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Classification criteria for psoriatic arthritis and ankylosing spondylitis/axial spondyloarthritis

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The concept of spondyloarthritides (or spondyloarthropathies, SpAs) that comprises a group of interrelated disorders has been recognised since the early 1970s. While the European Spondyloarthropathy Study Group (ESSG) criteria and the Amor criteria have been developed to embrace the entire group of SpAs, new criteria for psoriatic arthritis have been developed recently. The Classification of Psoriatic Arthritis (CASPAR) study, a large one of more than 1000 patients, led to a new set of validated classification criteria for psoriatic arthritis. Since their publication in 2006 the CASPAR criteria are widely used in clinical studies. In ankylosing spondylitis, the 1984 modified New York criteria have been used widely in clinical studies and daily practice but are not applicable in early disease when the characteristic radiographical signs of sacroiliitis are not visible but active sacroiliitis is readily detectable by magnetic resonance imaging (MRI). This led to the concept of axial SpA that includes patients with and without radiographical damage; candidate criteria for axial SpA were developed based on proposals for a structured diagnostic approach. These criteria were validated in the Assessment of Spondyloarthritis International Society (ASAS) study on new classification criteria for axial SpA, a large international prospective study. In this new criteria, sacroiliitis showing up on MRI has been given as much weight as sacroiliitis on radiographs, thereby also identifying patients with early axial SpA. Both the CASPAR and the ASAS criteria for axial SpA are likely to be of use as diagnostic criteria.

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Classification criteria

Classification criteria are for case identification in clinical research and not for the diagnosis of individual patients in the clinical encounter. For the clinician, the value of classification criteria lies with the parameterised, abbreviated and refined nature of the diagnostic work-up contained within the criteria. The items within the criteria reflect the critical features of the disease in question and thus form a useful aide memoire to the key points used in making the diagnosis. However, in making the diagnosis, the clinician is neither limited to the informational database contained within the criteria nor constrained to how the individual items of the criteria are aggregated to form the decision rule. All available sources of information are open to the clinician, including prior experience and intuition and the results of investigations not listed within the classification criteria.

The situation is quite different in clinical research. Here, it is necessary to standardise the entry of patients to the study. It is usually important that the patients form a homogeneous group in some sense and advantageous for different studies to be comparable in the types of patients that were studied. Hence, standardised and clearly defined classification criteria are important. The purpose of classification criteria is thus to mimic a gold standard of diagnosis as closely as possible. For most rheumatic diseases, the gold standard involves expert clinical diagnosis. Accuracy of criteria is usually expressed in terms of sensitivity (proportion of patients who fulfil criteria amongst those with the disease) and specificity (proportion of those who do not fulfil criteria amongst those without the disease). Sometimes it is useful to consider the accuracy in terms of error, which is simply the converse of sensitivity and specificity–the error of making a diagnosis when it is not present (false positive $= 1 -$ sensitivity) and the error of not making a diagnosis when it is present (false negative $= 1 -$ specificity). The aim of classification criteria is to minimise such errors. It is often thought that if the classification error (especially the false-positive rate) is sufficiently small, then the criteria could be termed 'diagnostic criteria' in order to demonstrate that the criteria could be used for individual patient diagnosis in a clinical encounter. This is a conceptual mistake. Certainly, the clinician will find more accurate criteria more useful in day-to-day practice than less accurate criteria, but the informational database for the diagnostic process is still not limited to these criteria. Unless the criteria perfectly mimics the gold standard (in which case it has become the gold standard), individual diagnosis in a clinical setting should not rely exclusively upon classification criteria.

Pitfalls and limitations to current classification criteria for PsA and SpA

Psoriatic arthritis

Until the pioneering work of Wright [1] and Baker [2], an inflammatory arthritis occurring in the presence of psoriasis was felt to represent rheumatoid arthritis (RA) occurring coincidentally with psoriasis. The discovery of rheumatoid factor (RF) in the serum provided an important tool that helped categorisation of polyarthritis, but the distinction between RA and psoriatic arthritis (PsA) was achieved primarily on clinical and radiological grounds. Wright described the frequent involvement of distal interphalangeal (DIP) joints with erosion and absorption of the terminal phalanges, co-existing sacroiliitis, involvement of the proximal interphalangeal (PIP) joints of the toes and a characteristic mutilating arthritis with reduction in bone stock particularly in the digits [3]. The American Rheumatism Association adopted PsA as a distinct clinical entity, including it in a classification of rheumatic diseases for the first time in 1964 [4].

However, the inclusive Moll and Wright criteria [5] may fail to adequately recognise the possibility that psoriasis can exist independently of co-existent arthropathies. Defining PsA as the co-occurrence of an inflammatory arthritis and psoriasis is likely to over-identify such individuals. For instance, the presence of psoriasis alone barely characterises patients with early arthritis in a clearly distinctive clinical way [6]. In this study, there were no differences in the pattern of joint disease between those with and without psoriasis, and the 1-year outcomes in terms of functional disability, erosions and use of disease-modifying drugs were also similar. Moreover, the use of RF to exclude PsA is likely to misclassify patients with coincidental PsA and false-positive RF tests, since RF is not a perfectly specific test for RA.