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Brief communication

The influence of physical function on the risk of falls among adults with rheumatoid arthritis[☆]



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ABSTRACT

Objectives: Identify fall prevalence in the last 12 months among patients with rheumatoid arthritis (RA) and verify the influence of disease activity and physical function in the risk of falls.

Methods: 43 patients with RA participated in this study. The following parameters were evaluated: clinical aspects; fall occurrence in the last 12 months; ESR (mm/h); pain on a visual analogue scale (VAS) ranging from 0 to 10 cm; disease activity, measured by the Disease Activity Score 28/ESR (DAS-28/ESR); physical function, assessed by the Health Assessment Questionnaire (HAQ); and risk of falling, assessed by two tests, the 5-time sit down-to-stand up test (SST5) and the get up and go timed test (GUGT).

Results: The fall prevalence in the last 12 months was 30.2% (13/43). The HAQ total score was the independent risk factor that had significant influence on SST5 performance, and the other variables did not succeed to explain the SST5 variability. HAQ explained 42.9% of SST5 variability ($P < 0.001$, adjusted $R^2 = 0.429$). HAQ total score and ESR had a significant influence on GUGT score performance. Together, these two variables explained 68.8% of the total variation in GUGT score (adjusted $R^2 = 0.688$).

Conclusion: Patients with RA have high fall prevalence and the functional disability represents the main factor related to falls risk.

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Influência da capacidade funcional no risco de quedas em adultos com artrite reumatoide

R E S U M O

Objetivos: Identificar a prevalência de quedas nos últimos 12 meses em pacientes com artrite reumatoide (AR) e verificar a influência da atividade da doença e da capacidade funcional no risco de quedas.

Palavras-chave:

Artrite reumatoide

Quedas

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Capacidade funcional
Atividade da doença

Pacientes e métodos: Participaram do estudo 43 pacientes com AR. Foram avaliados os seguintes parâmetros: aspectos clínicos; ocorrência de quedas nos últimos 12 meses; VHS (mm/h); dor, através da escala visual analógica (EVA) com escore de 0 a 10 cm; atividade da doença, medida pelo Índice de Atividade da Doença – 28/VHS (*Disease Activity Score 28 – DAS-28/VHS*); capacidade funcional, avaliada pelo Questionário de Avaliação da Saúde (*Health Assessment Questionnaire – HAQ*); e o risco de quedas, avaliado por meio de dois testes, o teste senta-levanta da cadeira cinco vezes (TSL) e o teste *get up and go timed test* (GUGT).

Resultados: A prevalência de quedas nos últimos 12 meses foi de 30,2% (13/43). O fator independente que influenciou significativamente o desempenho no TSL foi o escore total do HAQ, sendo que as demais variáveis não conseguiram contribuir de forma significativa na explicação da variabilidade no TSL. A variável HAQ foi responsável por explicar 42,9% ($P < 0,001$, R^2 ajustado = 0,429) da variabilidade do TSL. As variáveis HAQ e VHS influenciaram de forma significativa o desempenho no escore do GUGT. Esses dois fatores em conjunto foram capazes de explicar 68,8% da variabilidade do GUGT (R^2 ajustado = 0,688).

Conclusões: Pacientes com AR têm prevalência de quedas aumentada, sendo a incapacidade funcional o principal fator relacionado ao risco de quedas.

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Introduction

Patients with rheumatoid arthritis (RA) are in increased risk of falls, as they often experience muscle weakness, joint pain or stiffness and disorders of balance and gait. The risk of falling is even greater when there is involvement of the lower extremities.¹⁻³

Studies in this population demonstrate an increased rate of falls, from 27-50% over a year of research.³⁻⁷ However, due to shortage of papers on this subject, the prevalence of falls may be underestimated.¹

Falls are the leading cause of accidental death in people over 65 years old.⁸ Approximately 40-60% of falls among the elderly lead to some kind of injury. Of the total injuries, 30 to 50% are considered of minor severity, 5-6% are considered as more serious injuries and 5% result in fractures.⁸⁻¹⁰

Few studies involving patients with RA have focused on the evaluation of falls, despite being considered a population at risk.¹

Thus, the purpose of this study was to identify the prevalence of falls in a period of 12 months, in addition to verifying the influence of disease activity and of functionality in the risk of falls in patients with rheumatoid arthritis.

Patients and methods

Patients and Procedures

This study has a cross-sectional design.

Patients in our referral center with a diagnosis of RA according to American College of Rheumatology criteria (ACR, 1987)¹¹ were included after signing the free informed consent term. The study was approved by the local Research Ethics Committee (Protocol No. 013/2012).

Exclusion criteria were: age under 30 years; hospitalization due to acute illness in the previous six months from the interview; and presence of any temporary disability preventing the

participant from performing the mobility tests. The subjects were first asked to answer a questionnaire about: (1) identification data; (2) duration of illness; (3) presence of comorbidities; (4) use of a gait supportive gear; (5) history of arthroplasty; (6) history of falls in the past 12 months; (7) occurrence of fractures secondary to falls; (8) lifestyle; and (9) current medications.

To evaluate the activity of RA, the following variables were used: ESR (mm/h); pain using a visual analog scale (VAS) with a score of 0 to 10 cm; and Index of Disease Activity-28/ESR (*Disease Activity Score 28 - DAS-28/ESR*).¹²

The assessment of functional capacity of patients was estimated by the Health Assessment Questionnaire - HAQ.

To assess the risk of falls and the mobility of patients, two tests were performed: (1) 5-time sit down-to-stand up test (SST5) and (2) get up and go timed test (GUGT).

The 5-time sit down-to-stand up test (SST5) is used to assess the muscle strength of lower limbs, mobility and risk of falls.^{13,14} In this test, the subject begins sitting on the center of a chair with his/her spine erect, feet separated by a distance equivalent to the distance between the shoulders, and arms folded across the thorax. Then the patient is asked to stand up and sit down on the chair five times as quickly as he/she can, without using his/her arms.¹³

The get up and go timed test (GUGT) is used to identify patients at risk of falls and for mobility restrictions.^{8,15} In this test, the subject begins in a seated position with his back against the backrest of the chair, being asked to stand up (his/her arms can be used), walk for a distance of three meters in his/her usual gait speed, turn around, return to the chair and sit in the start position.¹⁵

The time spent to complete SST5 and GUGT tests is timed, and the longer the time, the worse the mobility of the subject.

Statistical analysis

It was performed a regression analysis via Quasi-Likelihood method with variance function proportional to the mean and

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