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REVIEW ARTICLE

Qualifying Unmet Needs and Improving Standards of Care in Psoriatic Arthritis

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Introduction

Individuals with psoriatic arthritis (PsA) are often undiagnosed or misdiagnosed (1,2), potentially leading to delays in receiving appropriate treatment. Many individuals with PsA consider their disease to be severe but view available treatment options as equally or more burdensome (3). Consequently, the long-term outcomes for patients with PsA tend to be poor, marked by disease progression (4), poor

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health-related quality of life (HRQOL) (5), increasing disability (5–7), comorbidities (8–10), and high direct and indirect costs (11,12).

To explore the possible solutions to these issues, the Psoriatic Arthritis Forum was convened on October 29, 2012, in London. Its members included experts in rheumatology and dermatology as well as patient representatives from Europe and North America. The primary goals of the Psoriatic Arthritis Forum were to define unmet needs and gaps in PsA diagnosis and treatment and discuss potential ways in which to address these gaps, focusing on defining and implementing consistent standards of detection and care. This consensus statement summarizes the findings of this working group.

Gaps in PsA detection

Prevalence. Among psoriasis patients, the estimated PsA prevalence rate varies considerably, from 8 to >40%, depending on the group analyzed, classification criteria applied, and study methods employed (1,2,13). However, evidence suggests that the rate of PsA detection is low, with about 50% of psoriasis patients with PsA undiagnosed (1,2,14). Using Classification Criteria for Psoriatic Arthritis, results from a UK community survey showed a PsA prevalence rate of 11.7% in patients with psoriasis; two-thirds of these patients were previously undiagnosed (1).

A large variation in prevalence estimates and evidence of underdiagnosis highlight 2 significant gaps in the ability to reliably and accurately identify patients with PsA. The first gap is the absence of well-validated tools for PsA screening and detection for use in daily clinical practice. Although a number of PsA screening tools have been developed, limited sensitivity or specificity may hinder accurate identification of PsA in psoriasis patients or the general population (15–17). CONTEST, a secondary care study, compared the Psoriasis Epidemiology Screening Tool (PEST) questionnaire with the Toronto Psoriatic Arthritis Screening (ToPAS) and Psoriatic Arthritis Screening and Evaluation (PASE) questionnaires using Classification Criteria for Psoriatic Arthritis (18). The PEST and ToPAS questionnaires were slightly better than the PASE questionnaire in identifying PsA, and the PEST questionnaire appeared more discriminatory, but there was little statistical difference between the 3 tools. Although these tools were designed to identify patients who have PsA, they have lower sensitivity for identifying spinal disease and oligoarticular forms and also identify patients with other musculoskeletal diseases, leading to a high false-positive rate for PsA (18). To improve this, key elements of all 3 questionnaires have been distilled into a new instrument that performs better than its antecedents (19).

The second gap in accurately identifying PsA is a low level of awareness and clinical training among physicians. Physicians who are unfamiliar with PsA in clinical practice are less likely to introduce measures to screen for PsA, and dermatologists and primary care physicians (PCPs) may find it difficult to differentiate between inflammatory arthritis and osteoarthritis. Without proper screening tools, physicians must rely on limited clinical knowledge in this therapeutic area.

Table 1. Unmet needs in PsA identification: addressing the problem*

Unmet needs in PsA identification
PsA is often undiagnosed or misdiagnosed
Physicians and patients lack awareness of PsA
Appropriate screening tools for PsA are lacking
Criteria are unclear regarding rheumatologist referrals and/or treatment
Data are lacking regarding identifying at-risk and high-risk PsA patients and the value of intervention
Patients with PsA fall in a gap between psoriasis and arthritis patient groups
Addressing the problem
Develop simple, effective screening tools, diagnostic tests, and clinical findings
Define criteria for rheumatologist referral, including development and validation as well as implementation to ensure appropriate use
Educate health care providers (i.e., dermatologists and PCPs) on the impact of PsA (it is not a benign arthritis), and clinical targets that trigger rheumatologist referral
Establish multidisciplinary care (i.e., collaboration between dermatologists and rheumatologists)
Educate psoriasis patients to raise awareness of PsA; specialized nurse practitioners can educate patients and provide complementary support
Improve collaboration and awareness through patient organizations who willingly accept responsibility for PsA patients

* PsA = psoriatic arthritis; PCPs = primary care physicians.

Factors predicting PsA development. Certain characteristics of the skin, such as scalp lesions, nail dystrophy, and intergluteal or perianal lesions, as well as exposures to certain environmental factors, such as infection, heavy lifting, smoking, and injury (20), may increase the risk of developing PsA. Although the discriminative ability and usefulness of these factors in everyday clinical practice may be low, the site and nature of the skin lesions do indicate the need for a thorough examination of the patient. A number of inflammatory and immune system biomarkers and genetic factors are linked to a high risk of PsA development, but the clinical usefulness of testing for such biomarkers is not yet established. Some evidence suggests that ultrasound may be useful in screening psoriasis patients who do not have joint-related symptoms, but the clinical significance of these findings is not yet confirmed.

Increasing PsA identification and improving diagnosis. PsA is underdiagnosed in clinical practice, particularly in the community and dermatology clinics, although experienced rheumatologists can sometimes have difficulty (21). Increased awareness and better screening tools are needed to help dermatologists and PCPs identify PsA (Table 1). Beyond the use of clinical markers and education, identifying a biomarker that reliably predicts progression of psoriasis to PsA would be valuable. The Psoriatic Arthritis

Table 2. Overview of PsA treatment algorithms: PsA severity*

	AAD (32,33)	GRAPPA (31)	EULAR (30)
Mild	Step 1. NSAIDs Step 2. conventional DMARD	NSAIDs	NSAIDs
Moderate	Step 1. conventional DMARD Step 2. combination DMARD/ TNF inhibitor	Step 1. conventional DMARD Step 2. combination DMARD/ TNF inhibitor	Step 1. NSAIDs Step 2. methotrexate Step 3. switch to different DMARD
Severe or high risk†	Combination synthetic DMARD/TNF inhibitor or other biologic agent	TNF inhibitor	Step 1. methotrexate Step 2. different DMARD or TNF inhibitor (axial disease, high risk) Step 3. begin (or switch) to different biologic agent, combination + DMARD

* PsA = psoriatic arthritis; AAD = American Academy of Dermatology; GRAPPA = Group for Research and Assessment of Psoriasis and Psoriatic Arthritis; EULAR = European League Against Rheumatism; NSAIDs = nonsteroidal antiinflammatory drugs; DMARD = disease-modifying antirheumatic drug; TNF = tumor necrosis factor.
† High risk refers to patients with adverse prognostic factors, including ≥5 active joints, high functional impairment, radiographic damage, or past glucocorticoid use.

Forum members agreed that an early psoriasis cohort study is needed to identify clinical, genetic, and biochemical markers to predict PsA progression; this type of study is already underway in Spain (Queiro R: personal communication).

Education on PsA screening should be directed to health care providers who are most likely to have contact with PsA patients, including dermatologists, PCPs, ophthalmologists, orthopedists, rheumatologists, podiatrists, and physical therapists. Among these, dermatologists might be the focus of greater efforts, given that patients are likely to have more severe skin disease associated with PsA development (14). Increasing awareness among general practitioners about the importance of PsA screening may help to ensure that patients receive timely and appropriate treatment. In fact, recent guidelines from the UK National Institute for Health and Clinical Excellence recommend that all psoriasis patients be screened annually for PsA using the PEST questionnaire (22).

The Psoriatic Arthritis Forum members agreed that clearly defined criteria are needed to identify patients who should be referred to a rheumatologist for further evaluation. As screening tools with improved sensitivity and specificity are developed, the increased use of electronic medical records will allow tools, such as pop-up windows in psoriasis patient records, to increase appropriate screening and referral.

The creation of multidisciplinary clinical settings with dermatologists and rheumatologists working within the same location may dramatically increase PsA detection and referral. A number of these settings exist in the US (e.g., Harvard University, The Cleveland Clinic, and Stanford University) as well as in Europe (e.g., the UK, Germany, Italy, and Spain). At a Munich tertiary care center, a considerable rise in PsA diagnoses was seen among psoriasis patients under the care of the dermatology unit who was given access to the center's rheumatology unit.

The PsA education approaches used by Psoriatic Arthritis Forum members included flyers (VC) and booklets (OF) for patient use in dermatology clinics. The National Psoriasis Foundation publishes a pocket guide to help educate dermatologists about PsA (23), and the book *Psoriatic Arthritis: The Facts* is the first of its kind targeted to the general public and is primarily focused on educating patients about PsA (24). Patient organizations also have a place in educating patients and health care providers.

After PsA identification: gaps in clinical intervention. It is not yet known whether early and/or intense treatment of PsA can prevent disease progression and whether identifying and treating all PsA patients is beneficial in the long term. The Tight Control of Psoriatic Arthritis (TICOPA) protocol, a multicenter, randomized, controlled, parallel-group study, assessed the impact of tight control of early PsA and demonstrated that intensive management of PsA significantly improved joint and skin outcomes in newly diagnosed PsA patients compared with standard care (25). However, further analysis of this cohort by subgroup is awaited.

Characteristics known to be predictive of progression and poor outcome include the number of inflamed joints, previous disease-modifying antirheumatic drug (DMARD) use, elevated erythrocyte sedimentation rate, previous steroid use, and presence of joint damage evident both clinically and radiographically (26,27). A recent study in Sweden compared the disease activity and treatment between PsA and rheumatoid arthritis in patients with early disease and after 5 years of disease duration. In the PsA patients, there was more persistent disease activity and worse HRQOL, possibly due to less aggressive treatment (fewer DMARDs and less use of biologic agents) after 5 years (28). In a recent report, patients with the HLA alleles A02, B*27, and B*39 were at increased risk for progression of joint damage (29), hinting that future trends may include such prognostic biomarkers.

Table 3. Overview of PsA treatment algorithms: PsA symptom type*

	AAD (32)	GRAPPA (31)	EULAR (30)	ISR (34)	BSR (35)
Peripheral	NSAIDs, corticosteroid injections, DMARDs, biologic agents	NSAIDs, corticosteroid injections, DMARDs, biologic agents	NSAIDs, corticosteroid injections, DMARDs, biologic agents	Step 1. NSAID Step 2. ≥1 DMARD, 2 months + 2 steroid injections Step 3. TNF inhibitor if ≥1 inflamed joint, pain VAS ≥40, favorable expert opinion, or radiographic evidence of progression	Step 1. NSAIDs ± local steroid injection Step 2. ≥2 DMARDs Step 3. TNF inhibitor if ≥3 swollen/tender joints or persistent or severe oligoarthritis Step 4. Second TNF inhibitor
Axial	–	NSAIDs, physiotherapy, biologic agents	NSAIDs, biologic agents	Step 1. NSAIDs (try ≥2 drugs, maximum doses, 3 months) Step 2. TNF inhibitor, if BASDAI ≥40, favorable expert opinion	Step 1. NSAIDs ± local steroid injection Step 2. TNF inhibitor if adverse prognostic factors† Step 3. Second TNF inhibitor
Enthesitis	–	NSAIDs, corticosteroid injections, physiotherapy, biologic agents	NSAIDs, corticosteroid injections, biologic agents	Step 1. NSAID, 3 months Step 2. ≥1 DMARD, + 2 local steroid injections Step 3. TNF inhibitor if favorable expert opinion, pain VAS ≥40 (0–100 mm scale), and HAQ DI ≥0.5	–
Dactylitis	–	NSAIDs, corticosteroid injections, DMARDs, biologic agents	NSAIDs, corticosteroid injections, biologic agents	Step 1. NSAID, 3 months Step 2. ≥1 DMARD, + 2 local steroid injections Step 3. TNF inhibitor if favorable expert opinion, pain VAS ≥40 (0–100 mm scale), HAQ DI ≥0.5, uniformly swollen digit(s), and tenderness rating of ≥2 on 0–4 Likert scale	–

* PsA = psoriatic arthritis; AAD = American Academy of Dermatology; GRAPPA = Group for Research and Assessment of Psoriasis and Psoriatic Arthritis; EULAR = European League Against Rheumatism; ISR = Italian Society for Rheumatology; BSR = British Society for Rheumatology; NSAIDs = nonsteroidal antiinflammatory drugs; DMARDs = disease-modifying antirheumatic drugs; TNF = tumor necrosis factor; VAS = visual analog scale; BASDAI = Bath Ankylosing Spondylitis Disease Activity Index; HAQ = Health Assessment Questionnaire; DI = disability index.
† Adverse prognostic factors include ≥5 swollen joints, elevated C-reactive protein, structural joint damage, or previous corticosteroid use.

Treatment algorithms

In the past 5 years, a number of PsA treatment algorithms have been published, helping to build consensus regarding evidence-based management (30–33) (Tables 2 and 3). Recommendations on the treatment of PsA from the Italian Society for Rheumatology and the British Society for Rheumatology are also summarized in Table 3 (34,35). On the basis of evidence from systematic reviews of published efficacy and safety data as well as panel consensus, the algorithms share a number of common recommendations.

While consensus is evident among the various algorithms, none of them have been rigorously validated, and some recommendations are based on evidence derived or extrapolated from single randomized trials, controlled trials, nonrandomized trials, and case–control series, while other recommendations are based on expert opinion. It is worth noting that most algorithms are lacking ≥1 crucial element necessary to define and consistently implement standards of care for PsA; these include a validated diagnostic or assessment instrument and numeric cutoff values to define disease severity, treatment response, and adequate duration of a treatment trial. Without these elements, treatment decisions are likely to remain inconsistent, leading to wide variation in treatment quality and success.

Addressing the gaps in PsA treatment and clinical success. To improve standards of care for PsA patients, higher quality clinical evidence for some treatment recommendations is needed (particularly for conventional DMARDs) and treatment algorithms must be tested and validated. The definitions for treatment success or targets and key elements of this process are lacking (Table 4). For example, the current European League Against Rheumatism criteria state that patients should be treated to target "low disease activity," but no clear objective definition is

Table 4. Unmet needs in treating PsA patients: addressing the problem*

Unmet needs in treating PsA patients
Available treatment algorithms have not been validated
No clear consensus exists on treatment success
Physicians and patients are unclear and sometimes do not agree on the components that constitute treatment success and/or how it should be measured
No available validated composite index combines and balances physician- and patient-oriented outcomes
Addressing the problem
Educate rheumatologists
Identify patients at high risk for disease progression
Provide timely and appropriate intervention
Communicate and/or educate dermatologists on appropriate referrals to rheumatologists
Validate current treatment algorithms (such as EULAR)
Develop and validate definitions for treatment response and remission
Develop and validate a composite assessment instrument that considers all manifestations of PsA
Improve communication between health care providers and patients to ensure that expectations are matched

* PsA = psoriatic arthritis; EULAR = European League Against Rheumatism.

provided (30). Moreover, disease remission needs to be defined. Currently, it may be prudent to apply minimal disease activity criteria that are multidimensional and were developed in collaboration with members of the Group for Research and Assessment of Psoriasis and Psoriatic Arthritis using an internet-based paper patient exercise (36) (Table 5). If the skin component of the disease is prominent, close collaboration and shared treatment decisions with a dermatologist may be required.

Algorithms will require updating as further evidence emerges. For example, patients seen within the first 2 years of disease have less severe disease and a slower rate of progression than those who are seen after 2 years of disease (37), suggesting a possible benefit of an initial approach that is more aggressive than standard care, a finding supported by the TICOPA study (25).

The Psoriatic Arthritis Forum members agreed that, although outcomes suitable for reimbursement (i.e., Germany will not allow composite measures for measuring added patient value) and objective measures of treatment success are crucial, it also is important to account for the patient perspective. An unmet need exists for a validated composite index that combines and balances physician- and patient-oriented outcomes. A number of composite outcome measures are under investigation, including the PsA Disease Activity Score, GRACE index, PsA Joint Activity Index, and Composite Psoriatic Arthritis Disease Activity Index (38–40). In addition, the PsA Impact of Disease scale has recently demonstrated sensitivity to clinical improvements during treatment (41).

Table 5. Minimal disease activity criteria for PsA (36)*

Outcome measure	Value
Swollen joint count	≤1
Tender joint count	≤1
PASI score or BSA	≤1 or ≤3%
Tender entheseal points	≤1
Patient pain (VAS) score	≤15
Patient global disease activity (VAS) score	≤20
HAQ DI score	≤0.5

* Patients were classified as achieving minimal disease activity if they fulfilled 5 of 7 outcome measures. PsA = psoriatic arthritis; PASI = Psoriasis Area and Severity Index; BSA = body surface area; VAS = visual analog scale; HAQ = Health Assessment Questionnaire; DI = disability index.

The Psoriatic Arthritis Forum members noted that patient expectations and attitudes regarding treatment can have a large impact on treatment choices and the ultimate success of any treatment regimen. Patients may have low expectations regarding the ability of health care providers and treatment to improve their well-being; education may help to raise awareness of treatment options. Low expectations of success also may be related to patient reluctance to take certain therapies because of administration or safety concerns. Patient adherence also may be poor, compromising the chances for an optimal outcome. The Psoriatic Arthritis Forum members suggested that improved and candid communication between health care providers and patients is needed to learn about patient concerns and ensure alignment of expectations and goals. Patient education regarding the impact of disease, treatment options, and outcomes may help patients feel empowered to take responsibility for managing their disease. Discussion should include goals of short-term symptomatic treatment and longer-term prevention of joint destruction.

Awareness of PsA burden

PsA has a significant, negative impact on HRQOL (5,42,43). Patients often have decreased scores on the 36-item Short Form health survey, version 2 compared with the general population, including physical function, pain, role limitation, and general health perception (6). Many PsA patients indicate that their disease has resulted in marked physical limitations and impaired emotional well-being (5,44). Comparatively larger HRQOL impairments have been noted in patients with PsA compared with psoriasis alone (5,43,45). Likewise, bodily pain and limitations due to emotional problems have been reported more frequently in patients with PsA than in those with rheumatoid arthritis (7) and healthy individuals (43). Consistent with its reported physical and emotional impairments, PsA is associated with long-term work disability, unemployment, and loss of productivity (11,46).

Compared with psoriasis alone, PsA is associated with a significantly higher risk of comorbidities, including cardiovascular disease, hypertension, type 2 diabetes mellitus, and obesity (8,47). Hypertension in particular appears to be the leading comorbidity among patients with PsA. In a PsA comorbidity study, hypertension was present in 37% of PsA patients compared with 20% of psoriasis-only patients (8). Other serious and chronic comorbid conditions have been found at a greater frequency than with psoriasis alone. In the same comorbidity study, more patients with PsA had neurologic conditions (e.g., seizure

Table 6. Unmet needs in the awareness of PsA burden: addressing the problem*

Unmet needs in the awareness of PsA burden
Awareness is low regarding the impact of PsA on patient lives
It is unclear how the patient perspective of severity correlates with classifications by health care providers
Awareness of the impact of comorbidities is low among health care providers and patients
The value and cost-effectiveness of therapies needs further defining, including evaluation of direct and indirect costs
Addressing the problem
Educate health care providers and patients about PsA impact on daily life, comorbidities, and long-term outcomes
Improve communication between health care providers and patients to ensure expectations are matched
Additional research is needed on the true value of therapies, including the impact on direct and indirect costs

* PsA = psoriatic arthritis.

conditions, neuropathy, or multiple sclerosis), hepatic impairment (e.g., hepatitis or fatty liver), and gastrointestinal disease (e.g., ulcer or irritable bowel syndrome) than patients with psoriasis alone after adjusting for confounding factors, such as age, sex, smoking status, and psoriasis duration (8).

The economic burden of PsA includes substantial direct and indirect costs (11,48) that rise as the disease progresses and patient function deteriorates (12,49). Inpatient care and drug therapy are the top drivers of direct costs (11,12). In terms of medication cost analyses, evidence suggests that, despite high per-unit expense, an overall benefit is seen with biologic agents marked by reduced health care utilization and improved productivity (50,51). Despite these benefits, treatment with biologic agents does not appear to be an adequate long-term strategy for cost control; persistence tends to be low, with >50% of patients requiring a therapy change in the first year (52). In contrast, disability and decreased productivity are drivers of indirect costs (11,12,50) because patients with PsA lose function, are less able to work, and require assistance with daily chores (11,46).

From the patient's perspective, the burden of disease is substantial and treatment options are inadequate (Table 6). In the Multinational Assessment of Psoriasis and Psoriatic Arthritis patient survey, 53% of PsA patients considered their disease to be severe and 83% had seen a health care provider in the preceding year (3). Few oral treatment options are approved for PsA, aside from conventional DMARDs that may pose significant, treatment-limiting safety risks. Therefore, not surprisingly, 59% of surveyed patients with PsA were not receiving any therapy or only topical therapy, 46% believed therapies may be worse than the disease, and >50% responded that their treatment was burdensome (3).

Psoriatic Arthritis Forum recommendations

Many patients with PsA have psoriatic skin lesions and arthritis-related pain, inflammation, and stiffness that limit mobility. Patients tend to have poor functional outcomes, marked by reduced HRQOL, employment disability, underemployment or unemployment, and low work productivity. Direct and indirect health care costs are also high in patients with PsA.

The Psoriatic Arthritis Forum consisting of a multinational group of leading researchers, clinicians, and patient representatives was convened to evaluate the gaps and unmet needs considered to underlie the poor clinical and functional outcomes in the PsA patient population. Although patient advisors were included and active in the forum meetings and discussions, they were not proportionally represented; consequently, the current consensus statement likely provides a limited picture of unmet needs from the patient perspective. A consultation among a wider group of PsA patients would help to validate the findings from this meeting.

The examination of available evidence as well as clinical and personal patient experience revealed key weaknesses in the PsA identification and treatment process. These weaknesses included underdiagnosis and misdiagnosis of PsA, a lack of screening tools, poorly defined treatment algorithms and definitions of treatment response and remission, and low awareness of the significant burden experienced by PsA patients and the higher risk of comorbidities.

Actions

Several priority actions necessary to meet these needs and drive change were identified. PsA burden may be improved by 1) raising awareness on the progression, HRQOL-related components, and comorbidities associated with PsA; 2) conducting educational activities targeting the referring and treating physicians as well as patients; 3) improving communication between health care providers and patients; and 4) completing a pharmacoeconomic evaluation of therapies that examines the impact on both direct and indirect costs, patient HRQOL, and patient function. Increasing screening, diagnosis, and referrals of appropriate patients may be achieved by 1) developing and validating a screening tool for dermatologists and PCPs to use in identifying patients with suspected PsA who would benefit from treatment or referral to a rheumatologist and 2) performing educational activities to raise awareness of PsA that target health care providers who may encounter PsA patients, including dermatologists, PCPs, rheumatologists, and other specialists (i.e., ophthalmologists, orthopedists, and physiatrists). Developing and validating an updated PsA treatment algorithm may be accomplished by 1) educating community rheumatologists on patient appraisal and treatment decisions and 2) defining treatment response and remission and indicators for treatment change/titration, which includes defining success from the perspective of the patient, physician, and regulatory bodies and developing and validating new composite measures.

In conclusion, the Psoriatic Arthritis Forum consensus

statement is intended to serve as a guide to improving the timely and appropriate identification of patients with PsA and providing more consistent, higher-quality care of PsA patients. The actions outlined herein address short-term goals, including promoting awareness of PsA and its associated burden, as well as longer-term goals, including defining and implementing consistent standards of detection and care. Ultimately, the recommended actions are intended to improve disease-related and functional outcomes and HRQOL of PsA patients.

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