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Research Article

Foot Health Education During Rheumatoid Arthritis: Assessment of Rheumatology Residents' Perceptions

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Abstract

Introduction: Patient education promotes self-management of the disease in general and, concerning foot problems, it is recommended as a key intervention for people with rheumatoid arthritis (RA). Rheumatologists are the main healthcare professionals who manage RA-related foot pathology and provide foot health education (FHE).

The Study Aims: Assess rheumatology residents' knowledge and perceptions of rheumatoid foot health education, and to identify the factors associated with variation in responders' knowledge.

Materials and Methods: An online survey of 50 rheumatology residents was used to collect data on the aims, methods, content, and barriers of rheumatoid foot health education. Data were analyzed to assess the factors associated with variation in responders' knowledge.

Results: A total of 35 residents responded (Response rate: 70%). The majority of respondents strongly agreed or agreed with all the objectives of foot health education. Just 54.3% of respondents provided foot health education for their patients. The majority of respondents agreed with the content of the education. More than half of our respondents (54.3%) felt that they did not know enough about the effect of RA on the feet to be able to provide effective foot health education. Respondents with professional seniority of 2 years or more or with a post-graduate certificate in podology: provided more foot health education to their patients, had sufficient knowledge, and agreed more on the objectives.

Conclusion: Lack of time and difficult access to information are perceived as obstacles. The development of rheumatoid foot health education sessions and an audiovisual educational aid could improve patient management.

Keywords: Rheumatoid Arthritis; Foot Health; Patient Education; Health Care Providers

Introduction

Foot health education in rheumatoid arthritis (RA) is recommended as a key intervention for people with foot involvement, to promote RA self-management and prevent complications [1,2]. Rheumatologists are ideally placed to provide foot health education (FHE), as they are the mainstay of RA management [2,3]. Up to 80% of people with RA will develop foot-related pathology throughout the disease, even when the disease is in remission [4-6]. Hence the importance of comprehensive management of the rheumatoid foot, and the inclusion of FHE as an intervention in its own right.

Several studies have shown that patient education and training in disease self management is effective in improving patient knowledge [7], disease activity scores, functional prognosis [8], mental health [9], and pain reduction [10]. There are no specific FHE interventions for people with RA [11,12]. This is why it is necessary to understand what its key components are, and what the current state of play is in terms of FHE given to patients.

We know from previous work what people with RA need in terms of FHE [1,13,14]. However, given that rheumatologists, and in particular residents, are the key players in the FHE of the RA patient, we need to know the methods, content, and effectiveness of this management.

We therefore conducted this study with the following objectives:

- Evaluate rheumatology residents' knowledge and perceptions of rheumatoid foot health education.
- Identify the current status of FHE provided to patients with rheumatoid arthritis and the factors associated with variation in responders' knowledge.

Materials and Methods

Type of study

This is a cross-sectional observational study. An online questionnaire survey was conducted from August 15, 2023, to September 15, 2023.

Study population

We included all Tunisian rheumatology residents. We excluded physicians from other specialties.

Data collection

Data were collected using an online questionnaire in French via Google Forms including the following parameters: responders' demographic characteristics, their knowledge of the objectives, means, and content of foot health education in patients with rheumatoid arthritis.

Epidemiological data

We collected: Age, gender, sector of activity, place of practice, number of years in practice from the start of residency, and post-graduate degrees.

Objectives of foot health education in patients with rheumatoid arthritis.

Five FHE objectives were proposed to respondents, with 5 response options: Strongly agree, agree, don't know, disagree, and strongly disagree.

Methods of foot health education in RA

Five methods of PHE were proposed to the respondents, to which they were asked to answer yes or no. 3.4. Health education content.

Six PHE topics were proposed to respondents, with 3 possible answers: very important, important, and not very important.

Timing of foot health education in RA

Respondents were asked about four possible times to provide foot health education, with 5 possible answers: Strongly agree, agree, don't know, disagree, strongly disagree.

Barriers to foot health education in RA

Six barriers to PHE were proposed to respondents, with 5 response options: Strongly agree, agree, don't know, disagree, and strongly disagree.

Statistical analysis

Results were analyzed using IBM SPSS for Windows version 21.0. Qualitative variables were expressed in terms of frequencies and percentages. Quantitative variables were expressed as means with standard deviations. For the analysis of the association between two qualitative variables, we used Pearson's chi2 test for the comparison of two frequencies in the case of verified application conditions, and Fischer's test in the opposite case.

To analyze the association between a qualitative and a quantitative variable, we used the Student test to compare two means and the ANOVA test to compare several means in the case of a normal distribution, and the non-parametric Mann Witney and Kruskal Wallis tests respectively in the opposite case.

We have retained the significance level for $p \leq 5\%$.

Results

The online questionnaire was sent to 50 rheumatology residents, and a total of 35 residents responded (Response rate: 70%).

Epidemiological data

The average age of our patients was 28 ± 2.9 years, with extremes ranging from 24 to 42 years. Women represented 91.4% of responders and men 8.6% of responders, with a sex ratio (M/F) equal to 0.09. All residents worked in urban areas. 94.3% of them worked in teaching hospitals and 5.7% in regional hospitals. Geographical distribution was as follows: 57.1% in the north, 34.3% in the Sahel and 8.6% in the south. Over half the respondents (57.1%) had less than or equal to 2 years' experience as a rheumatology resident. Residents with a post-graduate certificate in podiatry accounted for 42.9%.

Objectives of foot health education for patients with rheumatoid arthritis.

The majority of respondents strongly agreed or agreed with all the objectives of FHE. Preventing foot complications was the objective with the highest number of votes (94.28%) (table 1).

Questions	Strongly agree	Agree	Don't know	Disagree Strongly	disagree
Inform patients about how RA can affect their feet	68,6% 24	22,9% 8	5,7% 2	2,9% 1	0% 0
Facilitating informed choices about treatment options	60% 21	31,4% 11	8,6% 3	0% 0	0% 0
Enable patients to self-manage their foot health	34,3% 12	57,1% 20	8,6% 3	0% 0	0% 0
Preventing foot complications	65,7% 23	28,6% 10	5,7% 2	0% 0	0% 0
Inform patients about information resources available to them	42,9% 15	37,1% 13	17,1% 6	2,9% 1	0% 0

Table 1: The objectives of foot health education in patients with rheumatoid arthritis.

Methods and content of foot health education in rheumatoid arthritis

Just over half or 54.3% of responders provided FHE for their patients. Verbal information was the most common method used by 88.2% of respondents. The majority of respondents agreed on the content of the FHE. The most important items were: learning about self-management of the rheumatoid foot (71.4%) and explaining the role of other professionals in foot health management, such as podiatrists and surgeons (table 2).

Questions	Very important	Important	Not important
Explaining the rheumatology ist's role in foot health management	19(54,3%)	16(45,7%)	0(0%)
Information about RA medications t and how they can affect fee	14(40%)	18(51,4%)	3(8,6%)
Signs and symptoms of foot involvement in RA	21(60%)	14(40%)	0(0%)
How to manage the health of their own feet	25(71,4%)	10(28,6%)	0(0%)
The consequences of poor foot care	24(68,6%)	11(31,4%)	0(0%)
The role of other professionals in managing foot health	27(77,1%)	8(22,9%)	0(0%)

Table 2: Foot education content.

Timing of foot health education in rheumatoid arthritis

The majority of respondents (77.2%) thought that FHE should be provided at every opportunity, 75.8% considered that it should be provided at the time of RA diagnosis, 57.1% only if requested by the patient, and 45.7% upon the presence of foot-related symptoms.

Barriers to foot health education in rheumatoid arthritis

More than half of our responders (54.3%), felt that they did not have enough knowledge about the effect of RA on the feet to be able to provide effective foot health education, 85.7% thought that the time devoted to consultations is sufficient to ensure good education, 80% did not have access to sources of FHE information and 94.3% did not know of any group education programs to which they could refer their patients. 60% of respondents thought that Tunisian rheumatologists do not provide good FHE for RA patients (Table 3).

Questions	Strongly agree	Agree	Don't know	Disagree Strongly	Disagree
Consultation time is sufficient to provide foot health education	0 (0%)	5 (14,3%)	0 (0%)	13 (37,1%)	17 (48,6%)
You have access to RA specific foot health information, such as brochures, provided by learned societies	3 (8,6%)	3 (8,6%)	1 (2,9%)	19 (54,3%)	9 (25,7%)
You are informed of group education programs to which you could refer your patients	0 (0%)	2 (5,7%)	8 (22,9%)	13 (37,1%)	12 (34,3%)
You know enough about the effects of RA on the feet to be able to provide effective foot health education	2 (5,7%)	14 (40%)	0 (0%)	14 (40%)	5 (14,3%)
The RA patients you manage use the foot health education you give them	0 (0%)	10 (28,6%)	13 (37,1%)	12 (34,3%)	0 (0%)
Do you think Tunisian rheumatologists provide good foot health education to RA patients ?	1 (2,9%)	10 (28,6%)	3 (8,6%)	15 (42,9%)	6 (17,1%)

Table 3: Barriers to foot health education in rheumatoid arthritis.

Statistical analysis

Factors influencing responders' knowledge

Responders with more than 2 years' professional experience: provided more FHE to their patients ($p = 0.04$), had sufficient knowledge of the rheumatoid foot ($p = 0.026$), and agreed more on the objectives of FHE ($p = 0.03$).

Respondents with a post-graduate certificate in podology: provided more FHE to their patients ($p = 0.041$), had sufficient knowledge about the rheumatoid foot ($p = 0.03$), agreed more on the content of FHE ($p = 0.028$) and thought that Tunisian rheumatologists provided good FHE ($p = 0.04$).

Age and gender were not associated with the variations in response.

Discussion

The majority of respondents (88%) agreed with the objectives of foot health education. 7.4% of respondents had no information about the objectives of this education. This lack of information was significantly associated with a professional seniority of less than 02 years ($p = 0.026$), and with the absence of a diploma of complementary studies in podiatry ($p = 0.03$).

Our results concur with those of Graham., *et al.* [15], who conducted a survey of English chiropodists in which the majority of respondents agreed with the objectives of foot health education for RA patients. All themes were statistically correlated ($p = <0.05$) with qualifications years and the gender of participants. Participants who had been qualified for more than 10 years and

who were female tended to agree more with the objectives of the FHE.

Teaching patients how to self-manage their foot health remains the main objective of FHE according to the results of our study and data from the literature. Despite this fact, in several series [16-18] the majority of RA patients rated their level of foot self-care competence as moderate, and some gaps were identified. These findings indicate the importance of educating RA patients to improve their foot self-care skills and knowledge.

In our study, 57.6% of respondents stated that they provided FHE during their consultations. Verbal information was the main method used.

Compared with the literature, the provision of rheumatoid foot health information varied from one population to another, but was still insufficient, and the majority of patients seemed to have difficulty in obtaining the right information [19,20]. Although some countries, such as the UK, have attempted to provide audiovisual information on foot health in RA through Arthritis Research UK and the National Rheumatoid Arthritis Society, the majority of UK patients were unaware of the existence of these resources [19]. In light of these findings, an initiative was taken by the rheumatology department at King's College Hospital NHS Foundation Trust in London, where they designed an information booklet on foot health in RA, validated by podiatry experts. This brochure is now distributed in consultation waiting rooms for patients with RA [14].

In our study, 5.9% referred patients to websites for information on the rheumatoid foot. In contrast to our result, in the study by Graham., *et al*. more than half the participants reported referring their patients to RA- or arthritisspecific websites [15].

These sites offer flexible access to information that adapts to patient demand [21].

The majority of our respondents felt there was a need to provide information on the role of other professionals such as podiatrists in foot health management.

In the study by De Soza., *et al*. [14], all patients considered it essential to be referred to a podiatrist immediately after the diagnosis of RA to prevent permanent foot damage. The Podiatry Rheumatic Care Association recommends that all patients receive a foot health assessment within 3 months of RA diagnosis [22]. However, Soza., *et al*. [14] found that only about a third of clinicians adhered to this recommendation.

The timing of FHE was considered important, and the majority of our respondents felt that information should be offered at the time of diagnosis and whenever the opportunity arises.

Likewise, they agreed that information should not wait until patients ask for it. Although several studies have shown that RA patients can feel overwhelmed by too much information at initial diagnosis [23], it is necessary to ensure that people have the information they need to self-manage their disease.

Consequently, giving people with RA the opportunity at every consultation to express their needs and ask pertinent questions about the state of their feet and their health, in general, will enable the practitioner to tailor his or her discourse to their educational needs [24].

More than half of our participants felt that they did not have sufficient knowledge to enable them to provide appropriate FHE.

In contrast to our study, Graham., *et al*. [15] report that the majority of responders felt they had sufficient knowledge to provide FHE.

The majority of respondents identified lack of time within the consultation and lack of resources as a barrier to providing the best management and this is consistent with the results of previous work including RA patients and health practitioners [1,13,20] where this lack of time and information prevented them from providing foot health education.

In an English study, a survey of rheumatologists revealed that the majority of clinicians did not feel competent to examine the foot, due to the lack of training on the rheumatoid foot. This prevents them from effectively assessing and managing foot problems [14]. Consequently, post-graduate training in this area seems necessary.

Similarly, in a study including patients with psoriatic arthritis [25], the obstacles to FHE most frequently highlighted by rheumatologists during consultations were: the low priority

given by the patient to foot involvement, the complexity of foot assessment, compounded by lack of training, and the lack of opportunity for further referral.

A survey of 216 rheumatology departments in the United Kingdom (26) was carried out to assess the quality of FHE provided to patients with RA. Valid responses were received from 170 departments (78.7% response rate). Over 80% of outpatient departments reported that rheumatology nurses provided FHE, with less than half of departments using other healthcare professionals, such as podiatrists. A quarter of wards had access to a podiatrist, and 18% had a podiatry service associated with rheumatology. Patients were very satisfied with the education and orthopedic inserts provided, but not very satisfied with the adequacy of basic foot care. Regional variations were extremely wide in the provision of basic foot care (0-73%), with non-English-speaking regions reporting poorer service provision.

Conclusion

In conclusion, to reduce the impact and burden of foot problems in people with RA, a well-adapted approach is needed that encourages self-management of the rheumatoid foot and takes into account the patient's needs.

Rheumatologists as first responders have defined the importance of foot health education and highlighted the many barriers that prevent them from providing the best patient management.

Future research should focus on the development and validation of a simple foot health needs analysis. Identifying patient needs will help guide the objectives of foot health interventions.

Author Contributions

All authors (Marwa Ghali, Ismail Bejia, Mahbouba Jguirim) made substantial contributions to the conception of the work, revised the manuscript, approved the final version, and agreed to be accountable for all aspects of the work.

Data Availability

The data and supportive information are available within the article.

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Conflict of Interest

None.

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