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Letter

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A critical review of the American College of Rheumatology/European League Against Rheumatism criteria for the classification of rheumatoid arthritis

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Abstract

New criteria to classify rheumatoid arthritis (RA) have been formulated in order to increase the specificity and sensitivity in early RA compared with the 1987 ACR criteria with the ultimate aim of starting effective treatment as early as possible. The aim of this letter is to list our concerns about the methodological problems in the formulation of these criteria and their possible consequences in a real world application.

Key words: Rheumatoid arthritis, classification criteria, sensitivity, specificity, validity.

Dear Editor,

New criteria to classify rheumatoid arthritis (RA) have been formulated in order to increase the specificity and sensitivity in early RA compared with the 1987 ACR criteria with the ultimate aim of starting effective treatment as early as possible. The aim of this letter is to list our concerns about the methodological problems in the formulation of these criteria and their possible consequences in a real world application.

The key purpose of any classification criteria is to distinguish patients with the disease in question from those without the disease. Instead of differentiating patients with RA from other causes of synovitis, the new criteria served only to differentiate those patients who will be prescribed MTX treatment within the first year of follow-up. Indeed, to apply the new criteria to a patient, "all other possible causes for synovitis need to be excluded", which is against the very rational of criteria development. We would argue that the sole purpose of classification is differential diagnosis, and classification is no different than diagnosis, only applied to a group rather than the individual patient. Hence if all the conditions in the differential diagnosis list is to be excluded by some divine intervention, there would be no need for classification criteria for RA or any other condition being considered as the only left option for the patient would be the condition in question.

The new ACR/EULAR RA classification criteria were introduced without validation in other inflammatory arthritides, especially psoriatic arthritis. This is a major shortcoming in that the main purpose of any classification criteria is to differentiate patients with different diseases from one another. Furthermore physicians do frequently use classification criteria in making diagnoses and this is, in fact, justified.[1] We are afraid that unless such specificity studies become available the real life utility of the ACR /EULAR criteria will remain in question.

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One such study investigating the sensitivity and the specificity of the new RA classification criteria in a group comprised of patients with early arthritis from Leiden cohort has recently been published. In this study, 18% of the total population of patients fulfilling the 2010 ACR/EULAR criteria at baseline were classified differently at 1 year when their medical records were reviewed. Psoriatic arthritis and osteoarthritis were the most prevalent diagnoses (4% and 3% of the total study population, respectively) among those patients, followed by patients with "systemic disorders" (2%) for whom the details of diagnoses were unavailable to the reader, and even patients with malignancies (0.5%). Accordingly, the sensitivity and specificity of the 2010 criteria compared with the 1987 criteria were found to be higher for sensitivity (84%) but lower for specificity (60%), which is increasing the concerns with regard to the specificity of the new criteria.[2]

A different approach to the problem of specificity has recently been provided by a review of consecutive patients seen at the New York University and applying the new criteria to all comers either with a new or old diagnosis of RA or any other condition.[3] This study showed that 61% of systemic lupus erythematosus and 38% of psoriatic arthritis patients, as diagnosed by their treating rheumatologists, would fulfill the new RA classification criteria. In addition, roughly 41% of patients with non-RA/SLE/PsA diagnoses also fulfilled the new criteria. When compared with the 1987 RA criteria, sensitivity and specificity of the new criteria were 92% vs 96% and specificity were 58% vs 72%, respectively. Despite the above mentioned studies showing decreased specificity of the new criteria, a recent study investigating discriminative ability of high levels of RF compared to ACPA for identifying early RA suggests that the use of ACPA, rather than RF, as a principal diagnostic marker may resolve the problem of specificity.[4]

Validation is also an important step in the development of classification criteria and the final criteria set with its simplified scoring system was validated using 2 different approaches (phase 2 case scenarios/expert opinion, and data obtained from cohorts). One important pitfall in the validation of the new using the same group of experts who develop criteria also validate the criteria; a more rigorous validation would have been using a different sets of experts for external validation.

As a further validation, 3 cohorts not utilized in the identification of factors from Phase 1[5] were studied. It was stated in the manuscript that the characteristics of these 3 cohorts were not substantively different from those of the rest of the cohorts used in Phase 1. However, checking the baseline characteristics of the cohorts does not support this view. While no formal statistics is given in the manuscript, a formal calculation of the 95% CI of some of the important baseline characteristics (swollen and tender joint count, RF positivity) of the cohorts used in validation step shows little or no overlap with those of the other cohorts of Phase 1. Thus it is no surprise these criteria performed best among the Leeds cohort with the longest duration of disease, highest swollen/ tender joint counts and highest frequency of RF, all indicating more established disease as compared with the rest of the study populations.

Perhaps renaming the said criteria as "Guidelines to start methotrexate treatment in early arthritis" would do more justice to the methodology employed as well as the main aim of the whole exercise. The new criteria as they currently stand do not seem to be a great improvement over the 1987 RA criteria. Further studies of patients with other rheumatic conditions, consecutive patients seen in routine care are needed before a final decision about the utility of the new criteria is made.

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