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Prevalence of Obstructive Sleep Apnea Syndrome in Psoriasis Patients

Psoriazis Hastalarında Obstrüktif Uyku Apne Sendromu Semptom Sıklığı

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ABSTRACT

Aim: Psoriasis is a frequently seen chronic systemic inflammatory disease accompanied by several comorbid conditions that affects 2-3% of the general population. One of the comorbidities rarely accompanying psoriasis is obstructive sleep apnea syndrome (OSAS). OSAS is a disease characterized by recurrent complete (apnea) or partial (hypopnea) upper airway obstruction episodes and frequently by decreased blood oxygen saturation. The purpose of this study was to evaluate the risk factors for OSAS by investigating OSAS symptoms in psoriasis patients.

Material and Methods: Eighty-two patients aged over 16, diagnosed with psoriasis, and under follow-up by the Duzce University Medical of Faculty, Dermatology and Venereal Diseases Polyclinic, Turkey, were included in the study. Patients' OSAS symptoms were investigated. The Epworth Sleepiness Scale was used to assess excessive daytime somnolence.

Results: Of the patients 51.2% (n=42) were male and 48.8% (n=40) female. Patients' mean age was 47.09±14.10 years. Patients' mean time of psoriasis diagnosis was 16.97±10.55 years, and mean Psoriatic Area Severity Index (PASI) score was 11.25±6.32. Severe disease was present in 54.9% of patients (n=45) based on PASI classification. Prevalence of 56.1% for snoring, 25.6% for excessive daytime sleepiness, and 15.9% for witnessed apnea were determined in these patients. Forty-seven (57.3%) cases had at least one major symptom. The most common minor symptoms were inability to sleep with 25.6% (n=21) and insufficient disrupted sleep with 22.0% (n=18).

Conclusion: Prevalence of OSAS symptoms in psoriasis patients were found high. Psoriasis patients with OSAS symptoms must be referred to relevant specialists for polysomnographic evaluation.

Keywords: Psoriasis; obstructive sleep apnea syndrome; symptom.

ÖZ

Amaç: Psoriazis toplumda sık görülen, genel nüfusun %2-3'ünü etkileyen, birçok komorbiditenin eşlik ettiği kronik sistemik enflamatuvar bir hastalıktır. Psoriazis'e eşlik eden nadir görülen komorbiditeler arasında obstrüktif uyku apne sendromu (OUAS) yer almaktadır. OUAS uyku sırasında tekrarlayan tam (apne) veya parsiyel (hipopne) üst solunum yolu obstrüksiyonu epizodları ve sıklıkla kan oksijen satürasyonunda azalma ile karakterize bir hastalıktır. Bu çalışmanın amacı psoriazis hastalarında OUAS semptomları sorgulanarak, OUAS risk faktörlerini değerlendirmektir.

Gereç ve Yöntemler: Düzce Üniversitesi Tıp Fakültesi Deri ve Zührevi Hastalıkları polikliniğinden takipli ve Psoriazis tanılı 16 yaşından büyük 82 hasta çalışmaya alındı. Hastalar OUAS semptomları açısından sorgulandı. Aşırı gündüz uykululuğu değerlendirmek için ise Epworth uykululuk skalası kullanıldı.

Bulgular: Hastaların %51,2 (n=42)'sı erkek, %48,8 (n=40)'i kadındı. Hastaların yaş ortalaması 47,09±14,10 yıl idi. Hastaların ortalama psoriazis tanı süreleri 16,97±10,55 yıl, ortalama Psoriatik Alan Şiddet İndeksi (PAŞİ) 11,25±6,32 idi. PAŞİ sınıflamasına göre hastaların %54,9 (n=45)'ü şiddetliydi. Bu hastalarda horlama için %56,1, gündüz aşırı uyku hali için %25,6, tanıklı apne için %15,9'luk prevalans saptandı. En az bir semptomu olan olgu sayısı 47 (%57,3) idi. Minör semptomlar sorgulandığında en sık gözlenen %25,6 (n=21) ile uyuyamama ve %22,0 (n=18) ile yetersiz bölünmüş uyku şikayetiydi.

Sonuç: Psoriazis hastalarında OUAS semptom sıklığı yüksek olarak bulunmuştur. OUAS semptomları olan psoriazis hastaları muhakkak polisomnografik değerlendirme için ilgili uzmanlara yönlendirilmelidir.

Anahtar kelimeler: Psoriazis; obstruktif uyku apne sendromu; semptom.

INTRODUCTION

Psoriasis was previously thought to be limited to the skin, but is now regarded as a chronic systemic inflammatory disease accompanied by several comorbidities; it is frequently seen in the community and affects 2-3% of the general population (1). The most common comorbidity is psoriatic arthritis. Other comorbidities include metabolic syndrome, hypertension, dyslipidemia, atherosclerotic diseases, ocular findings (uveitis), inflammatory bowel diseases, and non-alcoholic fatty liver disease. Chronic obstructive pulmonary disease (COPD) and obstructive sleep apnea syndrome (OSAS) are rarer comorbidities (2). The number of studies investigating the prevalence of OSAS in psoriasis patients is limited. Prospective studies of the prevalence of OSAS in psoriasis may help reveal the causal relationship between the two diseases.

OSAS is a disease characterized by recurrent complete (apnea) or partial (hypopnea) upper airway obstruction episodes and frequently by decreased blood oxygen saturation (3). The major symptoms of OSAS, which affects approximately 5% of Western society, include snoring, witnessed apnea, and excessive daytime sleepiness. Minor symptoms may accompany major OSAS symptoms. These include a sensation of suffocation during sleep, atypical chest pain, disrupted sleep, insomnia, decision-making and concentration problems, palpitations, weight gain, personality changes, altered mental state, abnormal motor activity during sleep, dry mouth, morning headaches, nocturnal coughing, and enuresis (4).

The purpose of this study was to perform a preliminary scan of sleep disorders by investigating the prevalence of obstructive sleep apnea (OSA) symptoms in psoriasis patients, and at the same time to determine the prevalence of the rare comorbidity OSAS.

MATERIAL AND METHODS

Study Group

Eighty-two patients aged over 16, diagnosed with psoriasis, and being followed-up by the Düzce University Medical of Faculty, Dermatological and Venereal Diseases Polyclinic, Turkey, were included in the study. The study was performed between January and May, 2019. Approval for the study was granted by the Düzce University ethical committee (01.04.2019 and 2019-91).

Exclusion Criteria

Patients with chronic inflammatory diseases, malignancy, thyroid diseases, chronic kidney or liver diseases, or cerebrovascular diseases were excluded from the study.

Evaluation of Psoriasis Severity

Psoriasis severity was evaluated using the Psoriasis Area Severity Index (PASI).

Sleep Symptom Evaluation

General sleep disorder and excessive daytime sleepiness (EDS) were evaluated in all patients. At sleep disorder evaluation, major OSAS symptoms such as snoring (nocturnal snoring at least four times a week), witnessed apnea (defined as loud and irregular snoring witnessed by the spouses or relatives of OSAS patients and ceasing with respiration), and excessive daytime sleepiness (increased fatigue and a disposition to somnolence during the day following insufficient nocturnal sleep), and minor symptoms (a sensation of suffocation during sleep, atypical chest pain, interrupted sleep, insomnia, decision-making and concentration problems, palpitations, abnormal motor activity during sleep, dry mouth, morning headache, nocturnal coughing, and enuresis) were investigated using a questionnaire. The Epworth Sleepiness Scale (ESS) was used to assess excessive daytime sleepiness (Table 1). The questionnaire was scored from 0 to 3 based on the prevalence of eight different situations occurring in the majority of individuals' daily lives, although not necessarily every day. Scored between 0 and 24 in total. Higher values indicate greater daytime sleepiness. Total scores greater than 10 indicate excessive daytime sleepiness, regarded as a clinical characteristic of OSAS (5).

Statistical Analysis

Statistical analysis was performed on Statistical Package for the Social Sciences software (Windows 20.0; SPSS Inc., IL, USA). Descriptive statistics were calculated as mean±standard deviation (minimum, maximum) for continuous variables, and frequency and percentage for categorical variables.

Table 1. Epworth Sleepiness Scale (5)

QUESTION	Never	Rarely	Frequently	Always
Do you doze off when reading a newspaper or a book in a seated position?	0	1	2	3
Do you doze off when watching television?	0	1	2	3
Do you doze off when sitting inactive in a public place, such as the cinema or theater?	0	1	2	3
Do you doze uninterruptedly for at least 1 as a passenger in a car?	0	1	2	3
Do you doze when lying down to rest in the afternoon?	0	1	2	3
Do you doze off when sitting and talking to someone?	0	1	2	3
Do you doze when sitting quietly after lunch, without having consumed alcohol?	0	1	2	3
Do you doze off in a car while stopped for a few minutes at a red light?	0	1	2	3

RESULTS

Eighty-two patients diagnosed with psoriasis were enrolled in the study. Male constituted 51.2% (n=42) of the patient group and female 48.8% (n=40). Patients' mean age was 47.09±14.10 (minimum=19, maximum=73), and mean body mass index (BMI) was 18.82±5.01 (minimum=28.66, maximum=42.97). Mean time since diagnosis of psoriasis was 16.97±10.55 (minimum=2, maximum=57) years, and mean PASI score was 11.25±6.32 (minimum=0, maximum=34.20). Forty-five (54.9%) patients were classified as severe based on PASI. In terms of additional diseases, hypertension was determined in 19 (23.2%) patients, diabetes in nine (11.0%), heart disease in two (2.4%), and gastro-esophageal reflux in one (1.2%).

At least one major symptom was present in 47 (57.3%) cases, two symptoms in 20 (24.4%), and all three symptoms in three (3.7%). The most common minor symptoms in patients diagnosed with psoriasis were inability to sleep in 25.6% (n=21) and insufficient, interrupted sleep in 22.0% (n=18). The prevalence of major and minor symptoms are shown in Table 2.

The mean ESS value was 3.01±3.90, and 9.8% (n=8) of patients were ESS-positive (Table 1). Prevalence of 56.1% (n=46) for snoring, 25.6% (n=21) for excessive daytime sleepiness, and 15.9% (n=13) for witnessed apnea were determined in these patients (Figure 1).

DISCUSSION

Psoriasis is a common chronic inflammatory disease, with a general prevalence of 2-3%, affecting more than 7.5 million individuals in the USA and approximately 125 million worldwide, and progressing with attacks followed by periods of remission (6). Polygenetic and environmental factors have long been known to be involved in the pathogenesis of the disease. A complex immune reaction due to abnormal keratinocyte differentiation resulting in epidermal hyperproliferation occurs in psoriasis (7). Psoriasis was formerly regarded as being limited to the skin, but is now considered a chronic systemic inflammatory disease accompanied by various comorbidities. Seventy-three percent of patients are thought to have at least one comorbid condition (8). These include cardiovascular diseases, obesity, metabolic syndrome, hypertension, dyslipidemia, atherosclerotic diseases, diabetes, malignancy, non-alcoholic fatty liver disease, inflammatory bowel diseases, ocular findings (uveitis), mood alterations, erectile dysfunction, COPD, OSAS, and psoriatic arthritis. The most common comorbidity is psoriatic arthritis. Newly identified psoriatic comorbidities include COPD, peptic ulcer disease, sexual function disorder, and OSAS. Comorbid conditions are more prevalent in patients with existing moderate-severe psoriasis, due to the inflammatory effect and a common pathogenesis. The prevalence of all comorbid diseases, particularly cardiovascular diseases, increases with the duration and severity of psoriasis (6,9). Psoriasis patients must therefore be evaluated using a multidisciplinary and systemic approach. Examination must not be limited to cutaneous findings, but must also encompass potential comorbidities. This will permit the identification of accompanying diseases, and treatment can be regulated in the light of existing comorbid conditions.

Very few studies have investigated the association between psoriasis and OSAS. Studies have shown a relation between OSAS and metabolic syndrome, atherosclerotic diseases (10,11). The risk of metabolic syndrome and atherosclerotic diseases is also higher in psoriasis patients, and due to the close association between

Table 2. Prevalence of major and minor symptoms in patients diagnosed with psoriasis (n=82)

Major Symptom Comorbidity	n (%)
Major symptom-negative	35 (42.7)
1 major symptom	47 (57.3)
2 major symptoms	20 (24.4)
3 major symptoms	3 (3.7)
Minor Symptom	n (%)
Sensation of suffocation during sleep	10 (12.2)
Atypical chest pain	9 (11.0)
Insufficient, interrupted sleep	18 (22.0)
Insomnia	21 (25.6)
Decreased decision-making ability	10 (12.2)
Impaired memory, forgetfulness	16 (19.5)
Palpitations	6 (7.3)
Weight gain	10 (12.2)
Character and personality changes	7 (8.5)
Difficulty in adapting to one's environment	2 (2.4)
Anxiety, depression	8 (9.8)
Abnormal motor activity during sleep	4 (4.9)
Dry mouth	17 (20.7)
Nocturnal hyperhidrosis	4 (4.9)
Morning headache	8 (9.8)
Nocturnal coughing	6 (7.3)
Nocturia, enuresis	7 (8.5)
Decreased sexual desire	4 (4.9)
Loss of hearing	7 (8.5)

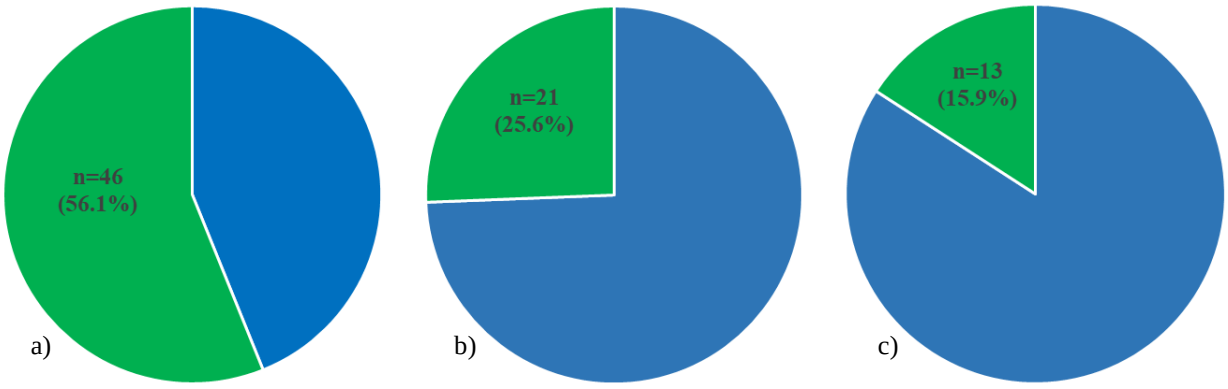

Figure 1. Prevalence of major symptoms in patients a) snoring, b) excessive daytime sleepiness, c) witnessed apnea

these conditions and OSAS. There is also a greater probability of a potential relation between OSAS and psoriasis.

The major symptoms of OSAS are snoring, witnessed apnea, and excessive daytime sleepiness. The most common symptom is snoring, and this is also the most frequent presentation symptom. Snoring for at least four nights a week is clinically significant. In the Wisconsin sleep cohort study, habitual snoring was present in 28% of women and 44% of men (12). Snoring was present in 56.1% of our psoriasis patients, much higher than in the normal population. The incidence of excessive daytime sleepiness is 8-30% in the normal population, but may be as high as 50% in patients diagnosed with OSAS (13). In their cohort study, Young et al. (12) determined excessive daytime sleepiness in 16% of male OSAS patients and 23% of female patients. Excessive daytime sleepiness was present in 25.6% of our patients. The reported prevalence of witnessed apnea in the community is 3.8-6% (14). The prevalence in our patients was quite high, at 15.9%. At least one major symptom was present in 47 (57.3%) of our cases, two symptoms were present in 20 (24.4%), and all three symptoms were present in three cases (3.7%). The most common minor symptoms in patients diagnosed with psoriasis were insomnia in 25.6% (n=21) and insufficient, interrupted sleep in 22.0% (n=18). OSAS may be the cause in patients presenting due to insomnia or interrupted sleep. Frequent waking may be seen in patients with apnea-related interrupted sleep. Due to excessive daytime sleepiness may also prolong time taken to fall asleep.

At the same time, hypoxia developing in patients with OSAS has also been implicated in vascular complications by leading to endothelial dysfunctions through an increase in sympathetic system activity. Endothelial dysfunction, increasing with severity of OSAS, has been observed in OSAS patients compared to healthy individuals (15). Recurrent apnea and hypoxia attacks increase oxidative stress as a result of increased release of free oxygen radicals in the vascular endothelium, leading to atherosclerotic diseases (16). Psoriasis is a risk factor for the development of atherosclerotic vascular disease including in which cardiovascular, cerebrovascular and peripheral vascular disease (17). Psoriasis has been identified as an independent risk factor for development of myocardial infarction (18). OSAS, one potential comorbid condition in psoriasis patients, can exacerbate the development of atherosclerotic diseases by causing hypoxia-ischemia. OSAS symptoms must therefore be investigated in patients with psoriasis. Patients with existing OSAS symptoms should be referred for polysomnographic examination.

Karaca et al. (19) determined OSAS in 18 (54.4%) out of 33 patients with psoriasis. OSAS was mild in 11 of these 18 patients, moderate in two, and severe in five. Şereflican et al. (20) investigated 405 OSAS patients, but psoriasis was present in only three. In a Danish cohort study simultaneously examining the potential two-way relations between psoriasis and OSAS, Egeberg et al. (21) reported an increased risk of sleep apnea in psoriasis patients. In a study from Taiwan, Yang et al. (22) compared 2258 psoriasis patients with a three-year follow-up period and 11255 healthy controls in terms of prevalence of sleep apnea, and reported that the incidence of sleep apnea was twice as high in the psoriasis patients. In our study, snoring was present in 56.1% of psoriasis patients, excessive daytime sleepiness in 25.6%, and witnessed apnea in 15.9%. These rates were significantly higher than in the general population.

In conclusion, we observed a high incidence of OSAS symptoms in our psoriasis patients. We think that psoriasis patients should also be examined in terms of OSAS symptoms at polyclinic check-ups. Patients with OSAS symptoms should be referred for polysomnographic examination by relevant specialists.

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