



## Sleep Quality in Patients with Ankylosing Spondylitis

### Ankilozan Spondilitli Hastalarda Uyku Kalitesi

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### Abstract

Chronic pain and inflammation, loss of function, immobility and systemic involvement that are all characteristics of ankylosing spondylitis (AS) have been proposed to cause sleep problems. Almost 70-90% of patients with AS are reported to suffer from disturbed sleep. There are many indices that aim to assess quality and duration of sleep in clinical and academic settings. We have carried out a pilot study and enrolled 70 patients with AS and questioned each subject with a single question that assessed their quality of sleep. This question was taken from the 4<sup>th</sup> item of the Hamilton Anxiety scale and has been previously used in this population. We have asked patients to assess their sleep quality and score it from 0 to 4, 0 denoting no sleep disturbance and 4 denoting very severe sleep disturbance. The question was well understood and answered fast, causing no delay in routine patient care. Almost 90% of our patients reported some level of sleep disturbance. We have found a significant correlation between disease activity measured by Bath Ankylosing Spondylitis Disease Activity index and severity of sleep disturbance ( $p<0.05$ ,  $r=0.34$ ). Assessing quality of sleep in the routine clinical setting does not need to take a very long time and carries valuable information regarding patients' physical and mental wellbeing.

**Keywords:** Ankylosing spondylitis, pain, sleep quality

### Öz

Ankilozan spondilitin (AS) karakteristik özelliklerinden olan kronik ağrı, enflamasyon, fonksiyon kaybı, immobilizasyon ve sistemik tutulumların uyku problemlerine de yol açabileceği öne sürülmüştür. AS hastalarının neredeyse %70-90'ı arasında bir oranda uyku sorunlarının görüldüğü bildirilmiştir. Hem klinik hem de akademik amaçla uyku kalitesini ve uyku süresini ölçmeyi amaçlayan pek çok ölçek mevcuttur. Bizler, 70 AS hastasında bir pilot çalışma yaparak her gönüllüden uyku kalitesini değerlendiren tek bir soruyu yanıtlamasını istedik. Bu soru Hamilton Anksiyete skalasının uykuyu değerlendiren 4. sorusundan alınmış olup bireyden uyku kalitesini 0 ile 4 arasında puanlaması istenir, 0 puan hiç uyku sorunu yok anlamına gelirken, 4 puan çok şiddetli uyku sorunu anlamı taşır. Hastalarımız bu soruyu doğru bir şekilde anlamış ve hızlı bir şekilde yanıtlamışlardır ve rutin klinik hizmetlerinde bir yavaşlama yaşamamıştır. Hastalarımızın neredeyse %90'ı farklı düzeylerde uyku bozukluğu ile uyumlu yanıt vermiştir. Uyku bozukluğu düzeyi ile Bath Ankilozan Spondilit Hastalık Aktivite indeksi skoru arasında da anlamlı korelasyon saptanmıştır ( $p<0,05$ ,  $r=0,34$ ). Klinik ortamda uyku kalitesini değerlendirmek çok vakit almamaktadır ve hastaların hem fiziksel hem de mental iyilik durumu hakkında bilgi vermesi açısından değerlidir.

**Anahtar kelimeler:** Ankilozan spondilit, ağrı, uyku kalitesi

### Introduction

Ankylosing spondylitis (AS) is a chronic inflammatory disorder of mainly the spine that also affects peripheral joints, entheses and may cause severe disability. Studies and management strategies commonly focus on musculoskeletal involvement of this disorder. Chronic pain and inflammation, loss of function,

immobility and systemic involvement have been reported to cause sleep problems (1). Cytokine activity has also been proposed to be a factor in disturbed sleep (2). Nie et al. (1) reported that up to 70% of patients with AS suffer from sleep disturbances. They reported that patients with higher levels of disease activity, pain and functional limitations have worse sleep scores than patients with more moderate disease severity.

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Wadeley et al. (3) assessed subjects sleep quality using Jenkins Sleep Evaluation questionnaire and reported that nearly 20% of volunteers were poor sleepers. Especially nighttime pain caused by untreated inflammation is speculated to contribute to chronic sleep disturbance (4). This trend is objectively shown in studies by the significant correlation of levels of sleep disturbance and disease activity indices (3,5).

Another facet of this problem is that sleep problems further exacerbate disease related symptoms such as pain and decreased mobility, still sleep and related problems stay a secondary outcome of most studies.

Many assessment methods have been developed to better distinguish sleep problems in this patient population. Some are more detailed and are more commonly used in clinical studies while some are easier to perform in routine day-to-day practice.

The Pittsburg Sleep Quality index is a self-reported questionnaire that assesses sleep related symptoms over a one-month period. Patients are grouped as good or poor sleepers according to their scores (6).

Medical outcomes study sleep questionnaire consists of 12 questions that assesses the duration and quality of sleep and has been previously used in different disease groups (7). Another inventory used to measure sleep quality is the Insomnia Severity index is a brief inventory 7 item questionnaire that is scored from 0 to 28 with its results denoting from absence of insomnia to severe insomnia respectively.

Hakkou et al. (2) have used the sleep item of the Hamilton Anxiety scale to assess sleep disturbances in patients with AS and they have reported that 65% of all patients complained of disturbed sleep and that pain and depression significantly correlated with these sleep patterns (8).

These data reflect that sleep problems correlate with anxiety, depression, and quality of life. These subjective areas of research show variance according to country and region and may be affected by more than disease and inflammatory activity.

To assess sleep disturbances in our patients and to lay the groundwork for a larger and detailed study, we have questioned AS patients that came to our departments of physical medicine and rehabilitation and rheumatology departments for a routine outpatient visit over a one months period with the fourth item of the Hamilton Anxiety scale (8). This way we were able to question 70 subjects. The questions were well understood by our patients and this questioning took less than 2 minutes for each patient. After routine physical examination and blood testing, we have asked subjects to rate their sleep quality between 0 and 4, 0 denoting no sleep disturbance or insomnia, and 5 meaning severe sleep disturbance. Twelve percent of subjects responded to the question as having very good sleep, meaning almost 90% suffered from some level of disordered sleep. Subjects' percentages as having mild, moderate, or severe sleep problems were 9.1, 53.8, and 20 respectively. The remaining 5.7% responded as having very severe sleep disturbance. We detected a weak but significant correlation between disease activity level

measured using Bath Ankylosing Spondylitis Disease Activity index and sleep item of the Hamilton anxiety scale ( $p < 0.05$ ,  $r = 0.34$ ). We did not detect a significant difference between sexes regarding sleep quality or disease activity.

Sleep disturbances are proposed to underlie or exacerbate many painful conditions such as fibromyalgia, mood disorders and chronic fatigue syndrome. AS, as a chronic inflammatory condition that when not managed properly causes nighttime pain, morning stiffness, limitation of physical activity and decreased mobilization. Physicians caring for patients with AS need to keep in mind that unrecognized and untreated sleep disorders may explain at least some of the wide symptomatology and challenges of this painful condition. Assessing quality of sleep in the routine clinical setting does not need to take a very long time and carries valuable information regarding patients' physical and mental wellbeing. In light of these findings, we plan in the future to study the effects of disordered sleep assessed by polysomnography on disease activity, laboratory findings and quality of life in patients with AS.

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### Authorship Contributions

Concept: E.Ç., D.K., Y.K., Design: E.Ç., D.K., Y.K., Data Collection or Processing: E.Ç., D.K., Y.K., Analysis or Interpretation: E.Ç., D.K., Y.K., Literature Search: E.Ç., D.K., Y.K., Writing: E.Ç., Y.K., D.K.

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