



Original Article

Are Spondyloarthropathies Adequately Referred From Primary Care to Specialized Care?☆

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ABSTRACT

Objective: To evaluate the degree of agreement between primary care physicians and rheumatologists when evaluating the referral criteria in patients with suspected early spondyloarthropathy (Spa).

Material and methods: Patients with suspected early Spa (according to predefined clinical referral criteria) were sent by primary care physicians to early Spa units (where a rheumatologist evaluated the same criteria and confirmed the diagnosis) through an on-line platform. We assessed the agreement between primary care physicians and rheumatologists regarding the predefined clinical referral criteria among patients with definitive Spa using the kappa index (k).

Results: Eight hundred and two patients were analysed, 8.31% of whom were incorrectly referred to the rheumatologist. The degree of agreement regarding the predefined clinical referral criteria was poor for inflammatory back pain ($k=0.16$; 95% confidence interval [95% CI] 0.09–0.23), radiographic sacroiliitis ($k=0.31$; 95% 0.211–0.428), back or joint pain ($k=0.21$; 95% CI 0.14–0.29); mild for asymmetric arthritis ($k=0.51$; 95% CI 0.43–0.59), positive HLA B27 ($k=0.59$; 95% CI 0.52–0.67) and family history ($k=0.50$; 95% CI 0.415–0.604); and it was good or very good for anterior uveitis ($k=0.81$; 95% CI 0.68–0.93), inflammatory bowel disease ($k=0.87$; 95% CI 0.79–0.96) and psoriasis ($k=0.73$; 95% CI 0.65–0.81).

Conclusions: The degree of agreement between primary care physicians and rheumatologists regarding the predefined clinical referral criteria was variable. Agreement was very poor for variables like inflammatory back pain, which are crucial for the diagnosis of Spa. Training programs for primary care physicians are important in order for them to correctly identify early Spa patients.

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¿Se derivan adecuadamente las espondiloartropatías desde primaria a especializada?

RESUMEN

Objetivo: Evaluar el grado de acuerdo entre los médicos de atención primaria (MAP) y los reumatólogos en la valoración de los criterios de derivación en pacientes con sospecha de espondiloartritis (EspA) precoz.

Material y métodos: Se derivaron los pacientes con sospecha de EspA precoz, a través de la plataforma electrónica, por MAP siguiendo unos criterios de derivación predeterminados a Unidades de EspA precoz, donde fueron de nuevo evaluados por reumatólogos y confirmados los diagnósticos. Se ha analizado la concordancia de los criterios de derivación predeterminados entre MAP y reumatólogos mediante el índice kappa (k) en aquellos pacientes con diagnóstico de EspA precoz.

Resultados: Analizamos 802 pacientes, de los que el 8,31% fueron mal derivados. El grado de acuerdo en relación con criterios de derivación predeterminados fue pobre para la lumbalgia inflamatoria ($k = 0,16$; intervalo de confianza del 95% [95% CI] 0,09–0,23), sacroilitis radiológica ($k = 0,31$; 95% CI 0,211–0,428), raquialgia o artralgia ($k = 0,21$; 95% CI 0,14–0,29); moderado para el criterio de artritis asimétrica ($k = 0,51$; 95% CI 0,43–0,59), HLA B27 positivo ($k = 0,59$; 95% CI 0,52–0,67) e historia familiar ($k = 0,50$; 95% CI 0,415–0,604). Los grados de acuerdo fueron buenos o muy buenos para la presencia de uveítis anterior

Palabras clave:

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($k = 0,81$; 95% CI 0,68–0,93), enfermedad inflamatoria intestinal ($k = 0,87$; 95% CI 0,79–0,96) y psoriasis ($k = 0,73$; 95% CI 0,65–0,81).

Conclusiones: El grado de acuerdo entre MAP y reumatólogos respecto a la valoración de los criterios preestablecidos para derivación de EspA precoz es variable. La concordancia es baja para criterios de derivación clave para el diagnóstico de pacientes con EspA. Facilitar programas de formación y entrenamiento para MAP resulta fundamental para identificar a pacientes con EspA precoz.

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Introduction

Spondyloarthritis (SpA) constitute a group of chronic inflammatory diseases character of unknown etiology associated with the HLA B27 histocompatibility antigen, with ankylosing spondylitis (AS) being representative of them.^{1,2} The essential clinical feature in most patients is the sacroiliac joint inflammation in the early stages of the disease, although this may coincide, or be added in the progression of the disease and be preceded by inflammation in the rest of the axial skeleton and peripheral structures such as joints and entheses.³ They may be associated with inflammatory bowel disease (IBD), skin psoriasis, and extra-articular manifestations such as anterior uveitis (AU).^{4–6}

Definitive diagnosis of SpA (once established) is relatively simple.^{7–9} It is difficult to establish a diagnosis in the initial stages of the disease. However, for clinical-therapeutic purposes it is important to reach a diagnosis as soon as possible to establish an effective treatment for preventing the development of functional limitation or structural¹⁰ damage.

In Spain the average delay between onset of symptoms and diagnosis of SpA is more than 6 years.¹¹ This may be due in part to the fact that classification criteria contemplate late appearing signs, such as radiological damage. For this reason, new classification criteria have recently been proposed,^{12,13} which allow us to identify such patients early. Another reason that could explain the delay in diagnosis is that primary care physicians (PCP) are not familiar with the symptoms of the disease in its early stages, when it is also called a prerradiologic phase of the disease. It is a proven fact that the early identification of the initial symptoms and referral to a rheumatologist contributes to early diagnosis of SpA.¹⁴ That is why the Spanish Society of Rheumatology (SER) developed in collaboration with PCP the Esperanza¹⁵ Program,¹⁶ in which referral criteria for patients suspected of SpA from primary care to rheumatology were established.

The objective of this study is to assess the degree of agreement between PCPs and rheumatologists in the evaluation of the criteria for referral of patients with suspected early SpA. This will optimize, if necessary, the training for PCP in SpA, which can translate into a decrease in delayed diagnosis and optimization of available resources.

Material and Methods

Design

The Esperanza Program is a collaborative program between the SER care and PC with national coverage, which aims to reduce variability in care received by patients with SpA, facilitate diagnosis and dissemination of knowledge of aspects of care in this group of diseases, and to promote rational use of health resources.

Patient Selection and Data Acquisition

25 SpA units (UESP) were created in Spanish hospitals, each with a rheumatologist responsible, who kept a close collaboration with the PC from the area of reference attached to the program. Additionally, we designed a training course in Spain for PCP (Table 1). The course was taught in training sessions by the rheumatologist, and

was also available for consultation and follow-up on an electronic platform designed specifically for this program.

Referral criteria were established based on what UESP the PCP should direct patients with suspected early SpA. They could refer patients aged between 18 and 45 years with symptoms lasting 3–24 months and at least one of the three following symptoms: inflammatory back pain, asymmetric arthritis or a number of variables related to SpA (Table 2). Each PCP registered patients through the electronic platform where the referral criteria considered for each patient was filled out.

Rheumatologists at the reference UESP assessed whether patients had early SpA using the same criteria as the PCP. The presence of radiographic sacroiliitis was based on the anteroposterior radiograph of the sacroiliac joints, and involvement was defined as grade 2 or higher, if the lesion was bilateral, and grade 3 or higher if only unilateral.⁷ The data (baseline and follow-up) was gathered for all patients who met the criteria for early SpA (according to the rheumatologist) and the patients who signed informed consent were entered into the electronic platform. The rheumatologist was responsible for data management at each visit following routine clinical practice.

Variables

The Esperanza Program collected data on: (a) sociodemographic variables (age, sex, race, disability), (b) clinical variables

Table 1
Contents of the Course for Primary Care Physicians.

<p><i>Module 1: Generalities and benefits in the collaboration between primary care and Rheumatology for the attention of patients with SpA</i></p> <p>Concept of SpA Classification Forms of presentation Criteria for referral to Rheumatology Reasons for early diagnosis and treatment of SpA Esperanza Program and program referral criteria</p> <p><i>Module 2: What do we know on the ethiopathogenesis and epidemiology of SpA?</i></p> <p>Key to early diagnosis: clinical history Ethiopathogenesis of SpA Epidemiology of SpA Anamnesis and physical examination of patients with SpA in primary care</p> <p><i>Module 3: Diagnosis and evaluation of the patient</i></p> <p>Laboratory and its diagnostic usefulness Conventional imaging and its usefulness for diagnosis Other diagnostic techniques: MR, echography, bone scan, CT Evaluation of inflammatory activity and functional capacity of the patient: methods and interpretation</p> <p><i>Module 4: Treatment of SpA. What can we expect?</i></p> <p>Physiotherapy and rehabilitation: What can we expect? NSAID: real importance and how to avoid gastropathy DMARD (sulfasalazine, methotrexate, etc.): to give or not to give Inhibitor of tumor necrosis factor alpha: indications, efficacy and safety. What can we expect? EULAR and SER Recommendations for the treatment of SpA Identification of poor prognostic factors</p>
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NSAID: non steroidal anti-inflammatory drugs; SpA: spondyloarthritis; DMARD: disease modifying anti-rheumatic drugs; MR: magnetic resonance; SER: Spanish Society of Rheumatology; CT: computerized tomography; EULAR: European League Against Rheumatism.

Table 2
Referral Criteria to the Early Spondyloarthritis Units.

Patients between 18 and 45 years of age with disease lasting 3–24 months and at least one of the following:
1. Inflammatory back pain: back pain that has 2 of the following 3 characteristics:
a) Progressive onset
b) Morning spinal stiffness lasting over 30 minutes
c) Improvement in physical activity that does not remit with rest
2. Asymmetric lower limb arthritis
3. Other criteria that include non specific axial pain or joint pain with at least one of the following:
a) Psoriasis
b) Inflammatory bowel disease
c) Anterior uveitis
d) Family history of SpA, psoriasis, IBD or anterior uveitis
e) X-ray sacroiliitis
f) HLA B27 positive

IBD: inflammatory bowel disease; SpA: spondyloarthritis.

(comorbidity, variables related to the activity and severity of the disease, treatments prescribed), and (c) data related to the management of the UESP.

Statistical Analysis

The data for this analysis was gathered from the baseline visit of the patients included in the Esperanza Program from April 1, 2008 to May 31, 2011. Since the program allowed the inclusion of patients referred from other specialties (Orthopaedics, Ophthalmology, etc.), and the fact that some patients, despite being derived by the PCP finally did not meet criteria for early SpA and did not stay in the program, the analysis was performed only on patients with available information needed by both the PCP by the rheumatologist responsible for the UESP.

This study matched the criteria for referral between PCP and rheumatologists using kappa analysis and 95% confidence intervals. The agreement, ie the degree of agreement between PCP and rheumatologists, was established based on the kappa score as follows: “poor agreement” was considered if the kappa index was less than 0.20, “weak” between 0.21 and 0.40, “moderate” between 0.41 and 0.60; “good” between 0.61 and 0.80, and “very good” above 0.81.

Results

The Esperanza Program involved 1844 PCP that led filled data into the electronic platform used for this purpose, with a total of 1179 patients entered (both good/poor referrals and those with a final diagnosis of SpA), with most patients being male (54%), white (96%), with a mean age of 33 years (SD 7 years), with 12% in a situation of temporary work disability and 2% in a situation of permanent disability.

Finally, for the purposes of this study we have analyzed data from 802 patients (about 70% of the total sample); we excluded poor referrals not meeting inclusion criteria or without enough data were available. Only in 98 cases (8.31%) we considered that the patient was a poor referral. Furthermore, the average time between referral from primary care and review by the UESP was 11 days (SD 28 days).

Kappa (*k*) scores obtained are shown in Table 3, along with the number of patients for which the estimate was made. Regarding the referral criteria with more weight at the time of diagnosis of SpA, inflammatory back pain showed a poor level of agreement ($k=0.162$, 95% CI 0.09–0.23), as did radiological sacroiliitis ($k=0.319$, 95% CI 0.21–0.43), and joint or back pain ($k=0.216$, 95% CI 0.14–0.29). However, the criterion of asymmetric arthritis showed a moderate degree of agreement ($k=0.513$, 95% CI 0.43–0.59), as well as family

Table 3
Agreement Between Primary Care Physicians and Rheumatologists in the Early Spondyloarthritis Units.

Criterion	Kappa	95% CI	n
Inflammatory back pain	0.162	0.09–0.23	802
Asymmetric arthritis	0.513	0.43–0.59	802
Back or joint pain	0.216	0.14–0.29	802
Psoriasis	0.735	0.65–0.81	802
Inflammatory bowel disease	0.877	0.79–0.96	802
Anterior uveitis	0.810	0.68–0.93	802
Family history of AS, psoriasis, IBD, AU	0.509	0.415–0.604	802
X-ray sacroiliitis	0.319	0.211–0.428	529
HLA B27 positive	0.597	0.52–0.67	507

Patient number on which estimation was based is shown.

AS: Ankylosing spondylitis; IBD: inflammatory bowel disease; CI: confidence interval; AU: anterior uveitis.

history of SpA, psoriasis, IBD or AU ($k=0.509$, 95% CI 0.41–0.60) and the presence of positive HLA B27 ($k=0.597$, 95% CI 0.52–0.67).

In relation to the degree of agreement with other criteria related to the diagnosis of SpA, but with less weight, there was a degree of good or very good agreement on the following criteria: AU ($k=0.81$, 95% CI 0.68–0.93), IBD ($k=0.877$, 95% CI 0.79–0.96), and psoriasis ($k=0.735$, 95% CI 0.65–0.81).

Discussion

The Esperanza Program was built to improve the management of patients with SpA.

It has allowed both rheumatologists and PCP to be aware of the need for early and accurate diagnosis of patients with these diseases. For this reason, among others, criteria for referral to Rheumatology were generated to serve in establishing a definitive and/or early diagnosis of SpA. The results of this analysis indicate a degree of agreement between PCP and rheumatologists regarding the evaluation of established referral criteria.

Moreover, the objective was to analyze the correlation between PCP and rheumatologists regarding patients with early SpA, not the early clinical suspicion (in general). We have not analyzed all patients referred by PCP, but inclusion of patients occurred in a random, common, daily practice, so we think that selection bias is very low and there is no overestimating the effect.

Regarding the design of the study, the observations were not independent, which in theory may overestimate the degree of agreement. However, we think this effect is in turn offset by the second evaluation and reclassification on patients once they reach the UESP, by a rheumatologist and, whose judgment was not considered to be influenced by the PCP.

Furthermore, it should be noted that radiological sacroiliitis and the presence of HLA B27 should be interpreted with caution since these results could not be analyzed in all patients.

The degree of agreement was good or very good for some of the referral criteria, in particular for the presence of UA, psoriasis and IBD. This may be because they are, a priori, clinical entities easily identified by both PCP and rheumatologists.

The degree of agreement was moderate for the presence of HLA B27, asymmetric arthritis and family history. In the case of HLA B27, not a laboratory test requested very often by primary care unlike Rheumatology, there are a few centers where this can be obtained. A very similar explanation can be given in relation to the presence of asymmetric arthritis. The rheumatologist constantly turned towards the anamnesis, symptoms and signs suggestive of inflammation, and detected very early and mildly intense arthritis, something that often is only possible after having reached a high degree of specialization, and having the necessary time to evaluate the

joints of patients. In this context, we believe that the PCP can acquire the skills and knowledge needed to detect incipient arthritis cases with adequate training and education. Finally, note that a correct history in the case of family history is relevant because it is a very specific variable in this group of diseases. Increased knowledge in SpA could help include this variable in the history performed by the PCP in selected patients with suspected disease.

We should note that the results showing the lowest level of agreement was that regarding the most important referral criteria to establish the diagnosis of SpA, inflammatory back pain and radiological sacroiliitis. Diagnostic difficulty regarding inflammatory back pain in primary care has been observed,¹⁷ and possibly because low back pain is a common, but vague and poorly reported symptom, and that a large percentage of those with LBP are referred first to the orthopedic specialist instead of the rheumatologist, without delving deeper into pain characteristics. Given the large volume of patients seen by PCP and requiring clinical diagnoses, to improve these results, in the most prevalent groups with this disease, i.e. young adults, a differential diagnosis between mechanical and inflammatory back pain should be done before referring to a specialist. Probably more and specific training for PCP in this regard would be very satisfactory and sufficient.

Furthermore, in the case of the evaluation of sacroiliitis, we advance the same arguments and provide ways to improve them. If there is a clinical suspicion of inflammatory back pain of possible sacroiliac origin it is easy to ask for an X-ray of these joints. And again, the training and ability of PCP reading sacroiliac radiography should not delay over 30 s, and allow a high percentage of patients to have a more precise¹⁸ diagnostic orientation. Additionally, due to the lack of good agreement regarding X-rays, training activities for standardizing the reading thereof could arise as a means to optimize the results of future diagnoses of SpA.

In conclusion, based on the importance of early diagnosis and the need for optimal treatment in patients with SpA, and PCP as the first contact with the health system, targeted training in this regard could help achieve these objectives, in young patients with inflammatory LBP features, requesting a sacroiliac X-ray and performing anamnesis directed toward these pathologies.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this investigation.

Confidentiality of Data. The authors declare that they have followed the protocols of their work centre on the publication of patient data and that all the patients included in the study have received sufficient information and have given their informed consent in writing to participate in that study.

Right to privacy and informed consent. The authors have obtained the informed consent of the patients and /or subjects mentioned in the article. The author for correspondence is in possession of this document.

Conflict of Interest

The authors declare that there is no conflict of interest.

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