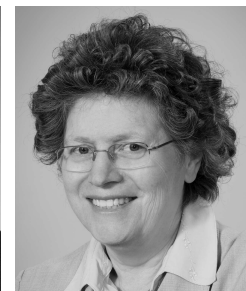


What Is Axial Psoriatic Arthritis?



Psoriatic arthritis (PsA) is a chronic inflammatory musculoskeletal disease that has 5 disease domains: peripheral arthritis, axial disease, dactylitis, enthesitis, and skin and nail disease¹. Only 2–5% of patients with PsA have isolated axial disease; most patients with axial arthritis also have peripheral arthritis^{2,3,4}.

The prevalence of axial disease in patients with PsA varies with disease duration, occurring in 25–70% of patients with longstanding PsA³ and in 5–28% of patients with early disease^{5,6,7,8,9,10,11}. These differences suggest that axial disease typically develops at a later stage in the disease course. In the Toronto PsA cohort, 15% of patients with PsA who did not have axial involvement at baseline developed axial PsA during 10 years of followup⁴. The risk factors for the development of axial disease early in the disease course were presence of HLA-B27, the presence of radiographic damage to peripheral joints, and an increased erythrocyte sedimentation rate (ESR), whereas the risk factors for developing axial involvement later on in the disease course were the presence of nail dystrophy, a high number of radiographically damaged joints, the presence of periostitis, and an increased ESR. Additionally, a family history of PsA reduced axial disease risk early in the disease course⁴. This study⁴ highlights the fact that different patients are likely to develop axial disease at different timepoints in their PsA disease course. This poses a significant limitation in studies with a cross-sectional design that identify patients at a single timepoint in their disease course compared to longitudinal studies that can record the changing course of the disease¹². About half of patients with axial PsA have radiographically present but asymptomatic axial disease^{13,14,15}. Therefore, they present to the clinic because of disease activity in one of the other domains, and the axial disease is recognized by radiographic assessment. In these individuals, the clinical implications of axial disease are unknown, especially because disease activity indices are based on symptoms¹⁵.

In the October issue of *The Journal*, Mease, *et al*¹⁶ reported the results of their study regarding axial disease

among 1530 patients with PsA enrolled in the US Corrona PsA/spondyloarthritis (PsA/SpA) Registry. They reported that 12.5% of the Corrona PsA registry exhibited axial involvement at baseline. The mean disease duration at baseline was 11.5 years, so most of the patients did not have early disease. The axial disease was diagnosed according to the clinical judgment of the patient's treating rheumatologist. Baseline features of the patients with axial PsA were compared to the nonaxial PsA group. Patients with axial involvement were younger and more likely to have prior biologic use. Patients with axial disease had worse arthritis and psoriasis as measured by several clinical variables compared to nonaxial patients. Patients with axial PsA had more body surface area covered by psoriasis, more nail psoriasis, more clinical enthesitis, and more tender joints on physical examination. They were less likely to be in a state of minimal disease activity and had higher scores of Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Ankylosing Spondylitis Disease Activity Score–C-reactive protein (ASDAS-CRP), and Bath Ankylosing Spondylitis Functional Index (BASFI). Additionally, patient-reported outcomes were significantly limited by the presence of axial involvement. Patients with axial involvement reported more pain, measured using a visual analog scale (VAS); more fatigue (VAS); were significantly more likely to experience ≥ 30 min of morning stiffness; reported more impaired physical function by the Health Assessment Questionnaire; and had worse quality of life (EQ-5D–VAS). Work productivity and activity were also significantly impaired by axial involvement. Moreover, patients with axial involvement were significantly more likely to experience problems with walking, self-care, and performing usual activities, and to have more pain/discomfort and feelings of anxiety/depression at baseline compared with patients without axial involvement, as measured by the EQ-5D-3L (the 3-level version of EQ-5D).

The Mease, *et al* study sheds some light on axial disease in PsA. Its main advantage is that it is a national-level inves-

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tigation of patients with PsA from a broad geographic distribution of a primary-to-tertiary mix of clinical centers across the United States. This provides good generalizability to the study. However, the study has some major limitations. First, it is cross-sectional in design, observing and comparing patients at different stages of their disease, because the mean disease duration at entry to cohort was variable: 11.5 (SD 10) years. Second, the diagnosis of axial disease was based upon clinical judgment of the patient's treating rheumatologist. It is not clear how many patients had radiographic evidence of sacroiliitis, what grade was considered severe enough to define axial disease, and how many were defined as axial disease on clinical grounds alone (inflammatory back pain in the presence of decreased mobility). This limitation is not surprising because a clear universally accepted definition of axial involvement in PsA is lacking^{17,18,19}. In ankylosing spondylitis (AS), a closely related SpA, the definition is straightforward. AS requires the presence of inflammatory type back pain and/or substantial impairment of spinal mobility in addition to the classic radiographic criteria²⁰. By contrast, in PsA, although early studies required only minimal radiographic evidence such as unilateral grade 2 sacroiliitis for a definition of axial disease^{14,19,21}, later studies mandated that patients meet the requirements of the modified New York (mNY) AS criteria, which include both clinical criteria and more definite radiographic criteria of at least bilateral grade 2 sacroiliitis or unilateral grade 3 or 4 sacroiliitis^{3,4,13}. However, because only 45% of patients with axial PsA (as defined by the radiographic criteria of the mNY AS criteria) also met the clinical criteria for axial symptoms^{13,14}, a 2017 study reverted to using only the radiographic mNY AS criteria and/or the presence of syndesmophytes to classify axial PsA²². The major limitation of the latter definition is that the optimal number of syndesmophytes that defines axial disease regarding sensitivity and specificity properties is still unknown.


Future studies of different large PsA cohorts are needed to address both the spinal and sacroiliac manifestations, to reach the best definition of axial involvement in PsA. Other features such as facet joint fusion will also need to be considered. In the Mease, *et al* study, because the definition used did not require radiographic evidence of disease, patients with asymptomatic axial PsA could have been misclassified as having nonaxial PsA, even though they had radiographic evidence of disease. This could explain the low prevalence of axial disease seen in this cohort. Additionally, because not all patients routinely had radiographs, a selection bias may have occurred, because the treating rheumatologist is more likely to look actively for axial disease in those patients with more severe disease, with high axial disease activity indices (BASDAI and ASDAS-CRP) influencing the results of the study.

This article also highlights another unmet need in the field of axial PsA: specific axial disease activity measures^{23,24}.

The disease activity measures used in this study (BASDAI, ASDAS, and BASFI) are used in AS and nonradiographic axial SpA. They are borrowed for the assessment of axial PsA because there are no outcome measures developed specifically for axial PsA^{23,24}. The BASDAI has not been found to correlate well with external indicators of axial disease activity such as treatment decisions, perhaps owing to the influence of peripheral joint disease on the BASDAI score. Therefore, it seems that the validity of the BASDAI as a measure of axial disease activity in axial PsA is questionable^{25,26,27}. Performing a short version of the BASDAI that excludes question 3, which refers to peripheral manifestations, might improve the performance of the BASDAI as an outcome measure for axial PsA²⁸. Thus, it is important to develop additional indices specific for axial disease in PsA that would discriminate better between peripheral and axial disease. Specific disease activity indices are essential to clarify the independent contribution of the axial disease to the prognosis of these patients and the effect of treatment on the axial disease.

This study adds further information regarding axial disease in PsA. However, it also highlights some unmet needs in axial disease in PsA that deserve to be addressed in future studies.

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