Clinical application of the CASPAR criteria for psoriatic arthritis compared to other existing criteria

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Abstract

Objective

Psoriatic arthritis (PsA) has been defined as a systemic, chronic, inflammatory arthritis, usually seronegative for rheumatoid factor (RF), associated with cutaneous psoriasis. The exact prevalence of PsA is unknown and its estimation has been difficult, partly due to the lack of a widely accepted classification criteria. Agreed and validated criteria will facilitate comparison between centres and different countries in the areas of epidemiology, outcome studies and therapeutic trials. A number of classification criteria have been published by Moll & Wright (M&W), Bennett's, Vasey and Espinoza (V&E), Fournié's, European Spondyloarthropathy Study Group (ESSG), McGonagle, Gladman and most recently, the CASPAR Study Group. In this paper, we present an audit aiming to assess which of these criteria performs better in clinical practice.

Methods

Sixty-nine (69) patients with evidence of PsA were seen in the clinic as regular outpatients and were assessed as to whether they fulfil any of the 6 existing criteria for PsA: M&W, Bennett's, V&E, Fournié's, ESSG and CASPAR criteria. All items included in the 6 sets of criteria were recorded for each patient based on interview, clinical examination and scrutiny of clinical medical records. By comparing the criteria between themselves as well as the items used in each one of them we tried to assess which one of the criteria was performing best.

Results

A total of 69 patients (M/F=24/45; mean age 46.4 years (±20.3), and delay in diagnosis of 3.4 years (±4.1) was assessed. From those, 9 patients did not fulfil any criteria and excluded from the analysis. From the remaining 60 patients [M/F=21/39; (age 48±15.3)], 21 patients (35%) fulfilled all 6 sets of criteria. The remaining 39 patients (M/F=41/59 %; age 47±14.9) were further analysed with regards to the feature that did not enable concordance. From those 39 patients, Bennett's criteria were positive in only 4/39 (10.2%), M&W criteria were positive in 12/39 (30.7%), ESSG criteria in 17/39 (43.5%), V&E criteria were positive in 18/39 (46.1%), Fournié's criteria were positive in 31/39 (79.4%) and CASPAR criteria in 35/39 (89.7%). By including family history of psoriasis in the criteria, 11/39 patients (28.2%), who did not fulfil M&W or V&E due to lack of family history of psoriasis as item, met the CASPAR criteria. In addition, some patients who did not fulfil the M&W criteria, since RF positive (7/39; 17.9%), were able to satisfy the CASPAR criteria.

Conclusion

Family history of psoriasis is the main advantage of the new CASPAR Criteria over M&W and V&E. In addition, using the CASPAR criteria, it is possible to make a diagnosis of PsA in a patient who develops inflammatory articular disease even if with RF positive and polyarticular symmetrical arthritis. It is also important to have these classification criteria for the development of recommendations for the optimal treatment of patients with PsA. We believe that the CASPAR criteria, which are simple and easy to use, have high potential to be introduced as the universal classification criteria for PsA. However, further study of the validation of these new criteria is required.

Key words
Psoriatic arthritis, classification criteria, CASPAR criteria

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Introduction

Psoriatic arthritis (PsA) has been defined as a systemic, chronic, inflammatory arthritis, usually seronegative for rheumatoid factor (RF), associated with cutaneous psoriasis. This simple definition, however, obscures the difficulty in defining the condition for epidemiologic purposes (1). PsA emerged as a clinical entity separate from Rheumatoid Arthritis (RA) following the discovery of the RF in 1948 and the observations of the late Professor Verna Wright of Leeds (UK) who proposed a "common thread" between PsA and other Spondyloarthropathies (SpA) (2). Since the original description by Moll and Wright and the development of the homonymous criteria (3), a number of other classification criteria have been published. These include criteria proposed by Bennett (4), Vasey and Espinoza (V&E) (5), Fournié's (6), European Spondyloarthropathy Study Group (ESSG) (7), McGonagle (8), Gladman (9) and the most recent CASPAR Study Group (10).

The Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) emerged from an international collaborative initiative to develop the first classification criteria for PsA, the Classification of Psoriatic Arthritis (CASPAR) Study Group (11). The CASPAR Study Group was established to derive new data-driven criteria for PsA. The CASPAR criteria for the classification of PsA have shown to have both high sensitivity and high specificity (91.4% and 98.7% respectively) in late PsA in the original study (10) and high sensitivity in early PsA in one study recently published by Chandran *et al*. (12).

In this paper, we present an audit aiming to assess which of these criteria performs better in clinical practice. We therefore assessed patients seen in the every day clinical practice at a DGH (District General Hospital), to see if they fulfil any of the six of the existing criteria for PsA. Thus, we compared the criteria against each other, as well as the items used in each one of them.

Patients and methods

This study was conducted at King George Hospital (Barking Havering and Redbridge NHS Trust) in North East London and was performed between September and October 2007. Sixty-nine patients with evidence of PsA were seen in the clinic as regular outpatients over six (6) weeks and were assessed as to whether they fulfil any of the 6 existing criteria (CR) for PsA: Moll and Wright (M&W), Bennett's, V&E, Fournié's, ESSG and CASPAR criteria.

Table I shows the Operational Definitions of each Classification Criteria used for each patient at the time of the assessment. Clinical information obtained from each set of criteria was filled in as a pro forma during the clinic visit.

The patients were recruited by both clinicians involved in the study (LC and ER) while the data acquisition was performed by LC, and the statistical analysis and sensitivity calculation were performed by ER.

Each patient was assessed as to whether he/she demonstrates any individual item of the above symptoms and signs as described in the criteria. All items included in the M&W, Bennett's, V&E, Fournié's, ESSG and CASPAR criteria were recorded for each patient based on interview, clinical examination and scrutiny of clinical medical records.

Clinical examination included systematic evaluation of entheses, skin of elbows, knees, ears, umbilical area and scalp, nails of hands and toes as well as actively inflamed joints with tenderness and/or swelling (based on 68 joints tested for tenderness and 66 for swelling) (13). Routine blood tests were performed for full blood count (FBC); erythrocyte sedimentation rate (ESR); C-reactive protein (CRP); urea, creatinine and electrolytes (U+Es) and liver function tests (LFTs). Patients were tested for rheumatoid factor (RF), and those with evidence of spondylitis had HLA B27 tested.

Radiographs were reviewed for each patient looking for radiographic evidence of juxta-articular new bone formation, presence of erosions, pencil-in-cup change, whittling of terminal phalanges, fluffy periostiitis and bony ankylosis, presence of sacroiilitis, tuft resorption and osteolysis. All patients had had hands, feet, cervical spine,

Table I. Operational definitions of each classification criteria.

Moll & Wright
- Current psoriasis, history of psoriasis or nail disease
- NOT Rheumatoid Factor positive
- Plus one of 5 distinct clinical subset:
  - Oligoarticular (< 5 tender and swollen joints) asymmetric arthritis
  - Polyarticular arthritis (RA-like)
  - DIP predominant
  - Spondylitis predominant
  - Arthritis Mutilans
- M&W criteria are positive if present 1 + 2 + one of 3

Bennett
- Mandatory:
  - Clinically apparent psoriasis (skin or nails)
  - Pain and soft tissue swelling and/or ↓ of motion in at least one joint observed by a physician for 6/52 or longer
- Supportive:
  - Pain and soft tissue swelling and/or ↓ of motion in 1 or more other joints observed by a physician
  - Presence of an inflammatory arthritis in a DIPJ (specific exclusion: Bouchard's or Heberden's nodes)
  - Presence of "sausage" fingers or toes
  - An asymmetrical distribution of arthritis in the hands and feet
  - Absence of subcutaneous nodules
  - RF test negative
  - An inflammatory synovial fluid with a normal or inceased C3 or C4 level and absence of infection (including acid fast bacilli) and crystals
  - A synovial biopsy showing hypertrophy of the synovial lining with a predominantly mononuclear cell infiltration and an absence of granuloma or tumour
  - Peripheral radiographs showing erosive arthritis of small joints with a relative lack of OP (specific exclusion: erosive OA)
  - Axial radiographs showing any of the following: sacroiliitis, syndesmophytes, paravertebral ossification

- Definite PsA: mandatory plus 6 supportive
- Probable PsA: mandatory plus 4 supportive
- Possible PsA: mandatory plus 2 supportive

Vasey & Espinoza
- Current psoriasis, history of psoriasis or nail disease
- Peripheral Pattern:
  - finger DIP involvement,
  - dactylitis
  - asymmetry or symmetry (but without RF or subcutaneous nodules)
  - radiographic osteolysis, tuft erosion, Pencil in cup deformity, whittling of terminal phalanges, fluffy periostitis and bony ankylosis
- Central Pattern:
  - Spinal pain and stiffness,
  - Grade 2 symmetric sacroiilitis (according to the New York criteria)
  - Grade 3 or 4 unilateral sacroiliitis
- Only two criteria are required: psoriasis (1) and one manifestation of either peripheral (2) or central pattern (3)

Fournié
- Personal psoriasis antedating or concomitant with joint symptoms onset (score 6)
- Familial history of psoriasis (if criterion 1 –ve) or psoriasis postdating joint symptoms onset (score 3)
- Arthritis of DIP (score 3)
- Inflammatory involvement of the cervical and thoracic spine (score 3)
- Asymmetric monoarthritis or oligoarthritis (score 1)
- Buttocks pain, heel pain, spontaneous anterior chest-wall pain or diffuse inflammatory pain in the enthuses (score 2)
- Presence of HLA B16 (B38, B39) or B17 (score 6)
- RF negative (score 4)
- Radiological changes – DIP erosion, joint osteolysis, ankylosis, juxta-articular new bone formation or tuft erosion (score 5 any one criterion present)
- The threshold of positivity is 11 points

CASPAR
- Inflammatory articular disease (joint, spine or enthesal), with three or more points from the following:
- Evidence of Psoriasis (one of a, b or c):
  - Current Psoriasis (score 2)
  - Personal history of psoriasis (score 1)
  - Family history of psoriasis (score1)
- Psoriatic nail dystrophy (score 1)
- RF negative (score 1)
- Dactylitis (one of a or b):
  - Current dactylitis (score 1)
  - History of dactylitis (score 1)
- Radiological evidence of juxta-articular new bone formation (score 1)

ESSG
- Inflammatory spinal pain Or Synovitis (either asymmetrical or predominantly lower limb)
- One of more of the following:
  - positive FH of psoriasis
  - psoriasis

ESSG criteria is satisfied if one of two features criteria in 1 is present together with one or more in 2.

Table II. Demographic and disease characteristics of study patients.

Characteristics	PsA (n=69)
Male sex (%)	34.8
Age (years)	46.4 ±20.3
Caucasian ethnicity (%)	61
African ethnicity (%)	2
Asian ethnicity (%)	37
Disease duration (years)	4.5 ±4.6
Delay in diagnosis (years)	3.4 ±4.1
Polyarticular arthritis (RA-like), (%)	47.8
Oligoarthritis (%)	26
DIP predominant (%)	7.4
Mutilans arthritis (%)	0
Spondylitis predominant (%)	18.8
Current psoriasis (%)	53.3
History of psoriasis (%)	4.2
Family history of psoriasis (%)	42.3
Negative test for RF (%)	82.6
Current dactylitis (%)	11.6
History of dactylitis (%)	30.4
Psoriatic nail dystrophy (%)	37.6
Juxtaarticular new bone formation (%)	29
Buttock pain (%)	61.5
Heel pain (%)	55.4
Anterior chest-wall pain (%)	27.7
Enthesitis (%)	72.3
Cervical spine pain (%)	58.5
Thoracic spine pain (%)	25
Lumbar spine pain (%)	64.6

lumbar spine, pelvis and hips x-ray. Unfortunately, some of the x-rays were not available at the time of the data collection (34.8%). This is mainly due to the fact that these patients had their recent x-ray done somewhere else outside our Trust and their films were not available for this study.

All the data obtained were recorded onto standardised forms. Information recorded included demographics (gender, age, ethnicity), onset of arthritis, dactylitis, spontaneous anterior chest-wall pain, diffuse entheses pain, inflammatory heel pain, buttocks pain, swollen and tender joints examination findings, family history of psoriasis, inflammatory spinal pain or stiffness (cervical, thoracic and lumbar), HLA typing (if available), rheumatoid nodule and psoriasis (whether evident currently, previously observed or family history). In addition, nails of hands and toes were examined for rigidity, pitting and onycholysis. If there was any doubt about skin or nail disease, the patient was reviewed in a combined Rheumatology/Dermatology Clinic run by rheumatology and dermatology consultants.

Axial disease was defined as involving the spine while oligoarthritis was defined as involving less than 4 tender and/or swollen joints.

The audit has been registered with the Audit Department of Barking Havering and Redbridge NHS Trust.

Results

The study checked demographic and disease characteristics as well as the number of the items of the criteria that the patients' signs. The percentage of each criterion detected in the total group of the patients included in this study is given in Table II.

From the total of 69 patients there were 24 males and 45 females (M/F=34.8%/65.2%), of whom 61% of Caucasian, 37% of Asian and 2% of African origin. The mean age of the group was 46.4 years [standard deviation (SD) ± 20.3]. There was a mean of 4.5 years of disease duration (SD ± 4.6) and a mean of 3.4 years delay in diagnosis (SD ± 4.1).

All 69 patients had evidence of inflammatory articular disease, with most having evidence of peripheral pattern (81.2%) rather than only axial pattern (18.8%), as it expected. Among the peripheral pattern, polyarticular arthritis (RA-like) and oligoarticular asymmetric arthritis were the most common clinical subsets seen (47.8% and 26% respectively). Distal interphalangeal (DIP) predominant was observed in 7.4% of patients. No patient with arthritis mutilans was recorded. Regarding the psoriasis criteria, most had evidence of current psoriasis (53.5%) or a positive family history of psoriasis (42.3%). A personal history of psoriasis was present in 4.2% of patients. Psoriatic nail dystrophy was observed in 37.6% of patient and in 10.1% of them it was the only feature of psoriasis. About eighty-two percent (82.6%) were negative for RF. Evidence of dactylitis was present in 42% of patients, of whom current dactylitis and history of dactylitis were recorded in 11.6% and 30.4% of patients, respectively. Juxta-articular new bone formation was seen in 29% of patients, but unfortunately 34.8% of x-rays were unavailable.

In the entire cohort of 69 patients, 9 did not fulfil any of the criteria and were excluded from the analysis. From the remaining 60 patients [M/F=21/39; (age 48±15.3)], when individual features applied to the criteria to assess performance, 21 patients (35%) fulfilled all 6 sets of criteria.

The remaining 39 patients (M/F= 41/59%; age 47±14.9) were further analysed with regards to the feature that did not enable concordance.

From those 39 patients, Bennett's criteria were positive in only 4/39 (10.2%), M&W criteria were positive in 12/39 (30.7%), ESSG criteria in 17/39 (43.5%), V&E criteria were positive in 18/39 (46.1%), Fournié's criteria were positive in 31/39 (79.4%) and CASPAR criteria in 35/39 (89.7%).

Items fulfilled in 35 out of 39 patients to meet CASPAR Criteria are shown in Table III.

In these 35 patients, the most common minimal combinations of criteria used to meet CASPAR criteria were determined (Table IV). Those who did not meet the criteria had either family history or personal history of psoriasis and negative RF only.

By including family history of psoriasis in the criteria, 11/39 patients (28.2%), who did not fulfil M&W or V&E due to lack of family history of psoriasis as item, met CASPAR criteria.

In addition, some patients who did not fulfil the M&W criteria, since RF positive (7/39; 17.9%), were able to satisfy the CASPAR criteria.

The items used in each of the 6 groups of the examined criteria were analysed individually in order to assess which of those items was closer to pick up the right patients.

Table III. Number of patients satisfying individual items on the CASPAR criteria.

Evidence of psoriasis	35/35 (100%)
Current psoriasis	18/35 (51.4%)
History of psoriasis	4/35 (11.4%)
Family history of psoriasis	13/35 (37.2%)
Psoriatic nails dystrophy	10/35 (28.5%)
Negative test for RF	27/35 (77.1%)
Evidence of dactylitis	12/35 (34.2%)
Current dactylitis	1/35 (2.9%)
History of dactylitis	1/35 (31.3%)
Juxtaarticular new bone formation	12/35 (34.2%)

Table IV. Most common minimal combination of criteria used to meet CASPAR.

Criteria combination	PsA (n=35)	%
Current psoriasis + negative RF	12/35	34.2
Fx of psoriasis + negative RF + Hx of dactylitis	5/35	14.2
Current psoriasis + new bone formation	4/35	11.4
Fx of psoriasis + negative RF + new bone formation	3/35	8.6
Hx of psoriasis + current dactylitis + new bone formation	2/35	5.7
Hx of psoriasis + negative RF + Hx dactylitis	2/35	5.7
Fx of psoriasis + nails dystrophy + negative RF	2/35	5.7
Current psoriasis + nail dystrophy	1/35	2.9
Current psoriasis + hx of dactylitis	1/35	2.9
Hx of psoriasis + negative RF + new bone formation	1/35	2.9
Hx of psoriasis + hx of dactylitis + new bone formation	1/35	2.9
Fx of psoriasis + nails dystrophy + new bone formation	1/35	2.9

Discussion

In this paper, we present our results from an audit on the new CASPAR criteria compared to five of the "old" ones namely Moll and Wright, Bennett's, Vasey and Espinoza, Fournié's and ESSG.

The prevalence of psoriasis among patients with arthritis in the general population is 2-3%, but among patients with arthritis it is 7%. Inflammatory arthritis occurs in 2-3% of the general population, but among patients with psoriasis the prevalence of inflammatory arthritis varies from 6% to 42% (14). The exact prevalence of PsA is unknown and its estimation has been difficult, partly due to the lack of a widely accepted classification or diagnostic criteria, and partly due to the fact that even experts may fail to make the correct diagnosis (15-17). Validated classification criteria have been developed for a number of rheumatic diseases. Such criteria are important for several reasons. They enable the classification of homogeneous groups to facilitate comparison between centres and different countries in the areas of epidemiology, outcome studies and therapeutic trials. Agreed and validated criteria are critical to meaningful research into immunogenetics and other basic sciences (15). For RA, the disease definition listed seven criteria, patients needing to fulfil four of these to be included. Sensitivity was 91% and specificity 89% (18). Unfortunately, validated criteria such as those developed for RA do not yet exist for PsA. The problem is not with the classic presentation of PsA – *i.e.* with oligoarthritis, DIP involvement, calcaneal enthesitis and dactylitis – but with the group of patients who have seropositive polyarthritis and psoriasis (15). The development of new therapies, especially biological therapies, has highlighted this deficiency and made the need for such criteria and for standardised outcome and response criteria more urgent (19).

Our cohort includes patients seen in the everyday practice at a DGH and all data regarding the individual criteria were collected in the presence of the patient. This should reduce bias related to missing data or information.

One characteristic, which, however, may be considered as bias, is the higher proportion of females in the study. This is a consistent finding in our patients and we have noticed that we have 10% more female referrals than men compared to the referrals to the male consultant practising in the same DGH. We believe that the female preponderance is cultural-related, since we serve a diverse cultural population in which gender of the consultant to whom the patients are referred is considered important.

In our cohort we also have a significant proportion of patients with spinal involvement. We believe that is due to the fact that our hospital is considered locally as a referral centre for inflammatory back pain in the referral pattern from local general practitioners and triage physiotherapy centres or local CAT services. This may explain the disproportionate spinal/axial involvement compared to peripheral disease.

The diagnosis of PsA was based upon opinions by rheumatologists with longstanding expertise in PsA, even if rheumatologists in practice appear to exhibit substantial variation in how they diagnose PsA (17).

We did not use other classification criteria such as that proposed by McGonagle *et al*. (8) or the one proposed by Gladman *et al*. (9). This is due to the fact that it was shown that the sensitivity of the V&E method was similar to that of the method of McGonagle *et al*. as well as the sensitivity of M&W was similar to that of the method of Gladman *et al*. (10). Thus, we decided to not use these criteria as the results were considered to be comparable.

There was no patient with arthritis mutilans in our cohort. The explanation for this may be that the study run only for two months and arthritis mutilans is an uncommon 'variant' of psoriatic arthritis. Analysing the criteria, Bennett's were positive by only 10.2%. In our opinion, the difficulty in this set in order to be able to pick up more cases was lying to pathology requirements. However, when Bennett's criteria were positive the rest 4 sets were more likely to be positive.

The Moll & Wright criteria were positive in 30.7% and this is explained with the "lack" of family history of psoriasis as criterion as well as the presence of negative RF as "mandatory" criterion.

In our study, Vasey and Espinoza criteria performed similarly to Moll and Wright and to ESSG as well. Vasey & Espinoza criteria picked nearly half (18 out of 39) of the cases which suggests that they performed better than M&W because, although V&E have similar features to M&W, it is also able to pick cases with positive RF (apart if symmetry was present). ESSG criteria, in which all psoriatic features (current psoriasis, history of psoriasis and family history of psoriasis as well as nail disease) are included, had the weakness in picking up patients with psoriasis and polyarticular symmetrical arthritis pattern. Therefore, even patients with RF positive were able to fulfil ESSG as RF is not a criterion of exclusion.

By including family history of psoriasis in the criteria, 18 out of 28 patients

representing 64.2%, who did not fulfil Moll and Wright or Vasey and Espinoza due to lack of family history of psoriasis met the CASPAR criteria. This suggests that the CASPAR criteria, which were positive in 89.7%, are better at "catching" such cases by inclusion of family history of psoriasis in their criteria.

Fournie's criteria were positive in 31/39 cases representing 79.4%. This high percentage is mostly due to inclusion of axial signs of the disease.

Most patients in our study satisfied the CASPAR criteria only in terms of evidence of current psoriasis and negative RF criteria and a similar result was seen by Chandran *et al*. (12).

As noted above, the strength of the present study is that all data regarding the individual criteria were collected with the presence of the patient. This should reduce the bias related to missing data or information.

However, we have to recognise that we omitted the synovial biopsy as listed in Bennett's criteria due to the difficulty in performing this procedure in our hospital. Hence, we could call the Bennett's criteria as "modified" criteria. In addition, at the time of this audit, we checked mainly HLA B27 in our patients rather than other genetic sets due to the fact that in our hospital we have a special interest in inflammatory back pain. Hence, those with spinal involvement were more likely to be tested for the HLA-B27 genetic marker. This is the reason for the omission of the genetic sets listed in Fournie' criteria.

In our opinion, there are still some limitations related to these criteria that should be discussed. In addition to the absence of spinal feature from the CASPAR criteria and the lack of a precise description of the study's initial qualification criterion (inflammatory arthritis including spinal, peripheral and entheseal disease) which have already been recognised as a weakness (20), there are, in our opinion, a few more limitations which might be considered for further investigations and assessment.

Dactylitis, which has a prognostic significance as it is associated to more aggressive disease in affected digits (21), is included in the CASPAR criteria in terms of both current and history of dactylitis but it does not specify how it is assessed and despite a variety of measure for dactylitis have been published, none has been universally accepted (22-26). Recently a more objective measure (Leeds dactylitis index, LDI) has been developed (27). LDI measures the ratio of the circumference of the affected digit to the circumference of the digit on the opposite hand or foot: a minimum difference of 10% is used to define dactylitic digit (if ipsilateral and controlateral digits are thought to be involved, a table of normative values is used to provide the comparison). However, in the CASPAR criteria, the method used to measure dactylitis has not been specified. In addition, history of dactylitis recorded by a rheumatologist is also included by CASPAR. Obviously, it seems hard to believe that a same method of measurement for dactylitis might have been used in both current and history of dactylitis. In our case, we used to define positive current dactylitis if present today as judged by ourself and positive history of dactylitis if it was present in the clinical medical records, accordingly recorded by a Rheumatologist.

In the CASPAR criteria, a personal history of psoriasis is defined as a history of psoriasis that may be obtained from family physician, dermatologist, rheumatologist as well as "patient" him/herself or "other qualified health care provider".

We note that in the UK there is a family doctor who can diagnose skin psoriasis, but in other countries there is not. For example, psoriasis, unless very pronounced, can be perceived as eczema or even dandruff. As such, not all healthcare systems will identify psoriasis.

In view of this, we recorded in our data a positive personal history of psoriasis, as the CASPAR criteria suggest, but we had some doubts when it was reported as past skin psoriasis diagnosed by the patient or by another qualified healthcare provider. We also consider the "other qualified health care provider" too generic and should be clarified.

In conclusion, family history of psoriasis is the main advantage of the new CASPAR Criteria over Moll & Wright and Vasey & Espinoza. In addition, using the CASPAR criteria, it is possible to make a diagnosis of PsA in a patient who develops inflammatory articular disease even if with RF positive and polyarticular symmetrical arthritis. Finally, our study confirmed that CASPAR proved to be the most sensitive.

The importance of having these classification criteria is also for the development of recommendations for the optimal treatment of patients with PsA. As such, some authors proposed guidelines that will form the basis for identifying what constitutes quality medical care for patients with PsA (28).

We believe that the CASPAR criteria, which are simple and easy to use, have high potential to be introduced as the universal classification criteria for PsA. However, further study of the validation of these new criteria is required.

References

1. WRIGHT V, MOLL JMH: Psoriatic arthritis. *In*: WRIGHT V, MOLL JMH (Eds.) *Seronegative polyarthritis*. Amsterdam: North Holland Publishing Co, 1976: 169-223.
2. MOLL JMH, WRIGHT V: Psoriatic arthritis. *Semin Arthritis Rheum* 1973; 3: 55-78.
3. WRIGHT V: Seronegative polyarthritis: a unified concept. *Arthritis Rheum* 1978; 21: 619-33.
4. BENNETT RM: Psoriatic arthritis. *In*: MCCARTY DJ (Ed.) *Arthritis and Related Conditions*. Philadelphia: Lea & Febiger, 1979: 645.
5. VASEY FB, ESPINOZA LR: Psoriatic arthritis. *In*: CALIN A (Ed.) *Spondyloarthropathies*. Orlando. Grune and Stratton, 1984: 151-85.
6. FOURNIÉ B, CROGNIER L, ARNAUD C *et al*.: Proposition des critères de classification du rheumatisme psoriasique. Etude préliminaire de 260 patients. *Rev Rhum* 1999; 66: 513-24.
7. DOUGADOS M, VAN DER LINDEN S, JUHLIN R *et al*.: The European Spondyloarthropathy Study Group preliminary criteria for the classification of spondyloarthropathy. *Arthritis Rheum* 1991; 34 1218-27.
8. MCGONAGLE D, CONAGHAN PG, EMERY: Psoriatic arthritis: a unified concept twenty years on. *Arhritis Rheum* 1999; 42: 1080-6.
9. GLADMAN DD, SHUCKETT R, RUSSELL ML, THORNE JC, SCHACHTER RK: Psoriatic arthritis: an analysis of 220 patients. *Q J Med* 1987; 238: 127-41.
10. TAYLOR W, GLADMAN D, HELLIWELL P *et al*.: Classification criteria for psoriatic arthritis: Development of new criteria from a large international study. *Arthritis Rheum* 2006; 54: 2665-73.
11. HELLIWELL PS, GRAPPA GROUP (Group for

Research and Assessment of Psoriasis and Psoriatic Arthritis), Stockholm, May/June 2006. *J Rheumatol* 2007; 34: 214-9.

12. CHANDRAN V, SCHENTAG CT, GLADMAN DD: Sensitivity of the Classification of Psoriatic Arthritis Criteria in Early Psoriatic Arthritis. *Arthritis Rheum* 2007; 57: 1560-3.
13. GLADMAN DD, SHUCKETT R, RUSSELL ML, THORNE JC, SCHACHTER RK: Psoriatic arthritis (PsA): an analysis of 220 patients. *Q J Med* 1987; 62: 127-41.
14. SILMAN A: Psoriatic arthritis. *In*: SILMAN A, HOCHBERG MC (Eds.) *Epidemiology of the Rheumatic Diseases* Oxford. Oxford University Press, 2001: 85-99.
15. HELLIWELL E, TAYLOR WJ: Classification and diagnostic criteria for psoriatic arthritis. *Ann Rheum Dis* 2005; 64 (Suppl. II): ii3-8.
16. GLADMAN DD: Psoriatic arthritis. *Baillieres Clin Rheumatol* 1995: 9: 319-29.
17. GORTER S: Psoriatic arthritis: performance of rheumatologists in daily practice. *Ann Rheum Dis* 2002; 61: 219-24.
18. ARNETT FC, EDWORTHY SM, BLOCH DA *et al*.: The American Rheumatism Association 1987 revised criteria for the classification of rheumatoid arthritis. *Arthritis* Rheum 1988; 31: 315-24.
19. TAYLOR WJ, FELLOW DE, HELLIWELL PS: Case definition of psoriatic arthritis. *Lancet* 2000; 356: 2095; author reply 2096.
20. HELLIWELL P: New criteria for classifying PsA in clinical research. *Rheumatology in Practice* 2007; 5: 13-5.
21. BROCKBANK JE, STEIN M, SCHENTAG CT, GLADMAN DD: Dactylitis in psoriatic arthritis: a marker for disease severity? *Ann Rheum Dis* 2005; 64:188-90.
22. CLEGG DO, REDA DJ, MEJIAS E *et al*.: Comparison of sulfasalazine and placebo in the treatment of psoriatic arthritis. A Department of Veterans Affairs Cooperative Study. *Arthritis Rheum* 1996; 39: 2013-20.
23. SALVARANI C, CANTINI F, OLIVIERI I *et al*.: Efficacy of infliximab in resistance psoriatic arthritis. *Arthritis Rheum* 203; 49: 541-5.
24. KALTWASSER JP, NASH P, GLADMAN D *et al*.: Efficacy and safety of leflunomide in the treatment of psoriatic arthritis and psoriasis: a multinational, double-blind, randomized, placebo-controlled clinical trial. *Arthritis Rheum* 2004; 50: 1939-50.
25. ANTONI CE, KANAUGH A, KIRKHAM B *et al*.: Sustained benefits of infliximab therapy for dermatologic and articular manifestations of psoriatic arthritis: results from the Infliximab Multinational Psoriatic Arthritis Controlled Trial (IMPACT). *Arthritis Rheum Dis* 2005; 52: 1227-36.
26. ANTONI CE, KRUEGER GG, DE VLAM K *et al*.: Infliximab improves signs and symptoms of psoriatic arthritis: results from the IMPACT 2 trial. *Ann Rheum Dis* 2005; 64: 1150-7.
27. HELLIWELL PS, FIRTH J, IBRAHIM GH, MELSOM RD, SHAH I, TURNER DE: Development of an assessment tool for dactylitis in patients with psoriatic arthritis. *J Rheumatol* 2005; 32: 1745-50.
28. KAVANAUGH A, RITCHLIN C, BOEHNCKE WH: Quality indicators in psoriatic arthritis. *Clin Exp Rheumatol* 2007; 25 (Suppl. 47): 98-101.