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Review article

Management of psoriatic arthritis: Early diagnosis, monitoring of disease severity and cutting edge therapies

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ABSTRACT

Psoriatic arthritis (PsA) is a heterogeneous disease that can involve a variety of distinct anatomical sites including a patient's peripheral and axial joints, entheses, skin and nails. Appropriate management of PsA requires early diagnosis, monitoring of disease activity, and utilization of cutting edge therapies. To accomplish the former there are a variety of PsA-specific tools available to screen, diagnose, and assess patients. This review will outline the recently developed PsA screening tools, including the Toronto Psoriatic Arthritis Screening Questionnaire (TOPAS), the Psoriasis Epidemiology Screening Tool (PEST), the Psoriatic Arthritis Screening and Evaluation (PASE), and the Psoriasis and Arthritis Screening Questionnaire (PASQ). We will also review the Classification Criteria for Psoriatic Arthritis (CASPAR) and current PsA disease severity measures, such as the Disease Activity index for Psoriatic Arthritis (DAPSA), the Psoriatic Arthritis Joint Activity Index (PsAJAI) and the Composite Psoriatic Disease Activity Index (CPDAI).

As is the case for PsA screening and assessment tools, there are also a variety of new therapies available for PsA. Historically, patients with PsA were treated with NSAIDS and traditional disease-modifying antirheumatic drugs (DMARDs). However, the ability of these medications to slow down the radiographic progression of joint disease has not been demonstrated. In contrast, anti-TNF agents, such as etanercept, infliximab, adalimumab, golimumab and certolizumab, are effective in this regard. Emerging PsA treatments include an oral phosphodiesterase 4 inhibitor, apremilast; a Janus kinase (JAK) inhibitor, tofacitinib; and several new biologics that target the IL-23/IL-17 pathway including secukinumab, brodalumab, ixekizumab, and ustekinumab. Herein we will review the mechanisms of action of these drugs, their results in clinical trials, and guidelines for administration. Lastly, treatment recommendations from the European League Against Rheumatism (EULAR) and The Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) will be discussed.

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1. Introduction

Psoriatic arthritis (PsA) is a heterogeneous disease characterized by involvement of skin, nails, peripheral and axial joints, and entheses [1,2]. The variety of affected organ systems makes the clinical diagnosis and management of PsA challenging. Optimal patient management centers around making the diagnosis early, accurately assessing disease severity, and initiating appropriate treatment for inflammatory arthritis and other PsA-associated comorbidities. A sensitive screening tool can aid the non-specialist in making a diagnosis of PsA, ideally at the earliest stage of disease prior to the development of the otherwise ensuing erosive arthritis [3]. After a patient has been successfully screened for PsA, standard diagnostic criteria can then be applied to validate the diagnosis and to determine if the patient is eligible for enrollment in a clinical trial. The concept of screening tools, diagnostic criteria, and disease assessment tools for PsA are evolving concepts. Currently there are no widely accepted diagnostic criteria for PsA and PsA-specific outcome measures are still being developed and modified [4]. Herein, we will review the available tools to aid in the screening, diagnosis and monitoring of PsA, as well as provide a detailed review of currently available therapies, including the emerging categories of phosphodiesterase-4 inhibitors and biologics targeting the IL-23/IL-17 pathway. Over the last decade targeted therapies have revolutionized the treatment of PSA and the future looks even brighter [5–7].

1.1. Early diagnosis of psoriatic arthritis

In the vast majority of PsA patients, cutaneous lesions indicative of psoriasis precede development of arthritic signs and symptoms [8]. Although currently in development, there are no serum biomarkers to accurately predict which psoriasis patients will go on to develop PsA [9–11]. In fact, it may take many years for a patient with psoriasis to develop inflammatory arthritis [12]. Thus, dermatology and primary care providers should be keenly poised to diagnose PsA in their at-risk patients with cutaneous psoriasis. For these patients, achieving a good long-term clinical outcome depends in part on the physician's ability to make an early diagnosis of PsA and to initiate treatment prior to the onset of significant and permanent joint damage [3,13]. Making an early diagnosis is also critical for testing new PsA therapies while the disease is still evolving and the capacity to prevent or slow joint damage may be assessed. An ideal diagnostic test for PsA will be both highly sensitive and highly specific. Although this is also true for screening tools, high sensitivity is particularly important to ensure that patients with PsA are not missed during screening. Recently, several screening questionnaires for PsA have been developed for use in dermatology and primary care offices (Table 1). These include the Toronto Psoriatic Arthritis Screening Questionnaire (TOPAS), Psoriasis Epidemiology Screening Tool (PEST), Psoriatic Arthritis Screening and Evaluation (PASE), and the Psoriasis and Arthritis Screening Questionnaire (PASQ) [14–16]. These screening questionnaires are now used internationally; sensitivity and specificity of these questionnaires are mentioned in the (Table 1). With proper use of these tools it is expected that PsA can be identified at the

Table 1
Screening tools for early diagnosis of Psoriatic arthritis.

Screening tools	Description	Sensitivity/Specificity
PASQ	10 items + joint diagram Self-report	
PASE	Self-administered 15 items Maximum score: 75	Sensitivity 82% Specificity 73%
PEST	Self-administered 5 items + joint diagram Maximum score: NA	Sensitivity 97% Specificity 79%
ToPAS	Self-administered 11 items + pictures/diagrams Maximum score: NA	Sensitivity 86.8% Specificity 93.1%

TOPAS, Toronto Psoriatic Arthritis Screening; PEST, Psoriasis Epidemiology Screening Tool; PASE, Psoriatic Arthritis Screening and Evaluation; PASQ, Psoriasis and Arthritis Screening Questionnaire.; NA, not applicable. (Table adapted from the article by Machado and Raychaudhuri [3]).