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Why CAPS criteria are not diagnostic criteria?

Kuemmerle-Deschner *et al*[1] have recently published *diagnostic* criteria for cryopyrin-associated periodic syndrome (CAPS).

CAPS encompasses a group of very rare disorders with incompletely understood pathogenesis and diverse clinical presentations. The authors justify their efforts by claiming that there is a significant delay in diagnosis, which, in their opinion, is due to the lack of recognition and clear diagnostic criteria.

While the authors should be commended for their rigorous work, they may have overlooked the fact that they have developed *classification* criteria rather than *diagnostic* criteria. Recently, Aggarwall *et al*[2] have pointed out the fundamental concerns related to diagnostic criteria in rheumatology. These concerns have led to the decision by the American College of Rheumatology (ACR) and the European League against Rheumatism to not endorse *diagnostic* criteria for rheumatic diseases anymore.

The most important shortcoming of the CAPS criteria in terms of their diagnostic potential is the absence of a 'true' gold standard for CAPS. CAPS criteria have been validated by the authors against the expert's opinion in a cohort including patients with a diagnosis of CAPS as well as other conditions that may or may not mimic CAPS, but are considered different. They report a sensitivity of 81% and a specificity of 94%, which seems rather good but falls short if applied in a diagnostic context with extremely low prevalence: Given a prevalence of three in a million, a sensitivity of 81% and a specificity of 94% (and a positive likelihood ratio (LR+) of 13.5 (sensitivity/(1−specificity)) every *true* criteria-positive case of CAPS will be counterbalanced by 25 000 *false* criteria-positive cases (according to Bayes' rule applied in this context, the post-test likelihood given a positive test (odds) equals the product of the LR+ and the prevalence (odds)).

Our principal objection against *diagnostic* criteria in rheumatology may seem trivial, but will contextualise when one realises how *diagnostic* criteria will often be used in common clinical practice: as a checkbox, to be ticked by the diagnostician. Such a policy may lead to tremendous and potentially dangerous overdiagnosis as well as missing other relevant diagnoses and to overtreatment (eg, with biological drugs).

Recently, Radner *et al*[3] have shown how the application of the 2010 ACR criteria for the classification of rheumatoid arthritis (which has a population prevalence, ie, more than 1000 times as high as that of CAPS) in a *diagnostic* context impacts specificity (which fell to only 61%) of these criteria.

To us it seems that patients with CAPS or conditions mimicking CAPS are not served by using the CAPS criteria in a *diagnostic* context. The authors should rectify their claim that they have developed *diagnostic* criteria to avoid misinterpretation by clinicians and rename them as *classification* criteria, implying that these can only be applied in patients with a diagnosis of CAPS.

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