Sensitivity of the Classification of Psoriatic Arthritis Criteria in Early Psoriatic Arthritis

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ABSTRACT. ***Objective.*** To determine the sensitivity of the CASPAR criteria in patients with early psoriatic arthritis (PsA).

Methods. Consecutive patients with a clinical diagnosis of PsA and a disease duration < 12 months were enrolled for study. The proportion of patients meeting the criteria (i.e., the sensitivity) was determined.

Results. Forty-four patients with early PsA (23 women, 21 men; mean age 51 yrs, range 16–90) were enrolled. Mean disease duration (± SD) was 15.8 ± 14.3 weeks (range 0.1–50.9 wks). Thirty-four patients satisfied the criteria at the first visit (sensitivity 77.3%). Most patients met the skin and laboratory criterion, i.e., they were rheumatoid factor-negative, while only 2 satisfied the radiologic criterion.

Conclusion. Our findings suggest a less satisfactory performance of the CASPAR criteria when applied in early PsA. Lower sensitivity could mainly depend on the small proportion of patients fulfilling the radiologic criterion. (J Rheumatol First Release Feb 1 2009; doi:10.3899/ jrheum.080596)

Key Indexing Terms:
EARLY PSORIATIC ARTHRITIS CLASSIFICATION CASPAR CRITERIA

Over the past 2 decades several sets of criteria for the classification of psoriatic arthritis (PsA) have been published[1], but no consensus agreement has been obtained on how best to define the disease. In an attempt to overcome the difficulties arising from the lack of acceptable diagnostic/classification criteria for PsA, the CASPAR (ClASsification of Psoriatic ARthritis) study group has recently proposed a new set of criteria derived from a data set of 588 consecutive patients with established PsA (mean disease duration 12.5 yrs) and 536 control patients with another inflammatory arthritis. The resulting criteria had a specificity of 98.7% and a sensitivity of 91.4% against physician's diagnosis[2].

The CASPAR criteria could represent a valid instrument for inclusion of patients with established PsA. Data on their performance in early PsA are clearly needed[3]. Our objective was to determine the sensitivity of the CASPAR criteria in patients with early PsA admitted consecutively to an outpatient clinic.

MATERIALS AND METHODS

Patients were included on the basis of the opinion of a rheumatologist with long-standing expertise in PsA (IO), and were required to have had a duration of the rheumatic manifestations for less than 12 months. All patients gave written informed consent and the study protocol was approved by the local ethics committee.

The following data were collected for each patient: family and personal history, peripheral joint assessment (68 joints for tenderness and 66 joints for swelling), dactylitic digit count, enthesitis/tenosynovitis assessment, Psoriasis Area and Severity Index (PASI) and psoriatic nail dystrophy, and spinal mobility measures (performed only if axial involvement was suspected). Rheumatoid factor (RF) was tested by nephelometry. Radiographs of the hands, feet, and pelvis were obtained from all patients. Finally, the proportions of patients meeting the whole set of CASPAR criteria and all individual items (i.e., the sensitivity; given in the Appendix) were determined.

RESULTS

CASPAR criteria were applied to a series of patients with early PsA admitted consecutively to our outpatient clinic between April 2006 and October 2007. Detailed descriptive data are summarized in Table 1. The mean disease duration (± SD) was 15.8 ± 14.3 weeks (range 0.1–50.9 wks). Twenty-three patients (52%) had very early PsA with a disease duration < 12 weeks. One of the 3 RF-positive patients was anti-cyclic citrullinated peptide (anti-CCP)-positive; nevertheless, the clinical features allowed us to make a diagnosis of PsA.

Figure 1 shows the proportion of patients satisfying the CASPAR criteria (i.e., score ≥ 3) and patients satisfying the individual items included in the criteria set. Thirty-four patients satisfied the criteria at the first visit (sensitivity 77.3%). Interestingly, most patients met the skin and laboratory criterion, i.e., they were RF-negative, while only 2 satisfied the radiologic criterion.

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Table 1. Demographic and clinical data of the patients.

No. of patients (M/F ratio)	44 (21/23)
Mean age, yrs ± SD	50.8 ± 16.8
Mean disease duration, weeks ± SD	15.8 ± 14.3
Clinical pattern, n (%)	
Tenosynovitis/enthesitis/dactylitis	19 (43)
Oligoarthritis	16 (37)
Polyarthritis	8 (18)
Spondylitis	1 (2)
Skin/nail involvement, n (%)	
Current psoriasis	28 (64)
Family history of psoriasis	14 (32)
Isolated nail dystrophy	2 (4)
Overall nail dystrophy	14 (32)
PASI score, mean ± SD	2.8 ± 5.2
Tender joint count, mean ± SD	3.1 ± 3.9
Swollen joint count, mean ± SD	2.2 ± 3.2
Peripheral enthesitis and/or tenosynovitis, n (%)	35 (79)
Dactylitis, n (%)	
Current	13 (30)
History	1 (2)
Rheumatoid factor, n (%)	3 (7)

PASI: Psoriasis Area and Severity Index.

The CASPAR criteria were satisfied by 13 out of the 19 patients (sensitivity 68.4%) with a predominant tenosynovitis/enthesitis/dactylitis clinical pattern, and by 21 of the remaining 25 patients (sensitivity 84.0%).

In addition, we evaluated the performance of the modified criteria of McGonagle, *et al*[1,4] and the Vasey-Espinoza criteria[5], which had shown higher sensitivity in the original CASPAR report[2]. The former criteria were met by 38/44 patients (sensitivity 86.4%), the latter by 30/44 (sensitivity 68.2%). Interestingly, only one patient failed to meet the test of at least one of the 3 classification methods. These data indirectly confirm the appropriateness of our "gold standard."

In the 23 patients with very early PsA, the sensitivities of the CASPAR, McGonagle, and Vasey-Espinoza criteria were 73.9%, 78.3%, and 60.9%, respectively.

DISCUSSION

The main limitation of the original study leading to the development of the CASPAR criteria was the inclusion of patients with long-standing PsA disease[2]. Few data are currently available concerning the performance of the criteria in patients with early disease[6,7]. Our results demonstrate that the criteria have a lower sensitivity when applied in early PsA, and thus are probably inferior to some existing classification criteria.

In a recent study, Chandran and colleagues[6] found a sensitivity of 99.1% by applying the CASPAR criteria to a group of 107 patients with early PsA, and they concluded that such criteria perform well in early and in late disease. Analyzing the data from the Swedish Early Psoriatic Arthritis Register[7], it emerged that CASPAR criteria were fulfilled by 73.2% (134/183) of the patients with early PsA. However, this latter study was not specifically intended to evaluate the performance of CASPAR criteria in early PsA.

Our results show that the sensitivity of the CASPAR criteria was lower (77.3 vs 99.1%) than that reported by Chandran, *et al*[6]. The differences could be due to the study design (prospective vs retrospective) and the inclusion of many patients with very early PsA (mean disease duration 15.8 vs 57.2 weeks, respectively). Other differences included the type of referral (Chandran's outpatient clinic is a tertiary center, so cases could be filtered), the high percentage of patients without psoriasis but with a reported family history, and the large number of patients with an exclusively entheseal or tenosynovial involvement. These latter 2 subsets were not reported by Chandran, *et al*[6].

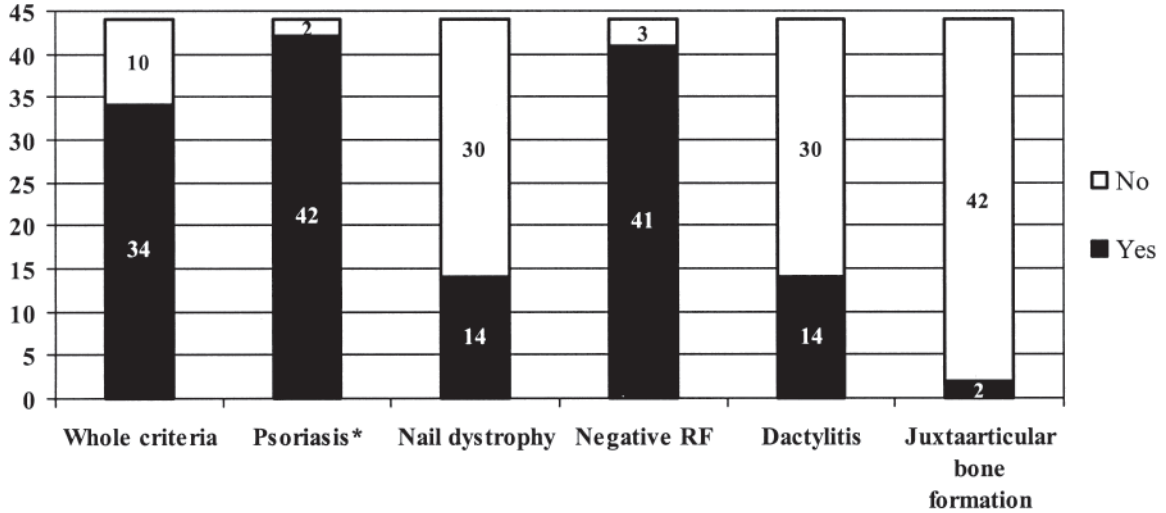

Figure 1. Proportions of patients satisfying the CASPAR criteria as a whole (score ≥ 3) and the individual items included in the criteria set. Patients with current psoriasis (n = 28) and patients with a family history of psoriasis (n = 14) are included. *Any psoriatic feature.

The presence of spinal, entheseal, or joint inflammatory involvement is a mandatory feature required to classify a patient according to the CASPAR criteria[2]. However, among clinical features, only dactylitis gives a score, while the presence of inflammatory spinal pain, enthesitis, or arthritis does not help in classifying a patient. In the established forms of PsA disease, such a limitation could be overcome, since any peripheral involvement, i.e., arthritis, could be identified by the radiological criterion. This is not applicable to the early forms of disease since structural abnormalities are detected on radiographs only several months after the onset of PsA. In addition, we enrolled a lot of patients with enthesitis and tenosynovitis, which may rarely cause radiological damage and never cause the radiological feature included in the CASPAR criteria, juxtaarticular new bone formation[8,9]. Therefore, the small proportion of patients satisfying the radiologic criterion may explain our results showing lower sensitivity of the CASPAR criteria in early PsA.

Radiographic features[10] are relevant to the diagnosis of PsA and they are included in most of the proposed classification sets[1], including the CASPAR[2]. As in rheumatoid arthritis[11], plain radiographs are unlikely to be sensitive in the detection of structural abnormalities occurring in the first months after onset of PsA[12]. More sensitive imaging modalities, such as magnetic resonance imaging and ultrasonography, could have the potential to replace plain radiography as the technique to be used for the classification of early PsA[13].

Our findings suggest a less effective performance of the CASPAR criteria when applied in early PsA. Lower sensitivity could mainly depend on the small proportion of patients fulfilling the radiologic criterion.

APPENDIX The CASPAR (ClASsification criteria for Psoriatic ARthritis) criteria. Modified with permission from Taylor, *et al*[2]. Arthritis Rheum 2006;54:2665-73.

Inflammatory articular disease (joint, spine, or entheseal) — 3 or more points from the following 5 categories:

1. Psoriasis (one of a, b, or c): (a) Current psoriasis* — Psoriatic skin or scalp disease present today as judged by a rheumatologist or dermatologist; (b) Personal history of psoriasis — A history of psoriasis that may be obtained from patient, family doctor, dermatologist, rheumatologist, or other qualified health-care provider; (c) Family history of psoriasis — A history of psoriasis in a first- or second-degree relative according to patient report

2. Psoriatic nail dystrophy — Typical psoriatic nail dystrophy including onycholysis, pitting, and hyperkeratosis observed on current physical examination

3. A negative test for rheumatoid factor — By any method except latex but preferably by ELISA or nephelometry, according to the local laboratory reference range

4. Dactylitis (one of a or b): (a) Current — Swelling of an entire digit; (b) History — A history of dactylitis recorded by a rheumatologist

5. Radiological evidence of juxtaarticular new bone formation — Ill-defined ossification near joint margins (but excluding osteophyte formation) on plain radiographs of the hand or foot

*Current psoriasis scores 2 whereas all other items score 1.

REFERENCES

1. Taylor WJ, Marchesoni A, Arreghini M, Sokoll K, Helliwell PS. A comparison of the performance characteristics of classification criteria for the diagnosis of psoriatic arthritis. Semin Arthritis Rheum 2004;34:575-84.
2. Taylor W, Gladman D, Helliwell P, Marchesoni A, Mease P, Mielants H, and the CASPAR Study Group. Classification criteria for psoriatic arthritis: development of new criteria from a large international study. Arthritis Rheum 2006;54:2665-73.
3. Olivieri I, D'Angelo S, Padula A, Palazzi C. The challenge of early diagnosis of psoriatic arthritis. J Rheumatol 2008;35:3-5.
4. McGonagle D, Conaghan PG, Emery P. Psoriatic arthritis: a unified concept twenty years on. Arthritis Rheum 1999;42:1080-6.
5. Vasey F, Espinoza LR. Psoriatic arthropathy. In: Calin A, editor. Spondyloarthropathies. Orlando: Grune & Stratton; 1984:151-85.
6. Chandran V, Schentag CT, Gladman DD. Sensitivity of the classification of psoriatic arthritis criteria in early psoriatic arthritis. Arthritis Rheum 2007;57:1560-3.
7. Lindqvist UR, Alenius GM, Husmark T, Theander E, Holmström G, Larsson PT, for the Psoriatic Arthritis Group of the Society for Rheumatology. The Swedish Early Psoriatic Arthritis Register — 2-year followup: a comparison with early rheumatoid arthritis. J Rheumatol 2008;35:668-73.
8. D'Agostino MA, Olivieri I. Enthesitis. Best Pract Res Clin Rheumatol 2006;20:473-86.
9. Olivieri I, D'Angelo S, Scarano E, Padula A. What is the primary lesion in SpA dactylitis? Rheumatology Oxford 2008;47:561-2.
10. Taylor WJ, Porter GG, Helliwell PS. Operational definitions and observer reliability of the plain radiographic features of psoriatic arthritis. J Rheumatol 2003;30:2645-58.
11. Machold KP, Stamm TA, Eberl GJ, et al. Very recent onset arthritis: clinical, laboratory and radiological findings during the first year of disease. J Rheumatol 2002;29:2278-87.
12. Kane D, Stafford L, Bresnihan B, FitzGerald O. A prospective, clinical and radiological study of early psoriatic arthritis: an early synovitis clinic experience. Rheumatology Oxford 2003;42:1460–8.
13. McGonagle D, Tan AL. Are the classification criteria for psoriatic arthritis better than existing criteria for diagnosing psoriatic arthritis [letter]? Comment on the article by Taylor et al. Arthritis Rheum 2007;56:699-700.