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Original Article

Reccomendations for the Detection, Study and Referral of Inflammatory Low-back Pain in Primary Care☆

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ABSTRACT

Objective: To design a strategy for the early detection and referral of patients with possible spondyloarthritis based on recommendations developed, agreed upon, and directed to primary care physicians.
Methods: We used a modified RAND/UCLA methodology plus a systematic literature review. The information was presented to a discussion group formed by rheumatologists and primary care physicians. The group studied the process map and proposed recommendations and algorithms that were subsequently submitted in two Delphi rounds to a larger group of rheumatologists and primary care physicians. The final set of recommendations was derived from the analysis of the second Delphi round.
Results: We present the recommendations, along with their mean level of agreement, on the early referral of patients with possible spondyloarthritis. The panel recommends that the study of chronic low back pain in patients under 45 years could be performed in four phases (1) clinical: key questions, (2) clinical: extra questions, (3) physical examination, and (4) additional tests.
Conclusions: The level of agreement with these simple recommendations is high. It is necessary to design strategies for the education and sensitization from rheumatology services to maintain an optimal collaboration with primary care and to facilitate referral to rheumatology departments.

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[1] The names of the components of the Study Group for Inflammatory Back Pain presented in Annex 1.

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Recomendaciones para la detección, investigación y derivación del dolor lumbar inflamatorio en Atención Primaria

Palabras clave:
Dolor lumbar inflamatorio
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Guías
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R E S U M E N

Objetivo: Diseñar una estrategia de detección y derivación precoz de pacientes con posible espondiloartritis mediante el desarrollo de recomendaciones consensuadas dirigidas a los médicos de Atención Primaria (AP).

Métodos: Se utilizó una metodología modificada de RAND/UCLA y revisión sistemática de la literatura. Se seleccionó un grupo de discusión formado por reumatólogos y médicos de AP. Se estudió el mapa del proceso y se propusieron recomendaciones y algoritmos que fueron sometidos a 2 rondas Delphi para evaluar el grado de aceptación y preferencia de criterios en un grupo amplio de reumatólogos y médicos de AP. Del análisis de la segunda ronda Delphi se extrajeron las recomendaciones finales.

Resultados: Se presentan recomendaciones, junto con su grado medio de acuerdo, para la derivación rápida de pacientes con sospecha de espondiloartritis. En concreto, se recomienda investigar el dolor lumbar crónico en menores de 45 años en 4 fases: *1)* clínica: preguntas clave; *2)* clínica: preguntas extra; *3)* exploración física, y *4)* pruebas complementarias. Se debe derivar a Reumatología si existen: *1)* dolor lumbar inflamatorio; *2)* signos indicativos de espondiloartritis, o *3)* HLA B27 positivo, elevación de proteína C reactiva o signos radiológicos de sacroilitis. Se incluyen recomendaciones sobre el proceso de derivación y otras adicionales.

Conclusiones: El grado de acuerdo con estas sencillas recomendaciones es amplio. Es necesario diseñar estrategias de formación y sensibilización desde los servicios de Reumatología para mantener una óptima colaboración de AP en la identificación de los casos y facilitar que los servicios de Reumatología estén preparados para asumir las derivaciones.

Introduction

Axial Spondyloarthritis (SpA) is a chronic inflammatory disease that primarily affects the spine and sacroiliac joints, which basically evolves from an unaffected form (non radiological axial SpA) to another with radiographic sacroiliitis (ankylosing spondylitis [SA]) and can be known using on conventional X-rays.[1,2]

It has been estimated that its prevalence is about 0.7%.[3] It is a known fact that the disease commonly debuts insidiously, usually before 40 years of age, with chronic inflammatory low back pain. Axial SpA and AS can be diagnosed using a series of simple clinical and radiological criteria, based on the HLA B27. However, it can take between 7 and 9 years after the onset of symptoms until a diagnosis is established.[4,5]

This delay in diagnosis leads to a delay in establishing the most appropriate treatment for each patient and the adverse consequences of untreated disease may diminish the quality of life of the patient, causing prolonged sick leave and increasing the economic burden of the process, in addition to promoting structural damage associated with the presence of untreated disease in the first years of evolution.[6,7] That is why strategies are being designed for referral of early stage patients with axial symptoms to Rheumatology clinics, which would help shorten diagnosis time and optimize the therapeutic management of these patients in the earliest stages of[4,8–12] disease.

The RADAR study[12] found that inflammatory LBP is the most commonly used criterion and, simultaneously, the one that yielded the most results, in order to establish a mechanism for referral from primary care (PC) to Rheumatology. There is, however, no consensus recommendation with PC to specify what criteria must be evaluated in a patient with chronic back pain in order to decide an appropriate referral to Rheumatology.

The ultimate objective of this document is to improve the quality of care for patients with chronic, inflammatory low back pain and SpA by creating validated and easy to use resource that does not interrupt the consultation and that ultimately benefits the patient. This resource should include criteria for suspicion, research algorithms and recommendations for referral to Rheumatology. The target group who should use this resource are primary care physicians (PCP).

Methods

A modified RAND methodology[13] was used, with group discussions and[14] Delphi technique to evaluate the degree of acceptance of the recommendations and the preference criteria.

A panel of 4 SpA expert rheumatologists and 4 PCP, all Spaniards, moderated by a methodologist, held a meeting to determine the scope, users and the set of existing criteria, and to identify the difficulties of assessment and referral of patients with suspected SpA. The group followed the following script: (1) what are the available criteria for suspecting/referring inflammatory back pain? (2) how are the available criteria evaluated? (3) what is the current referral process and the systematic evaluation of low back pain in primary care?, weighing the difficulty of assessing the criteria available in this context, (4) what parameters allow an informed selection of the criteria to recommend?, and (5) solutions or necessities to improve the implementation of criteria (training, research, etc.).

In order to document the suitability of recommendations and facilitate the decisions of the panelists, a systematic review of the literature on low back pain in primary care was undertaken and the results were condensed into evidence tables. This review identified existing criteria and those proposed by the panel, as well as their performance. In particular, the objective was to understand their sensitivity and specificity, as they would become screening instruments. The search strategy for the review is available in an Annex 1; it basically included synonyms for "*Spondyloarthritis AND Low back pain AND (sensitivity and specificity) AND primary care." The panelists were queried on the ease of collecting the data in PC, in particular if the data is included in the usual history and whether the criterion can be interpreted correctly, that is, if there is a good agreement between what Rheumatologists and PCP think.*

All of the information collected was summarized in a report and a survey format was prepared for the vote by 25 professionals, including rheumatologists and PCP. The first Delphi round was used to prioritize items and gather comments and views on the proposals, and the second to define the degree of agreement. The conflicting items (under agreement or excessive variability) were discussed and reformulated for the second round. Each recommendation comes as a result with an average degree of agreement in the second round. The full study was conducted throughout 2013.

Results

A literature search was conducted and a second, manual search of the publications obtained led researchers to 12 studies which were retrieved for detailed review. Evidence tables were built by extracting performance parameters of different clinical features in the diagnosis of SpA (Table 1). Table 2 summarizes the reproducibility and diagnostic performance parameters described by Rudwaleit et al. in 2004 from[15] different studies. The Annex 1 also includes a table in which the data available for each criterion proposed by the panel is summarized.

The recommendations are presented and discussed below in tabular format (Table 3), each accompanied with the degree of agreement (0–10) and an algorithm (Fig. 1).

Whom to Investigate Possible Inflammatory Back Pain in

The panel determined that target patients to investigate the possibility of inflammatory and SpA back pain in, and therefore those to whom these guidelines apply are those in which pain begins before age 45; lumbar pain should be the chief complaint, in which back pain is chronic, defined as lasting 3 months or more and perceived by the patient as continuous, while recognizing exacerbation and improvement periods.

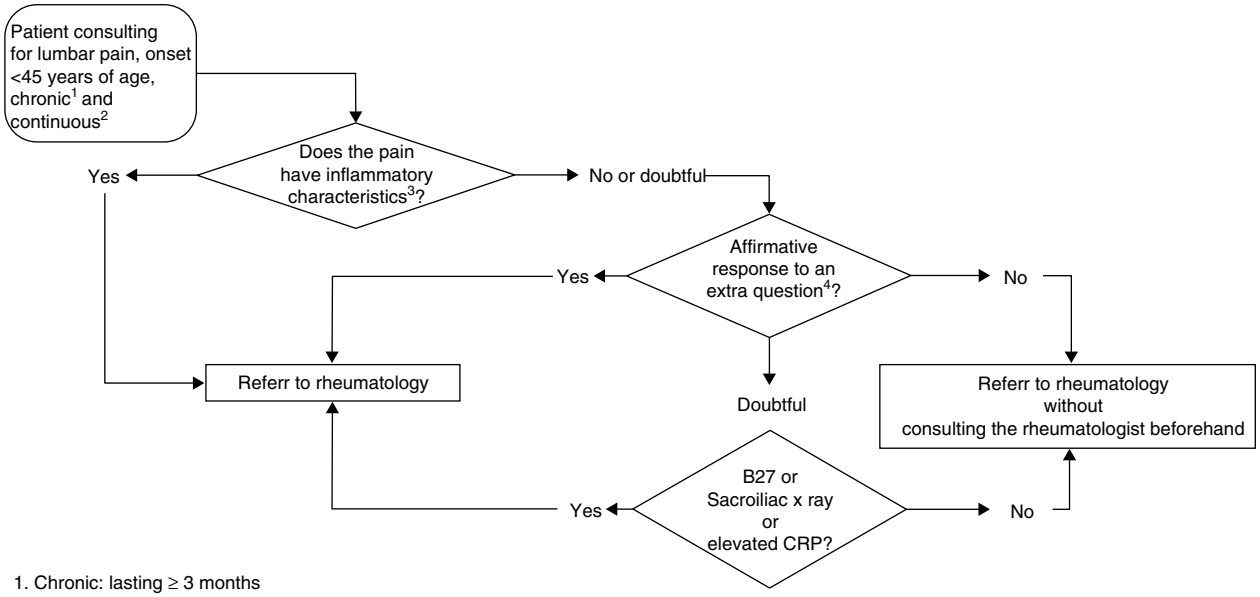
What will Be the Outcome of the Patients With Inflammatory Low Back Pain?

The outcome in patients with inflammatory back pain is decided according to the algorithm presented in Fig. 1. It is recommended that the evaluation of chronic low back pain in patients under 45 years could be carried out in 4 phases: (1) history: key questions, (2) clinical: extra questions, (3) physical examination, and (4) additional tests.

Key questions. Determine if the pain has any of the following characteristics, making it inflammatory back pain, which would be considered a cause for referral to rheumatology: (1) predominant night pain, defined as pain that wakes the patient mainly or preferentially during the second part of the night and requires them to wake up, and (2) improvement with exercise and worsening with rest.

Extra questions and physical examination. If the pain does not have the above characteristics but there is sufficient doubt about whether it is inflammatory pain, the clinician should investigate the following aspects: (1) on inflammatory low back pain: (a) an alternating buttock pain and sciatica that switches sides?, (b) has a gradual onset, acute and sharp and (c) pain responds to NSAIDs at doses full, but not to analgesics, and reappears (2) *does the patient also have other musculoskeletal manifestations of inflammatory back pain?*. Specifically investigate: (a) heel pain (in back of the heel or in their region of support), and (b) arthritis in lower extremities, (3) *Does the patient present any extra-articular manifestations:* (a) psoriasis, (b) uveitis, and (c) inflammatory bowel disease, and (4) *does the patient's family have a history of:* (a) psoriasis, (b) inflammatory bowel, or (c) AS?

This is a purely clinical phase and is not considered conclusive, even complemented with the physical examination, except for the presence of dactilitis (sausage digits).



1. Chronic: lasting ≥ 3 months
2. Continuos: Perceived by the patient as continuous, with remission and relapse
3. Inflammatory characteristics: Predominantly nocturnal pain, defined as pain that wakes the patient, mainly in the second half of the night and that forces the patient to rise or improves with physical activity, worsening with exercise
4. Extra questions:
   - Alternating buttock pain or side switching sciatica? Gradual, not abrupt onset?
   - Talalgia?
   - Arthritis of the lower limbs?
   - Dactylitis (upon examination)?
   - Psoriasis?
   - Uveitis?
   - Inflammatory bowel disease (IBD)?
   - Family history of psoriasis, IBD, ankylosing spondylitis?
   - Response to full dose NSAID but not analgesics, with symptoms reappearing when suspended?
   - Referr to rheumatology

Fig. 1. Algorithm for referral of patients with inflammatory back pain. According to the algorithm, the referral of patients under 45 years of age with chronic back pain should be done in 4 phases defined by key questions, extra questions, physical examination and laboratory tests. The components of each of these phases are described in the text.

Table 1
Summary of the Evidence of the Items Selected in the Systematic Review for Referral Criteria.

Study	Population	Criteria for referral (referral)	Diagnosis of SpA (No. and %)	Diagnostic utility	Comments
Brandt et al., 2007[23]	(No.=350) Low back pain (>3 months) in <45 years	At least one of the following: inflammatory lumbar pain[a], HLA-B27 +, sacroiliitis (image)	Global: 159/350=45% Criteria: 55/161=35% >Criteria: 102/163=64% +HLA sacroiliitis: 28/33=85% HLA+IBP: 33/57=% IBP + sacroiliitis: 10–26 =%	Criteria: *S*=35%; *E*=45%; LR=0.62+ >Criteria: *S*=64%; *E*=68%; LR=2.01+	The use of IBP for screening requires experience HLA-B27: always in combination with other parameters
Poddubnyy et al., 2011[9]	(No.=560) Low back pain (>3 months) in <45 years	(No.=318) Strategy 1: ≥1: inflammatory LBP HLA-B27+ Sacroiliitis (image)	Strategy 1: 133/318=42% AS: 82/318 =26%: AS No radiological SPA: 51/318=16%	Strategy 1[b] IBP: *S*=77%; *E*=23%; =1+ Sacroiliitis: *S*=%; *E*=52%; LR=1.4 HLA-B27: *S*=62%; *E*=68%; LR=1.9	Increased likelihood of diagnosis>no. criteria Poor agreement PCP/IBP rheumatologists and radiological sacroiliitis Strategy 1 is an effective and reliable method for screening SPA in patients with axial low back pain in PC
		(No.=242) Strategy 2: ≥2: Inflammatory back pain HLA-B27 + Sacroiliitis (image) Family history of AS Good response to NSAIDs	Strategy 2: 89/242=37% AS: 55/242=23%: No radiological SPA: 34/242=14% No significant difference	Strategy 2[b] IBP: *S*=83%; *E*=10%; + LR=0.9 NSAIDs: *S*=61%; *E*=33%; + LR=0.9 HLA-B27: *S*=70%; *E*=58%; LR=1.6 Sacroiliitis: *S*=55%; *E*=72%; LR +=2 HTA family: *S*=24%; *E*=84%; LR=1.4	
Rudwaleit et al., 2006[24]	(No.=213: 101 AS and 112 low back pain) Low back pain (≥3 months) in ≤50 years Objective: value features and combinations IBP	Combination 1:≥2: Morning stiffness >30 m Improvement with exercise but not with rest Pain, wakes up in the 2nd half of the night Alternate buttock pain Combination 2:≥3 of the above		Diagnostic value for IBP Combination 1: *S*=70%; *E*=81%; + LR=3.7	Limitations: Convenience sample Cross Design Examiner not blind to diagnosis Needs validation in prospective study
Hermann et al., 2009[25]	(No.=92) Referral from PC <45 years who met Calin criteria for IBP IBP Calin: pain ≥4 m ≥3 <40 years Insidious onset Improvement with exercise Morning stiffness	Blend 1 Pain at night SI pain palpation IBP as Calin criteria Cervical neck pain on movement	Diagnostic Rheumatologist SPA: 33% Noninflammatory DL: 67%	Blend 2+LR=12.4 Isolated LR parameters: Night pain: 3.3 Improved exercise no rest: 2.1 Pain exploration SI: 3.8 HLA-B27 4.1 Blend 1. Parameters associated with both SPA and mechanical DL *S*=90%; *E*=95%; LR=16.8	ROC curves stepwise regression was performed to study association between clinical parameters and diagnosis of SPA, and to calculate the *S* and *E* of the 2 combinations Isolated clinical parameters are of little use. Only when data from involvement of the cervical spine are added *S* and *E* values above 90% are achieved The combination includes parameters not used in PC (scanning mobility of spine and sacroiliac)
		Combination 2: Pain at night SI pain palpation IBP as Calin criteria		Combination 2. Parameters associated only with SPA *S*=60%; *E*=88%; +LR=4.8	

Table 1 (*Continued*)

Study	Population	Criteria for referral (referral)	Diagnosis of SpA (No. and %)	Diagnostic utility	Comments
Braun et al., 2011[8]	(No.=322) Referral from PC Low back pain <45 years and lasting >2 m	Inclusion criteria: Morning stiffness >30 min Improvement with exercise, not rest Pain at night Response to NSAIDs Combination of these parameters in different cohorts Additional criteria: Alternate buttock pain Family history SPA Extraspinal manifestations: arthritis, enthesitis, psoriasis, IBD and HLA-B27	Diagnostic rheumatologist: SPA: 113 (35%) AS: 47 SPA no Rx: 66 Back pain, non SPA: 209 (65%)	Isolated Criteria: LR + *S* SPA Rigidity >30 min: 35%; 1.1 Improved exercise no rest: 78%; 1.3 Pain at night: 58%; 1.7 Answer NSAIDs: 94%; 1.8 Alternating buttock pain: 25%; 2.2 Ant enthesitis: 15%; 1.9 Ant arthritis: 11%; 2.5 Age <35: 77%; 1.4 HLA-B27: 35%; 3.9 ≥3 of the above: 85%; 1.7 Greater power of discrimination in regression analysis: Age ≤35 years Pain at night Alternate buttock pain Response to NSAIDs Improved exercise not rest Diagnostic value (*S*, *E*) of the combinations of the latter ≥4:48% and 86% ≥3:78% and 46% ≥2:96% and 17%	Prospective Isolates criteria have little value in PC The combinations have greater power of discrimination Remission cutoff age: less than in other studies
Keeling et al., 2012[26]	Development and validation of a questionnaire on IBP in PC (No.=286)	Domains Morning stiffness Pain at night Diurnal variation of symptoms Peripheral joint involvement Response to exercise Reply to rest	IBP=220 DLM=66 IBP Association (regression): Diurnal variation Response Exercise Reply to rest	+ *S* and LR for individual items: Stiffness: 48%, 1.9 Pain at night: 51%; 1.3 Diurnal variation: 49%, 5.9 Response exercise: 53%, 1.8 Reply to rest: 60%, 1.4	Best utility for 'diurnal variation' (*S* 49% and LR+5.9) The results do not improve with the combination of items Morning stiffness does not discriminate well between IBP and nonspecific DL The "diurnal variation" is an important feature of IBP and indicates remission, especially when it comes to young patients with HLA+
Sieper et al., 2012[12]	Entry criteria: chronic LBP (>3 m) in <45	Strategy 1. Either: IBP HLA-B27 Sacroiliitis (image) Strategy 2: ≥2 IBP HLA-B27 Sacroiliitis (image) Ant family axial SpA Response to NSAIDs Extra-articular manifestations	No.=1072 patients referred Strategy 1: 504 Strategy 2: 568 Seen by a rheumatologist No.=1.049 Diagnosis of SpA (rheumatologist) Strategy 1: 176 (36%) Strategy 2: 221 (40%)	Individual Criteria: LR+*S* Sacroiliitis: 76%, 19.9 HLA-B27: 66%, 3.3 M. extraarticular: 55%, 2.2 IBP: 94%; 1.3 Ant fam of SpA: 13%, 1.5 Response to NSAIDs: 69%, 1.4 Combinations > performance Sacroiliitis IBP+: 72%, 30.8 Two of: Sacroiliitis, HLA IBP: 86%, 5.4 Extraarticular, IBP, NSAIDs: 85%, 1.6	International multicenter study. Strategy 1: Similar to 2 results and simpler IBP is the criterion most used branch and PCP-rheumatologist good agreement The combination with > diagnostic performance is the use of 2 of the following 3 criteria: IBP, response to NSAIDs and extra-articular manifestations This combination has a 85% *S* and LR+1.6, with good agreement for IBP and extra-articular (85% and 77%) events, but relatively low for the response to NSAIDs

NSAIDs: NSAIDs; PC: primary care; Ant: antecedent; BP: back pain; IBP: inflammatory back pain; MBP: mechanical back pain; *E*: specificity; AS: ankylosing spondylitis; IBD: inflammatory bowel disease; SpA: spondylitis; HLA: human leukocyte antigen; HT: hypertension; ROC: receiver operating curve; LR: likelihood ratio; *S*: sensitivity; SPA: spondyloarthritis.

[a] Defined by morning stiffness of at least 30 min duration, pain at night or first thing in the morning and improvement with exercise.

[b] Patients with positive standard in the corresponding strategy regardless of the presence or absence of other benchmarks.

Table 2
Sensitivity, Specificity and Positive Likelihood Ratios of Clinical and Laboratory Characteristics of Patients With Ankylosing Spondylitis, Back Pain Controls, Patients With Any Type of Spondyloarthritis or Any Control.

			Patient groups and group size			
S (%)	*E* (%)	LR+	AS (n)	Control lumbar pain (n)	All SpA (n)	Control (n)[a]
Inflammatory lumbar pain						
95	76	4.0	42	21		–
38	100	3.1	21	–		83
65	79	3.6	27	422		–
71	75	3.1	–	–		774
75	80		101	112		–
	76					
Alternating buttock pain						
20	97	6.6			403	674
39	98	19.5			124	1964
20	89	1.8	44	29	104	75
43	95	9.6			218	1242
43	100	–	101	112		
32	97	10.4			105	163
37	98	3.7				
40	90	4.0				
Talalgia (enthesitis)						
16	90	1.6	70	32		
37	89	3.4			403	674
25	90	2.5	44	29	104	75
52	92	6.5			124	1964
47	94	7.8			218	1242
50	96	12.5				
52	93	7.4			105	163
37	89	3.4				
Peripheral arthritis						
41	94	6.8	70	32		
40	90	4.0			403	674
44	95	8.8	44	29	124	1964
42	91	4.7			218	1242
62	100	–				
26	98	13			105	163
–	–	–				
40	90	4.0				
Dactylitis						
18	96	4.5			403	674
27	99	27			124	1964
24	96	6			218	1242
12	98	6			105	163
18	96	4.5				
Anterior uveitis						
10	100	–	70	32		
19	–	–	42	12		
22	97	7.3			403	674
14	99	1	676		124	1964
13	99	13			218	1242
4	100	–			105	163
21	–	–				
22	97	7.3				
Psoriasis						
17	–	–	807			
1.2	–	–	676			
10	96‡	2.5				
IBD						
July	–	–	828			
1.7	–	–	676			
4	**99**	**4.**				
A family history of AS, reactive arthritis, IBD, psoriasis, uveitis						
July	100	–	70	32	104	75
31	93	4.4			403	674
32	95	6.4	44	29	218	1242
36	97	12				
20	100	–	676		105	163
15	99	1				
10	–	–				
32	**95**	**6.4**				

Table 2 (*Continued*)

			Patient groups and group size			
S (%)	*E* (%)	LR+	AS (n)	Control lumbar pain (n)	All SpA (n)	Control (n)[a]
Response to NSAIDs						
77	85	5.1	69	769		
71	75	2.8			218	1242
61	80	3.1	676		105	163
64	–	–				
77	**85**	**5.1**				
Elevated acute phase reactants (CRP)						
49	100	–	70	32		
69	67	3	42	12		
39	–	–	443			
38	–	–	149	112		
75	–	–	70			
51	75	2.	101			
56[b]	–	–				
50	**80**	**2.5**				
HLA-B27						
96	96	24	40			906
88	92	11	75			75
83	95	16.6	70	32		
88	–		42	12		1871
–	91					
89	94	14.8	101	112		
90[c]	**90**	**9.0**				
MR						
93	100	–	25	12	1	
54	83	3.1		12	24	
83	93	11.8	36	53	36	
94	100	–		20	17	
90	–	–			41	
90	**90**	**9.0**				

Each line corresponds to the result of a study. The final line in bold corresponds to the pooled value.
NSAIDs: NSAIDs; *E*: specificity; AS: ankylosing spondylitis; IBD: inflammatory bowel disease; SpA: spondylitis; CRP: C-reactive protein; LR: likelihood ratio; MR: Magnetic resonance; Rx: radiology; *S*: sensitivity; ESR: erythrocyte sedimentation rate.

[a] Controls: musculoskeletal diseases, generally no SpA.

[b] Data from an observational study of unpublished SpA.

[c] The sensitivity of HLA-B27 refers to SpA with axial involvement, i.e. with inflammatory back pain.

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The positive response to any of these questions or additional exploration data indicates the appropriateness of referral to a rheumatologist.

Additional testing. Additional tests may be useful in cases in which pain presents dubious inflammatory characteristics: (1) *postero-anterior sacroiliac X-rays*, and (2) *laboratory tests:* (a) erythrocyte sedimentation rate, (b) CRP, and (c) HLA-B27, depending on their availability in PC, so the algorithm may end directly at the previous step, depending on the existing protocols in the area. In areas where access to these is limited, it is suggested that doubtful cases should be referred to a rheumatologist in the absence of testing. Evaluating sacroiliac X-rays will usually be performed in the area without undergoing standardization, but providing images for assessment by a rheumatologist.

Recommendations Related to the Referral Process

Any resource or desired process implemented in PC faces the general problem of a lack of time by the PCP. In this regard, the panel recommends that this document be translated into simple materials, despite recognizing that it is difficult to obtain documents for each of the diseases to identify and above all find a place in the PC educational curriculum, so that they become part of the standard protocols (degree of agreement 8.9/10).

Given the obstacles, and the low incidence of SpA,[16] keeping PCP sensitized to the potential cases will be of vital importance for the success of the recommendations. To achieve this objective, the panel suggests that the Rheumatology service reference design *feedback* strategies and develop awareness training sessions, periodically sending information or joint research proposals–(degree of agreement 8 3/10).

It is also essential that the Rheumatology department is ready to assume the lead. To do this, it is recommended that the waiting list be kept below a reasonable limit (ideally less than one month) (degree of agreement 8.7/10) or to establish early SpA units, as that does exist at some hospitals (level of agreement 8.8/10). In these units, the waiting time should be even lower.

At a minimum, it is recommended that SpA undergo express referral; this could include preferential referral of patients with inflammatory back pain with a positive commitment to review this "suspicion of SpA" and if possible, describing the positive signs in the examination (degree of agreement 8.3/10).

Additional Recommendations

Some panelists considered an additional advantage of PCP training in reading sacroiliac X-rays (degree of agreement 6.9/10). In general, access to care is faster in the case of AS. Moreover, in case of questionable inflammatory back pain, a true radiographic sacroiliitis, regardless of severity, can undergo a standard referral. Therefore, given that the correlation between X-ray reading done by a PCP and a rheumatologist is low,[17] it is considered important

Table 3
Recommendations for Evaluation and Referral of Patients With IBP.

Recommendation	Agreement (mean of 10)
It is recommended that, as an entry criterion, the presence of IBP in patients is investigated:	(1) 8.6
• <45 years (1)	(2) 8.3
• Presents *chronic* back pain that lasts ≥3 months (2) -	(3) 7.6
• The *main cause of consultation* (3)	(4) 7.4
• Perceived by the patient as *continuous*, while recognizing exacerbation and improvement (4)	
It is recommended that evaluation is done in 4 phases:	
1. Key Questions	8.4
2. Extra Questions	
3. Physical Examination	
4. Testing	
In positive cases with need of any further question or examination, it is appropriate to derive a rheumatologist	
1. Key Questions:	
• predomiant nocturnal pain, defined as pain that wakes the patient up, in the second part of the night with patient forced to rise (1)	(1) 8.8 (2) 8.0
• Pain that improves with exercise and worsens with rest (2)	
Extra questions: if the answer to the above questions is negative but leaves enough doubt whether it is IBP, should investigate:	(1) 7.7
• alternating buttock pain and alternating sciatica (1)	(2) 7.0
• gradual, not sudden start (2)	(3) 8.0
• Response to NSAID at full dose, but not analgesics, which reappears as (3) if suspended	(4) 7.0
or assess the presence of other manifestations:	(5) 8.0
• MS:	
Talalgia (4)	(6) 7.9
IBD Arthritis (5)	(7) 8.6
• non MS:	(8) 8.1
Psoriasis (6),	
Uveitis (7)	(9) 6.8
IBD (8)	(10) 6.6
or inquire about a family history of:	(11) 7.4
• Psoriasis (9)	
• IBD (10)	
• AS (11)	
3. Determine the presence of dactylitis	8.3
4. Testinf	
The only evidence that could guide and should be performed in primary care, depending on availability, are:	(1) 8.4
• posteroanterior sacroiliac Rx (1)	(2) 7.5
• laboratory:	(3) 7.9
ESR (2)	(4) 8.3
CRP (3)	
HLAB27 (4)	(5) 7.9
In areas where access to evidence or the outcome is limited, it is suggested that doubtful cases should be referred to a rheumatologist in the absence of tests (5)	

NSAIDs: NSAIDs; IBP: inflammatory back pain; AS: ankylosing spondylitis; IBD: inflammatory bowel disease; MS: skeletal muscle; CRP: C-reactive protein; SpA: spondyloarthritis.

to train the PCP in X-ray interpretation in the areas in which it is decided as per protocol to perform sacroiliac X-rays in PC.

In order to improve the referral, quality measurement is recommended using the following scale: (1) on rotation (or system) must indicate bypassing an SpA unit (degree of agreement 7.7/10), and (2) the time from the PC detection of the case until its evaluation for the first time in rheumatology should be less than 15 days, on average (7.6 degree of agreement/10).

Discussion

The new classification criteria *Assessment of Spondyloarthritis International Society* should permit better and earlier identification of patients suffering from axial SpA, both those with radiographic evidence of sacroiliac affection (ankylosing spondylitis) as those without radiographic involvement (non radiological axial spondyloarthritis)[18,19]; however, this must be accompanied by a referral of patients to a rheumatologist in earlier stages. That is why we must have strategies suitable for this purpose. The main protagonists for specialist referral of patients of cases suspected of SpA are the PCP. The difficulty of making a correct derivation in cases of suspicion of SpA in patients with chronic axial pain from primary care is evident, since this type of pain is a common reason for consultation[20,21] and can be related to many other causes besides[16] SpA. So far, most of the guidelines, recommendations and protocols for referral of patients suspected of SpA were designed by rheumatologists, and PCP could or could not follow them depending on various circumstances.[22] Since the participation in their elaboration of many hospitals and primary health care facilities in our country, and the subsequent publication of this data in the RADAR study,[12] the need to design strategies for referral from PC with the participation of both rheumatologists as well as PCP became apparent.

In the expectation of seeking consensus among rheumatologists and PCP for the preparation of this document, professionals from both levels of care, who showed interest in inflammatory lumbar pathology, contributed to its development. However, we must not forget that the primary beneficiary of health is the user-patient, so this document should be submitted for the assessment of patients with SpA. Similarly, it is understood that this is a document that includes the referral processes, and must be accepted by administrators whose job it is to implant it in clinical practice, and should also be subjected to discussion among these professionals.

The final document is aimed primarily at the PCP, with criteria included for suspected cases, research algorithms and recommendations for referral to Rheumatology, and is designed to be an easy to use resource that does not disrupt consultation and consensus. The starting point is the patient with axial pain with an onset before age 45. From here, we have included key questions and extra questions about inflammatory back pain as well as other musculoskeletal manifestations, extra-articular manifestations, family history and additional tests related to the diagnosis.

In the algorithm, the importance of referral to a rheumatologist in all patients with chronic low back pain of less than 45 is emphasized on those who have features of inflammatory back pain, or signs suggestive of SpA, with HLA B27 positive or elevated CRP, or alteration of X-rays of the sacroiliac joints. The age limit of 45 years, as shown in all published algorithms, can be considered reasonable, if not entirely justified, although it can happen later in life and not always is lower back pain in those under 45 SpA. However, since the prevalence of chronic low back pain is almost double in patients over 45,[21] and spondyloarthrosis is the most common cause of back pain in this group, it was felt that raising the age limit would unnecessarily increase referrals.

We want to note two limitations to these recommendations, requiring continued prudence and individualizing their application in patients. To successfully implement this protocol there must be a two-way commitment between PC and Rheumatology regarding information about the patient's condition and its final status. This would imply, however: (1) identifying the Reference area of a consultant (2) reasonable waiting times for referred patients, (3) communication on the final destination of the patient (counter-referral, if appropriate, to the PCP). In addition, some individual characteristics may act as confounding factors, particularly self-medication, which can modify some of the key questions and influence bad decision making.

In conclusion, the referral of patients under 45 years with chronic back pain from PC to Rheumatology should be done if any of these 3 possibilities exist: (1) inflammatory back pain, (2) signs suggestive of SpA (heel pain, arthritis, psoriasis, uveitis, dactylitis,

inflammatory bowel disease or family history of SpA), or (3) HLA B27 positive, elevated CRP or pelvic X-ray indicative of sacroiliitis. Strategies should be designed from training and awareness by Rheumatology department to maintain optimal PCP collective collaboration in identifying cases and facilitating Rheumatology department to be prepared to take the lead.

Ethical Responsibilities

Protection of people and animals. The authors declare that this study research not performed experiments on humans or animals

Data confidentiality. The authors state that no patient data appears in this article.

Right to privacy and informed consent. The authors state that no patient data appears in this article.

Conflict of Interest

The authors declare no conflict of interest.

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