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Original article

Rheumatoid arthritis and sleep quality

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ABSTRACT

Background: Sleep disturbances are common in rheumatoid arthritis (RA) patients and contribute to loss of life quality.

Objective: To study associations of sleep quality with pain, depression and disease activity in RA.

Methods: This is a transversal observational study of 112 RA patients submitted to measurement of DAS-28, Epworth scale for daily sleepiness, index of sleep quality by Pittsburg index, risk of sleep apnea by the Berlin questionnaire and degree of depression by the CES-D (Center for Epidemiologic Studies Depression scale) questionnaire. We also collected epidemiological, clinical, serological and treatment data.

Results: Only 18.5% of RA patients had sleep of good quality. In univariate analysis a bad sleep measured by Pittsburg index was associated with daily doses of prednisone ($p = 0.03$), DAS-28 ($p = 0.01$), CES-D ($p = 0.0005$) and showed a tendency to be associated with Berlin sleep apnea questionnaire ($p = 0.06$). In multivariate analysis only depression ($p = 0.008$) and Berlin sleep apnea questionnaire ($p = 0.004$) kept this association.

Conclusions: Most of RA patients do not have a good sleep quality. Depression and risk of sleep apnea are independently associated with sleep impairment.

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Artrite reumatoide e qualidade do sono

Palavras-chave:
Artrite reumatoide
Sono
Apneia do sono
Depressão
Dor

RESUMO

Antecedentes: Os distúrbios do sono são comuns em pacientes com artrite reumatoide (AR) e contribuem para a perda da qualidade de vida.

Objetivo: Estudar as associações entre a qualidade do sono e a dor, depressão e atividade da doença na AR.

Métodos: Estudo observacional transversal com 112 pacientes com AR submetidos à avaliação do DAS-28, escala de Epworth para sonolência diurna, qualidade do sono pelo índice de Pittsburg, risco de apneia do sono pelo questionário de Berlim e grau de depressão pelo questionário CES-D (*Center for Epidemiologic Studies Depression*). Também foram coletados dados epidemiológicos, clínicos, sorológicos e de tratamento.

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Resultados: Apenas 18,5% dos pacientes com AR tinham uma boa qualidade do sono. Na análise univariada, um sono ruim medido pelo índice de Pittsburg esteve associado à dose diária de prednisona (p = 0,03), DAS-28 (p = 0,01), CES-D (p = 0,0005) e mostrou uma tendência a estar associado à apneia do sono pelo questionário de Berlim (p = 0,06). Na análise multivariada, somente a depressão (p = 0,008) e a apneia do sono pelo questionário de Berlim (p = 0,004) mantiveram essa associação.

Conclusões: A maior parte dos pacientes com AR não tem uma boa qualidade de sono. A depressão e o risco de apneia do sono estão independentemente associados ao comprometimento do sono.

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Introduction

Patients' well-being is a major concern in rheumatoid arthritis (RA). Patients with RA suffer from a variety of symptoms such as joint pain and swelling, stiffness, fatigue and functional disability, that impair their quality of life. Sleep disturbances are also common in this population and contribute to the problem.[1] Several studies have found sleep fragmentation, low sleep efficiency, frequent awakenings and poor sleep quality in this group of patients.[1–3]

Nicassio et al.[4] consider pain and sleep disturbance to be closely linked. However it is difficult to know which one is the primary problem. Although the inflammatory process brought by RA activity is responsible for pain initiation, investigators have found that, in some patients, pain intensity may be out of proportion to the severity of inflammation.[5] It is believed that this is due to central nervous system pain amplification, mainly due to diminished conditioned pain modulation.[5] Psychological distress, most notably depression and/or anxiety is another variable implicated in this relationship.[1,4]

To look further into this issue, we have studied a sample of RA Brazilian patients in order to clarify the associations of sleep quality with pain, depression and disease activity.

Methods

After approval of the local Committee of Ethics in Research and signed consent from patients we studied 112 RA patients from a single University Center. This was a convenience sample of patients that came for regular consultations in the period of one year and accepted to participate in the study. All subjects had to fulfill at least four 1987 ACR criteria for RA classification.[6] We excluded patients with age under 18 years, with disease beginning before 16 years, pregnant women, those with uncontrolled thyroid disease or with other chronic inflammatory condition and those using sleep inductor medications. We collected demographic, clinical and serological data, values of hemoglobin, ESR (erythrocyte sedimentation rate), CRP (C reactive protein) and DAS-28. Diurnal somnolence was evaluated by the Epworth scale,[7] the index of sleep quality by the Pittsburg index,[8] and the risk of sleep apnea by the Berlin questionnaire.[9] Depression was measured by the CES-D Questionnaire or Center for Epidemiologic Studies Depression scale.[10] All the applied instruments were translated and validated for the Portuguese language. Fatigue and global health were measured by a visual analogic scale from 0 (none) to 100 (maximal).

Patients were divided in those with good and poor sleep quality according to the Pittsburg index (equal or lower than 5 = good sleep; >5 = sleep disorder) and these two samples were compared. For this comparison we used Fisher and chi-squared tests for nominal data and Mann Whitney and unpaired t test for numerical data. Associations with $p \leq 0.10$ were studied through linear regression to test the variables independence. Significance adopted was of 5%.

Results

Overview of studied sample and prevalence of sleep disturbances

In the 112 RA patients, 83.1% were female, with age ranging from 21 to 77 years (mean 55.4 ± 10.9 years) and disease duration from 9 months to 53 years (median 11 years; IQR or interquartile rate = 5–18). Auto declared Afro descendants were 19.6%; 1.7% Asiatic descendants and 78.5% Caucasians. Tobacco exposure occurred in 39.2% while 60.3% never smoked. The body mass index varied from 17.3 to 46.4 kg/m^2 (median of 27.5; IQR = 24.3–31.5 kg/m^2). Rheumatoid factor (RF) was present in 59.6%; anti-CCP in 47.6%; ANA (antinuclear antibody) in 34.9%.

Treatment profile at the time of study showed that prednisone was used in 71.4% (doses from 5.0 to 60.0 mg; median 5.0; IQR = 5.0–10.0); methotrexate in 73.2%, antimalarial in 21.4%, leflunomide in 43.7%, anti TNF-alpha in 5.3% and abatacept in 2.6%.

Table 1 shows the results of laboratory tests and applied questionnaires.

Comparison study of RA patients with good and poor sleep quality

Studying the comparison of patients with and without good sleep quality according to the Pittsburg index we obtained the results in Table 2.

The result of DAS 28 (ESR) in the samples with and without good sleep quality is seen in Fig. 1.

The comparison of VAS fatigue, Epworth sleepiness scale and Berlin sleep apnea screening questionnaire showed

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