].

In conclusion, in the case presented here of a 43-year old female with FMS, moderate level OSAS was determined with polysomnographic evaluation and it can be said that there may be a relationship between FMS and OSAS. It was thought that OSAS may have caused the symptoms of tiredness, inability to get up in the morning and excessive daytime sleepiness, which accompanied the FMS. The relationship between OSAS and FMS patients should be kept in mind and further studies with greater numbers of patients would be able to clarify this relationship.

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