

Development of Simple Clinical Criteria for the Definition of Inflammatory Arthritis, Enthesitis, Dactylitis, and Spondylitis: A Report from the GRAPPA 2014 Annual Meeting

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ABSTRACT. Rheumatologists are trained to determine the presence of musculoskeletal inflammation through history, physical examination, and if needed, laboratory tests and imaging. However, primary care clinicians, dermatologists, surgeons, and others who may initially see patients with musculoskeletal pain are not necessarily able to make the distinction between inflammatory (e.g., rheumatoid arthritis or psoriatic arthritis) and noninflammatory disease (osteoarthritis, traumatic or degenerative tendonitis, back pain, or fibromyalgia). If such clinicians could more readily suspect and identify possible inflammatory musculoskeletal disease, it would lead to more timely diagnosis and triage to rheumatologists for diagnosis and appropriate management. The Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) has been developing evidence-based, practical and reliable criteria that can be used by clinicians to identify inflammatory musculoskeletal disease. The research initiative involves a sequential process of expert clinician nominal group technique, patient focus groups, and Delphi exercises to identify core definitive features of inflammatory disease. The goal is to develop simple clinical criteria (history and physical examination elements) to identify inflammatory arthritis, enthesitis, dactylitis, and spondylitis and distinguish these from degenerative, mechanical, or other forms of these conditions, to achieve more timely and accurate diagnosis and referral of patients with inflammatory arthritis. (J Rheumatol 2015;42:1041–3; doi:10.3899/jrheum.150129)

Key Indexing Terms:

PSORIATIC ARTHRITIS
DACTYLITIS

INFLAMMATORY ARTHRITIS

ENTHESITIS
SPONDYLITIS

Psoriatic arthritis (PsA) may occur in up to 30% of patients with psoriasis, but often goes unrecognized¹. If inadequately treated, patients may experience more joint damage, functional disability, and early mortality compared to the general population^{2,3,4}. PsA can present in an unpredictable,

heterogeneous, and insidious manner, variably involving joints, tendon and ligament attachments, and the spine, making it difficult to distinguish from other musculoskeletal conditions. Because there is no specific diagnostic test, the clinician must rely on experience to render an accurate diagnosis. Further, for the CLASSification of Psoriatic Arthritis (CASPAR) criteria to be applied, evidence of inflammatory arthritis, enthesitis, and/or spondylitis must be present; for rheumatoid arthritis (RA) diagnosis, evidence of inflammatory arthritis must be present^{5,6}. On the other hand, just as PsA may be underrecognized, patients with psoriasis who have osteoarthritis, fibromyalgia, or other noninflammatory musculoskeletal conditions may be inappropriately diagnosed with PsA and potentially treated with nonindicated medicines. In a series of patients with psoriasis presenting with musculoskeletal symptoms to a combined dermatology-rheumatology clinic, 43% did not have PsA⁷.

Whereas most rheumatologists are well trained to recognize the clinical features of inflammatory arthritis, enthesitis, dactylitis, and spondylitis, this is not the case for primary care clinicians, dermatologists, and others who may see the patient with PsA when he or she is first symptomatic. Screening questionnaires may help clinicians make a

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tentative diagnosis of PsA, but these are not in wide use⁸. It would be more practical if clinicians could apply a simple set of questions and physical examination elements. Although laboratory tests and imaging [especially ultrasound or magnetic resonance imaging (MRI)] could improve sensitivity and specificity, requiring these additional measures would be less useful to the triaging clinician who would have to wait for results, may not be knowledgeable about ordering laboratory tests or imaging, or be able to interpret the results as well as rheumatologists. Further, in one study, laboratory investigations and imaging did not meaningfully increase the likelihood, beyond history and physical examination, of a rheumatologist making the diagnosis of PsA¹. A possible exception, however, could be inclusion of an acute-phase reactant marker such as C-reactive protein or erythrocyte sedimentation rate, which can be easily and inexpensively obtained.

These issues with PsA diagnosis may also apply to RA and non-PsA spondyloarthritis (SpA), where many patients either are not diagnosed properly or have long delays in diagnosis, potentially harming the patient because of lack of proper treatment⁴. Therefore, simple criteria are needed to identify inflammatory arthritis in patients with RA, PsA, and SpA.

The Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) is undertaking a research initiative to develop simple criteria for the identification of inflammatory arthritis, enthesitis, dactylitis, and spondylitis⁹. This is partially modeled after a similar exercise conducted by the Assessment in SpondyloArthritis International Society (ASAS) to develop criteria for the definition of inflammatory back pain (IBP)¹⁰, which are currently being used by rheumatologists as well as non-rheumatologists¹¹. Using a list of features deemed characteristic of IBP¹⁰, 13 expert clinicians examined 20 patients with chronic back pain and suspected axial SpA. The highest sensitivity (79.6%) and specificity (72.4%) for the presence of IBP were met if 4 of 5 variables were present: (1) age at onset < 40 years, (2) insidious onset,

(3) improvement with exercise, (4) no improvement with rest, and (5) pain at night (with improvement upon getting up; sensitivity 77.0%, specificity 91.7%). In a validation step, 686 patients with chronic low back pain were evaluated in an ASAS multicenter exercise to finalize criteria for axial SpA.

At the GRAPPA 2014 annual meeting, the following experimental design for the research initiative was reviewed.

Phase 1. Building on work from the GRAPPA 2013 meeting⁹, another nominal group exercise was conducted at the 2014 meeting. Breakout groups of expert clinicians focused on the domains of arthritis, enthesitis, dactylitis, and spondylitis and listed key words, phrases, or concepts that define these domains and distinguish inflammatory from noninflammatory forms of these domains (Table 1). Once grant funding is finalized, the second portion of Phase 1 will be conducted through a series of patient focus groups, moderated by a skilled leader. Transcripts from these meetings will be analyzed to identify key words, phrases, and concepts from the patients' experience of arthritis, enthesitis (tendonitis), dactylitis, and spondylitis (back pain). Two separate focus groups will comprise patients with inflammatory disease and patients who have noninflammatory reasons for arthritis, tendon, or back pain, such as osteoarthritis and fibromyalgia. Research assistants and associates have been identified who are skilled in focus group technique and analysis; they will compile a list of key words/concepts. Separate Delphi exercises will then be conducted, where expert clinicians will compare the item list from the nominal group exercise with the item list from the patient focus groups, to determine top-ranked items. The separate lists will then be reconciled into test sets of criteria for testing in small and large patient settings.

Phase 2. In the second phase, a group of expert clinicians will gather to examine patients with inflammatory and noninflammatory arthritis, tendonitis, and back pain, 1-to-1, and determine which elements from the list of history and

Table 1. Definition of inflammatory arthritis, enthesitis, dactylitis, and spondylitis. Examples of potential definitive elements discussed in breakout groups at the GRAPPA Annual Meeting, July 2014.

Condition	Descriptors
Inflammatory arthritis	Age < 40 years, 1 or more swollen joints, "boggy" swelling rather than bony swelling, tenderness, pain worse with rest, pain improves with activity, morning stiffness, nighttime pain, distribution of joints, daily symptoms, duration > 6 weeks, decreased mobility, fatigue, weight loss, sweats, extraarticular manifestations (psoriasis, nail disease, IBD, enthesitis, inflammatory back pain). Family history of IBD, uveitis, or associated inflammatory disease. Prednisone responsive. Recurrent flares.
Enthesitis	Morning pain and stiffness, acute onset, persistent. Tenderness at tendon/ligament insertions. Multiple sites of involvement. Plantar fasciitis, Achilles tendonitis and patellar tendonitis. Rib or iliac crest pain. Possibly NSAID responsive. Diminished functional ability. Associated swelling, erythema, diffuse tenderness.
Dactylitis	Swelling of entire finger or toe, diffusely tender, erythema of entire digit. Asymmetric distribution of digits. Duration of a few weeks or more. Recurrent episodes. Chronic dactylitis may not be tender. Other manifestations including arthritis.
Spondylitis	Consider ASAS criteria. Age < 40 years, neck pain, back pain improved with activity/exercise, pain worse with rest, morning stiffness, nighttime pain, NSAID responsive, duration > 3 months, alternating buttock pain, pain not affected by positioning, extraspinal symptoms (psoriasis, nail disease, enthesitis, arthritis, dactylitis, gastrointestinal symptoms, uveitis), family history of psoriatic arthritis or ankylosing spondylitis. Diminished chest wall expansion/lateral flexion, positive Patrick's test.

ASAS: Assessment in SpondyloArthritis International Society; IBD: inflammatory bowel disease; NSAID: nonsteroidal antiinflammatory drugs.

physical examination features yield the highest sensitivity and specificity for defining inflammatory disease.

Phase 3. In the third and validating step in the process, the top-ranked criteria sets will be applied to a large group of patients with inflammatory musculoskeletal disease, including PsA and RA, and compared with control groups of patients with other diseases (e.g., osteoarthritis, traumatic or degenerative tendonitis) and identify which criteria sets are most discriminative and practical to use in a simple screening algorithm. Validation will then be performed in sets of prospectively evaluated patients in clinics where inflammatory arthritis patients are seen, including rheumatology, dermatology, and primary care clinics.

It is anticipated that development of simple and practical definitions for inflammatory arthritis, enthesitis, dactylitis, and spondylitis will help clinicians, especially non-rheumatologists, to consider the possible presence of inflammatory musculoskeletal disease and facilitate more prompt referral for rheumatology evaluation.

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