



SLEEP DISORDERS IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Abstract

Background: Untreated rheumatoid arthritis (RA) is a progressive, severe, lifelong illness that causes synovitis of the joints and abnormalities. Several study reported significant association between rheumatoid arthritis and sleep disorders.

Objective: To find out Sleep disorders in patients with rheumatoid arthritis

Methodology: This cross-sectional study was carried out at the department of medicine Hayatabad Medical Complex Peshawar from August 2023 to August 2024. All the data including socio-demographic information, medical history and other data related to sleep disorders were recorded on a pre-designed proforma. All the recorded information's were analyzed by employing IBM SPSS version 23

Results: In our study, totally 120 rheumatoid arthritis patients were included. The male enrolled patients in our study were 39 (46.8%) while female participants were 81 (67.5%). In our study, the frequency of insomnia, sleep apnea, Excessive daytime sleepiness, restless leg syndrome and sleep disturbance amongst rheumatoid arthritis patients was observed in 72 (60%), 42 (35%), 27 (22.5%), 72 (60%) and 27 (22.5%) respectively.

Conclusion: Our study concludes that the frequency of sleep disorders amongst rheumatoid arthritis was high. Our study recommends that special attention should be given by the treating physicians to the rheumatoid arthritis patients for sleep related disorders.

Key words: Frequency; Sleep disorders; Rheumatoid arthritis

Introduction

The main objective of using disease-modifying antirheumatic drugs for rheumatoid arthritis (RA) treatment is inducing and maintaining low disease activity¹. It is simple to see how chronic synovitis in RA may lead to joint damage and eventually affect a patient's mobility and ability to carry out everyday tasks. But RA could also have an impact on other aspects of a patient's life. For instance, persons with RA typically suffer sleep difficulties^{2,3}. In individuals with RA, poor sleep, especially excessive daytime sleepiness, can result in tiredness, which can lower job productivity, daily activity efficiency, and social functioning⁴⁻⁸. Patient-reported outcomes such as daytime sleepiness and sleep quality may be assessed using particular, validated instruments^{2,3,9}. A complicated, multifaceted result, the quality of sleep in particular may be linked different factors³. It is suspected that RA disease activity, which causes pain and the production of cytokines that have an impact on a variety of neurobiologic parameters, may be a prevalent cause of sleep disruptions. In patients with rheumatoid

arthritis, sleep disturbances may also be connected with other causes that are unrelated to the disease's activity, like depression and fatigue¹⁰⁻¹². By enabling better management of pain and disease activity, the emergence of biologic disease-modifying antirheumatic medicines has increased chances for individuals with established RA¹³. According to the searching different data bases, no study was available in our country on the frequency of sleep related disorders in rheumatoid arthritis patients. Hence this study was carried out with the objective to find out the frequency of sleep related disorders in RA patients.

Materials and methods

This cross-sectional study was carried out at the department of medicine Hayatabad Medical Complex Peshawar from August 2023 to August 2024. The overall sample size based on WHO sample size calculator was 120. The inclusion criteria for our study was all the patients of both gender and having age more than or equal to 18 years diagnosed with rheumatoid arthritis for a minimum of five years according to American Rheumatology Association and patients willing to take part in our study. The exclusion criteria of our study were all the patients with a previous history of depressive diseases, psychiatric problems, patients diagnosed with fibromyalgia, patients with a lifestyle that put them at risk of sleep problems like night shift work, patients with $> 35 \text{ kg/m}^2$ BMI and patients with sleep-associated breathing problems.

The study approval was taken from the ethical department of the hospital. After ethical approval, an informed consent was signed from all the participants of our study. All patients were assessed by physicians employing a clinical interview form and physical examination. To prevent patients' misconceptions, all questions were translated into Urdu versions. The data that was collected comprised of sociodemographic factors, medical history of the patients, the DAS 28 (Disease Activity Score), Berlin questionnaire for OSA determination, the ESS (Epworth sleepiness Scale) for daytime sleepiness, the AIS (Athens Insomnia Scale) for insomnia and the IRLSSG (International RLS Study Group) score to evaluate RLS. Laboratory testing for many disorders that impact patient sleep or verifying RA and its evaluation were conducted for all patients at the diagnostic laboratory of the hospital. DAS28, Berlin questionnaire to assess for OSA, ESS, AIS and IRLSSG was done according to the previous study¹⁴. All the recorded information's were analyzed by employing IBM SPSS version 23. For variables such as gender, disease duration and sleep disorder, frequency and percentages were determined while for other variables.

Results

In our study, totally 120 patients with rheumatoid arthritis were included. The male enrolled patients in our study were 39 (46.8%) while female participants were 81 (67.5%). (Figure 1) The mean age with standard deviation (\pm SD) in our study was 52 ± 9.27 years. Based on general age distribution of the enrolled patients, the frequency of patients in age group 18-30 years, 31-40 years, 41-50 years, 51-60 years and ≥ 61 years were 11 (9.17%), 16(13.33%), 50(41.67%), 28(33.33%) and 15(12.5%) patients respectively. (Figure 2) Based on illness duration of rheumatoid arthritis, the number of patients in illness duration 5-15 years, 16-25 and more than 25 years were 72 (60%), 42 (35%) and 6 (5%) patients respectively. (Figure 3) Based on RA disease activity, low RA disease activity was observed in 66 (55%) whereas high RA disease activity was observed in 56 (45%) patients with mean (SD) RA disease activity of 3.4 (0.5) years. (Figure 4) In our study, the frequency of insomnia, sleep apnea, Excessive daytime sleepiness, restless leg syndrome and sleep disturbance amongst rheumatoid arthritis patients was observed in 72 (60%), 42 (35%), 27 (22.5%), 72 (60%) and 27 (22.5%) respectively. (Table 1)

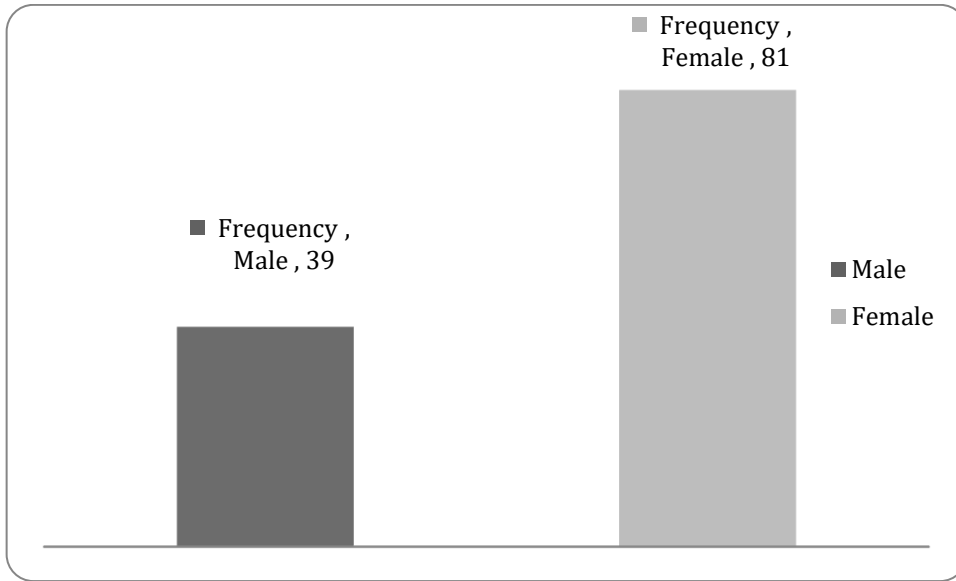


Figure 1: Frequency of male and female in our study

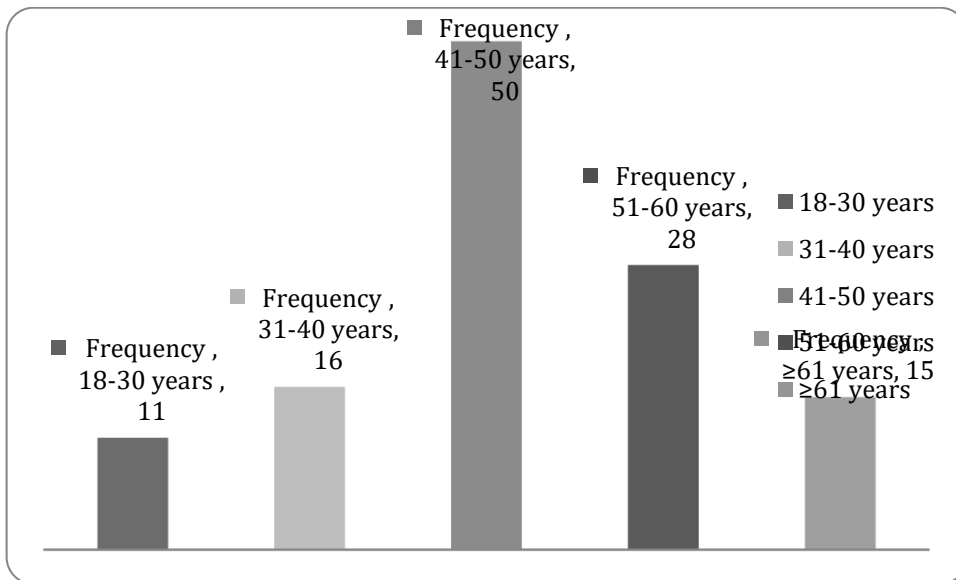


Figure 2: Frequency of patients based on age group

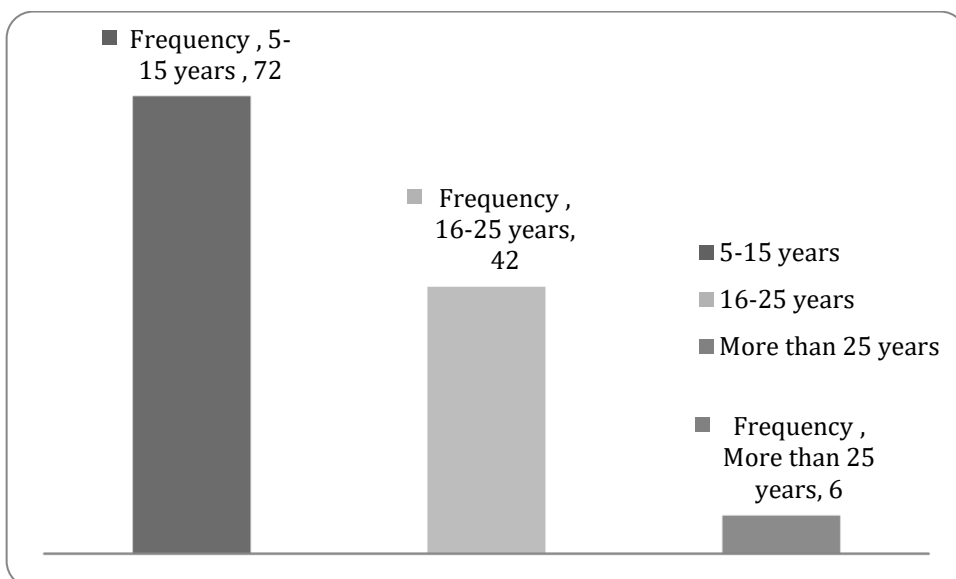


Figure 3: Frequency of patients based on disease duration

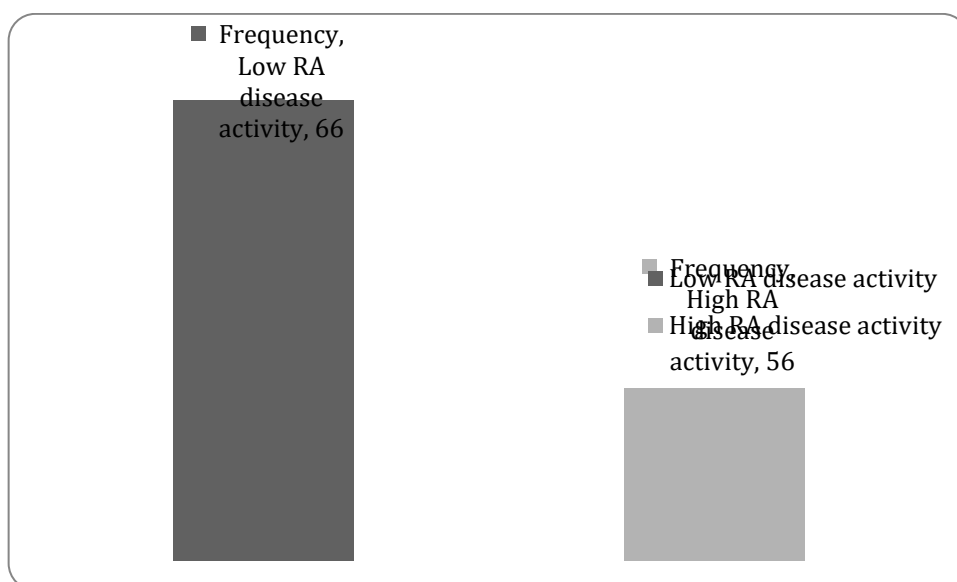


Figure 4: Frequency of patients based on RA disease activity

Table 1: Frequency of sleep related disorders rheumatoid arthritis patients

Disorders related to sleep	Sub-category	Frequency (%)
Insomnia	Yes	72 (60%)
	No	48 (40%)
Sleep apnea	Yes	42 (35%)
	No	78 (65%)
Excessive daytime sleepiness	Yes	27 (22.5%)
	No	93 (77.5%)
Restless leg syndrome	Yes	72 (60%)
	No	48 (40%)
Sleep disturbance	Yes	27 (22.5%)
	No	93 (77.5%)

Discussion

Untreated rheumatoid arthritis (RA) is a progressive, severe, lifelong illness that causes synovitis of the joints and abnormalities. Several more articular manifestations are linked to it in addition to articular discomfort. Due to the elevated cardiovascular risk, RA has a significant negative influence on life quality and may possibly cause early death¹⁵. The global prevalence of RA is 0.5–1%^{15,16}. In our study, totally 120 patients with rheumatoid arthritis were included. The male enrolled patients in our study were 46.8% while female participants were 67.5%. The mean age with standard deviation (\pm SD) in our study was 52 ± 9.27 years. Based on general age distribution of the enrolled patients, the frequency of patients in age group 18-30 years, 31-40 years, 41-50 years, 51-60 years and ≥ 61 years were 9.17%, 13.33%, 41.67%, 33.33% and 12.5% patients respectively. Based on illness duration of rheumatoid arthritis, the number of patients in illness duration 5-15 years, 16-25 and more than 25 years were 60%, 35% and 5% patients respectively. Based on RA disease activity, low RA disease activity was observed in 55% whereas high RA disease activity was observed in 45% patients with mean (SD) RA disease activity of 3.4 (0.5) years. In our study, the frequency of insomnia, sleep apnea, Excessive daytime sleepiness, restless leg syndrome and sleep disturbance amongst rheumatoid arthritis patients was observed in 72 (60%), 42 (35%), 27 (22.5%), 72 (60%) and 27 (22.5%) respectively. A similar study was performed in Saudi Arabia, in which they reported 8.4% frequency of sleep disorder (restless leg syndrome) in rheumatoid arthritis patients which is not in accordance with our findings¹⁷. This greater incidence can be attributed to the significant risk of iron deficiency anemia caused by long-term NSAID usage in RA patients^{18,19}. A study carried out on Saudi population reported insomnia amongst 77% of the rheumatoid arthritis patients which is in accordance

with our findings²⁰. Another study done by Freitas et al. reported insomnia amongst 55% of the rheumatoid arthritis patients which is also in accordance with our findings²¹. Another study carried out by Westhovens et al. also reported significant association between RA and insomnia²². Sleep apnea was observed in 75% of the rheumatoid arthritis patients in a study done by Reading et al. which is not in accordance with our results²³. Another study reported positive linkage between sleep apnea and rheumatoid arthritis²³. In a previous excessive daytime sleepiness was observed in 20% of the rheumatoid arthritis patients which is almost similar with our findings²⁴. Another study carried out by Abbasi et al. reported excessive daytime sleepiness in 24% of the rheumatoid arthritis patients which is also in accordance with our findings²⁵.

Conclusion

Our study concludes that the frequency of sleep related disorders amongst rheumatoid arthritis was high. Our study recommends that special attention should be given by the treating physicians to the rheumatoid arthritis patients for sleep related disorders.

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