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### **Review article**

# Monitoring the functional capacity of patients with rheumatoid arthritis for three years



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#### ABSTRACT

Objective: To quantify modification of functional capacity in a three-year period in a group of patients with rheumatoid arthritis (RA) using HAQ and EPM-ROM inventories.

Methods: Forty patients with RA on methotrexate (MTX) as disease-modifying antirheumatic drug (DMARD) were followed for up to three years. The functional status was assessed at the beginning and end of the period by HAQ and EPM-ROM.

Results: Thirty-two patients were retrieved, with initial HAQ score of 1.14  $\pm$  0.49 (mean  $\pm$  SD) and EPM-ROM score of 5.8  $\pm$  2.75. After an average period of three years, the HAQ score was 1.13  $\pm$  0.49 and EPM-ROM score, 6.81  $\pm$  3.66. In the subgroup of seven patients submitted to orthopedic surgery, HAQ score decreased from 0.84  $\pm$  0.72 to 1.64  $\pm$  0.56 and the EPM-ROM score, from 5.8  $\pm$  1.80 to 8.3  $\pm$  0.74. In the subgroup of non-operated patients, HAQ score varied from 1.2  $\pm$  0.45 to 1.07  $\pm$  0.70 and EPM-ROM score, from 5.7  $\pm$  3.06 to 6.4  $\pm$  3.90.

Conclusion: In a group of RA patients in use of only MTX as DMARD, there was little change on HAQ score and EPM-ROM scores over the average period of three years. Worsening functional capacity was observed in the group of operated patients in comparison to the not operated ones. This fact alerts us to the need for use of broader therapeutic regimens availability of musculoskeletal surgeries in a timely manner in patients with RA.

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## Acompanhamento da capacidade funcional de pacientes com artrite reumatoide por três anos

RESUMO

Palavras-chave: Artrite reumatoide Capacidade funcional HAQ EPM-ROM Objetivo: Quantificar a modificação da capacidade funcional em um período de três anos em um grupo de pacientes com artrite reumatoide (AR), utilizando os inventários HAQ e EPM-ROM.

Métodos: Quarenta pacientes com AR em tratamento com metotrexato (MTX) como fármaco antirreumático modificador da doença (DMARD) foram acompanhados por até três anos. O estado funcional foi avaliado no início e no final do período por HAQ e EPM-ROM.

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Resultados: Trinta e dois pacientes foram recuperados, com escore HAQ inicial de 1,14 $\pm$ 0,49 (média $\pm$ DP) e EPM-ROM de 5,8 $\pm$ 2,75. Após um período médio de três anos, o HAQ foi de 1,13 $\pm$ 0,49 e EPM-ROM em 6,81 $\pm$ 3,66. No subgrupo de sete pacientes submetidos a cirurgia ortopédica, o HAQ diminuiu de 0,84 $\pm$ 0,72 para 1,64 $\pm$ 0,56; e o EPM-ROM, de 5,8 $\pm$ 1,80 para 8,3 $\pm$ 0,74. No subgrupo de pacientes não operados, o HAQ variou de 1,2 $\pm$ 0,45 para 1,07 $\pm$ 0,70; e o EPM-ROM, de 5,7 $\pm$ 3,06 para 6,4 $\pm$ 3,90.

Conclusão: Em um grupo de pacientes com AR medicados apenas com MTX como DMARD, houve pouca mudança nas pontuações HAQ e EPM-ROM durante o período médio de três anos. Observou-se agravamento da capacidade funcional no grupo de pacientes operados, em comparação com os não operados. Este fato nos alerta para a necessidade do uso de esquemas terapêuticos mais abrangentes e de maior disponibilidade de cirurgias musculoesqueléticas, em tempo hábil, em pacientes com AR.

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### Introduction

Rheumatoid arthritis (RA) is a chronic inflammatory disease in which the joint inflammation presents as synovitis. The inflammation causes joint pain, swelling, and stiffness, as well as systemic symptoms such as fatigue, weight loss and anemia. The synovitis is the main factor that leads to joint destruction and, if untreated, may progress to serious joint damage, with loss of functional capacity.<sup>1</sup>

RA is a condition that affects approximately 0.5–1% of the adult population worldwide, and its occurrence is observed in all ethnic groups. There is a predominance of females (two to three times, compared to males), occurring mainly in patients between the fourth and sixth decades of life, although there are occurrences of RA in all age groups.<sup>2</sup>

The negative consequences for physical functioning in RA patients are multidimensional, with loss of muscle strength and endurance, besides the loss of range of motion (ROM) of joints, due to changes caused by the disease. For a proper understanding of the situation of the patient, a multifaceted view is required, because the only use of laboratory tests will not allow a comprehensive assessment of his/her functional capacity.<sup>3</sup>

Functional capacity is a key factor of morbidity and a predictor of mortality<sup>4</sup> in RA patients. The Health Assessment Questionnaire (HAQ) is a commonly used tool to assess the functional status in RA patients, but some studies have shown an inverse relationship between sensitivity to change in HAQ and disease duration, so that the duration of the disease influences the degree of functional improvement.<sup>5</sup>

HAQ was developed by Fries et al. (1980)<sup>6</sup> to assess functional capacity in RA; and the dysfunction occurs early in the disease, due to factors that are not entirely clear.

The pain per se can lead to functional loss, even in the absence of radiological changes, which only become evident with the persistence of synovitis. HAQ has been translated and validated into many languages, including Brazilian Portuguese by Ferraz et al. in 1990.

Functional capacity in RA can also be assessed by EPM-ROM, which is a standardized measure of the potential range of motion of joints in upper and lower limbs. The scale assesses ROM of 10 large-and-small, right-and-left joints by using a goniometer. 10

The progression of joint dysfunction occurs in a subclinical, slow and progressive way in the different stages of the disease, which complicates the acceptance of surgical indication by RA patients. However, the indication of surgery must be done early, in order to avoid the onset of joint deformities.<sup>11</sup>

In our environment, there are no studies on the long-term outcome of functional capacity in RA patients who were not treated with biologicals. This study portrays the situation of availability of musculoskeletal surgeries performed in a timely fashion in patients seen in the Public Health Service.

"In our country there are no studies on the long-term outcome of functional capacity of patients with RA taking biologic medication. This study portrays the situation of availability of musculoskeletal surgeries in a timely fashion in patients seen in the Public Health Service. Considering that HAQ and EPM-ROM may reflect the changes in functional capacity over time, 12 this study assessed the modification of the indices in question as a result parameter of indication of orthopedic surgery within a 3-year period in RA patients."

### **Objectives**

This study aims to quantify the change in the functional capacity of RA patients treated routinely at our Service of Rheumatology, Universidade Federal de São Paulo.

### Methods

This prospective study involved 40 RA patients according to American College of Rheumatology criteria, <sup>13</sup> all aged over 18 years at disease onset. All patients were informed on the content of the research and agreed to participate in the study by signing a consent form. RA patients in functional classes 2 and 3<sup>14</sup> treated with corticosteroids, nonsteroidal anti-inflammatory drugs, and methotrexate as disease-modifying antirheumatic drug (DMARD) were included in this study. Patients who used other DMARDs, or those with some pathology that would interfere with their movement, e.g., other musculoskeletal or neurological disorders, fractures with joint deformity, or with congenital malformation were excluded. Patients with diabetes mellitus and alcohol or illegal drug

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