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Original article

Brief Michigan Hand Outcomes Questionnaire in rheumatoid arthritis: A cross-sectional study of 100 patients

Le Michigan Hand Outcomes Questionnaire abrégé dans la polyarthrite rhumatoïde : étude transversale portant sur 100 patients

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Abstract

Studies focused on rheumatoid hand (RA) function are rare. The aims of our study were to evaluate the function of both hands during RA and investigate possible predictive factors associated with their damage. One hundred patients were enrolled consecutively between December 2013 and March 2014. Their hand function was evaluated with the brief Michigan Hand Outcomes Questionnaire (bMHQ). In 85 women and 15 men with a mean age of 55 years, the mean bMHQ was 42.43 ± 21.19 for the right hand and 44.09 ± 20.29 for the left hand. Being ≥ 65 years was associated with lower scores ($P = 0.003$ for both hands), as was a disease duration of more than 2 years ($P = 0.006$ right hand, $P = 0.016$ hand left), a high DAS28 ($P = 0.022$ right hand, $P = 0.032$ left hand), and joint deformity ($P = 0.000$ for both hands). Treatment with biologics was associated with the highest scores ($P = 0.000$). Physical therapy, occupational therapy, splints ($P = 0.034$, 0.048 and 0.020, respectively) and surgery ($P = 0.012$) were also associated with the highest scores. Age, disease duration, disease activity score and deformity were associated with the lowest bMHQ scores in RA patients. RA-specific treatment and hand therapy were associated with the highest scores.

Keywords: Rheumatoid arthritis; Hand; Brief Michigan Hand Outcomes Questionnaire; Disability assessment; Quality of life

Résumé

Peu d'étude se sont intéressées à l'évaluation de la fonction de la main rhumatoïde. Les objectifs de ce travail étaient d'évaluer la fonction des deux mains au cours de la polyarthrite rhumatoïde (PR) et d'étudier les éventuels facteurs prédictifs liés à son altération. Cent patients ont été inclus de façon consécutive entre décembre 2013 et mars 2014. L'évaluation de la fonction des mains était basée sur le Michigan Hand Outcomes Questionnaire abrégé. Chez 85 femmes et 15 hommes d'âge moyen 55 ans, le score moyen du Michigan Hand Questionnaire abrégé était de 42,43 ± 21,19 pour la main droite et de 44,09 ± 20,29 pour la main gauche. L'âge ≥ 65 ans était associé aux moyennes les plus basses du score ($p = 0{,}003$ mains droite et gauche), de même pour la durée d'évolution de la maladie supérieure à deux ans ($p = 0{,}006$ main droite, $p = 0{,}016$ main gauche), pour le DAS-28 élevé ($p = 0{,}022$ main droite et 0,032 main gauche), ainsi que pour les déformations articulaires ($p = 0{,}000$ pour les deux mains). La biothérapie était associée aux moyennes les plus élevées ($p = 0{,}000$). La kinésithérapie, l'ergothérapie, les orthèses (p était respectivement de 0,034, 0,048 et 0,020) et la chirurgie ($p = 0{,}012$) étaient aussi associées aux moyennes les plus élevées. L'âge, la durée

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d'évolution, l'activité de la maladie, la présence de déformations étaient associées aux moyennes les plus basses du Michigan Hand Outcomes Questionnaire abrégé au cours de la PR. Le traitement de la maladie et celui dédié à la main étaient associés aux moyennes les plus élevées.

Mots clés : Polyarthrite rhumatoïde ; Main ; Michigan Hand Outcomes Questionnaire abrégé ; Évaluation de l'incapacité ; Qualité de vie

1. Introduction

The hand is one of the most commonly affected regions by rheumatoid arthritis (RA) (90% of cases) and often reveals the disease [1]. The involvement of small joints gradually disrupts the dynamic equilibrium of the hand. This results in joint deformities leading to a significant functional impact [2]. The functional disability resulting from hand involvement in RA directly affects activities of daily living and has psychological, professional and social impacts.

Lately, there has been a growing interest in outcomes based on the patient's overall assessment and their quality of life evaluation, incorporating a new concept for the management of RA called ''treat to target'' [3]. Treatment goals have changed with the advent of biologic therapy, which is the most significant advance in RA treatment [4]. These aim to achieve early remission of the disease to prevent erosions and joint deformities, and limit functional disability. Evaluation of these treatment goals is increasingly based on disease activity scores and functional scores. In the management of rheumatoid hands, these functional scores help guide multidisciplinary care, involving not only the general practitioner and rheumatologist, but also the rehabilitation physician, occupational therapist, physical therapist, orthopedic surgeon, plastic surgeon, psychologist and social worker [5–8].

Thus, RA management is no longer limited to controlling the disease activity — it now aims to improve overall patient satisfaction. Nevertheless, evaluating the extent of disability, quality of life and functional impairment caused by the hand involvement is still difficult.

Several studies have focused on the quality of life of patients suffering from RA [9–12], but few of them have focused on the main disability caused by impairment of the hands. This led us to conduct this study. The aims were to evaluate the overall function of both hands in a population with RA, using the brief Michigan Hand Outcomes Questionnaire (bMHQ) [13], and to investigate whether any social, demographic, clinical, laboratory, radiological and therapeutic factors were correlated with their functional impairment.

2. Patients and methods

2.1. Patients

An analytical cross-sectional study of 100 RA patients was conducted over a period of four months from December 2013 to March 2014. Both male and female patients with RA, diagnosed according to the 2010 American College of Rheumatology (ACR) and the European League against Rheumatism (EULAR) criteria [14] were included consecutively. The presence of other neurological, rheumatologic, traumatic or infectious lesions, which can worsen hand lesions, was an exclusion criterion.

2.2. Population characteristics

For each patient, social and demographic data (gender, age, living conditions, educational level, occupation and type of insurance coverage), clinical data (laterality, RA disease duration, articular and synovial EULAR index for the hands, disease activity (DAS28: disease activity score in 28 joints [15], types of deformities and extra-articular manifestations), laboratory data (erythrocyte sedimentation rate [ESR] [16], rheumatoid factor [RF], anti-citrullinated peptide antibodies [ACPA], anti-nuclear antibodies [ANA]), radiographic data (structural damage in the hands based on the Sharp score [17]) and therapeutic data (medication: symptomatic treatment, conventional and biologic disease-modifying antirheumatic drugs and hand-specific treatments: physical therapy, occupational therapy, splints, hand surgery, psychotherapy) were collected. The quality of life was evaluated using the Tunisian version of the Health Assessment Questionnaire (HAQ) [18].

2.3. Study of hand function

A functional assessment of the hands was conducted using the brief MHQ [13]. The original version of the MHQ is one of the most used questionnaires for evaluating overall hand function. It includes 37 questions divided into 6 domains (overall function, pain, work, daily life activities, satisfaction and esthetics). It can be used in all patients with acute or chronic disorders of the hands [19]. The simplified version of the MHQ was used in our study; it consists of 12 questions, two in each domain. Each item is scored from 0 to 5. After normalization, the final score is calculated on a scale from 0 (poorest function) to 100 (ideal function) [13]. The bMHQ was developed based on the concept of retention. This technique identifies the two most highly correlated items with the original MHQ score to include them in the final version. This method is subjective compared to other psychometric approaches. This questionnaire was translated into Tunisian dialect (but not validated), to make it easier for our patients to understand the questions. For illiterate patients, the questions were explained and noted on the grid by the examiner.

2.4. Statistical analysis

Data were coded and analyzed using SPSS 17 software. A descriptive study was conducted. Then, a univariate analysis

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