Criteria for Gout Diagnosis?

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Editorial

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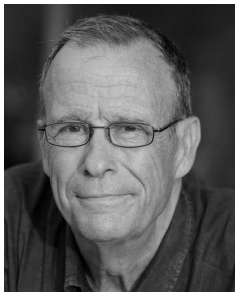
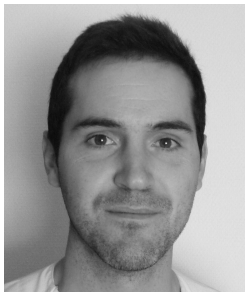


Diagnosis is the proper classification of an individual patient. Efforts to develop clinical criteria for the classification of gout, which are often used to diagnose individual patients, continue, as the article by Prowse, *et al* shows in this issue of *The Journal*[1]. A proper approach to gout diagnosis implies that, if possible, (1) all patients presenting with the disease have to be properly diagnosed, and (2) in all cases the diagnosis must be correct, so gout does not go undetected and is not misclassified.

Gout results from monosodium urate (MSU) crystal deposition, which is responsible for all clinical consequences of the disease. MSU crystals are large enough to be easily detected and identified by an ordinary microscope fitted with polarized filters, which clearly shows the highly birefringent MSU crystals shining on the dark microscope field. The addition of a first-order red compensator helps in definitive distinction from calcium pyrophosphate (CPP) and other crystals[2]. Crystals form as a result of elevated serum uric acid (SUA) levels; they slowly dissolve and finally disappear when SUA levels are brought back to normal; thus, the disease is now considered curable[3]. Because it is associated with an elevated cardiovascular risk[4] and, when advanced, can be very disabling, gout cannot be taken as a minor disease. MSU crystals are regularly present in synovial fluid (SF) samples obtained from joints stricken by a gout attack or by needle aspiration of a tophus, and also in SF from previously inflamed currently asymptomatic joints of untreated patients, allowing precise diagnosis during intercritical periods[5]. MSU crystal identification provides an etiological proof of gout and is considered the gold standard for diagnosis[6,7]. Crystal analysis needs only a small fresh SF sample and is an immediate and quick test, which is feasible as a bedside procedure when a polarized microscope is kept on hand in clinics and wards. SF analysis and crystal identification has shown consistency after short training[8], and the procedure is included in the core curricula of rheumatology, both by the American College of Rheumatology (ACR)[9] and by the European Union of Medical Specialists[10].

The often highly characteristic clinical features of gout have allowed its recognition since antiquity, and constituted — especially in association with hyperuricemia — the basis for gout recognition; that is, until McCarty and Hollander's description of MSU crystals in SF, which became the standard diagnostic test. However, adherence to crystal-proven diagnosis, for both gout and CPP crystal arthritis, has remained low among rheumatologists[11,12], maybe contributing to the persistent interest in the construction of diagnostic and classification criteria. Several such criteria have been published[13,14,15,16,17]; although developed for classification, criteria are often used for diagnosis, which can be problematic when applied for the diagnosis of individual patients[18]. The 1977 ACR preliminary criteria for the classification of the acute arthritis of primary gout[15] have frequently been used for selecting patients for studies, but recently, their limited value was shown when validation against crystal identification was attempted[19,20]: both these studies noted suboptimal results in terms of sensitivity (0.70–0.80) and specificity (0.64–0.78).

A limitation of all published criteria is that they focus on a narrow spectrum of the disease — considered to be characteristic — that includes acute episodes, mainly monoarticular, involving first metatarsophalangeal or tarsal joints, with an abrupt start (24 hours) and resolving in a short period of time. However, the clinical spectrum of gout is broader: the disease can present as an oligoarticular or polyarticular arthritis; it can involve joints considered uncommon for gout; and can affect bursae or tendon sheaths; and present as less acute or more persistent arthritis, sometimes clinically resembling some of the common chronic arthritides. Febrile presentations simulating sepsis may occur requiring a diagnostic investigation. To add complexity, SUA can decrease and be normal during gout attacks, misleading the unaware clinician[21,22]. Therefore, based on the available criteria, gout may not be considered in patients showing these less characteristic features. Uncertainties in a clinically based gout diagnosis arise when these features are also consistent with other joint conditions whose diagnosis may rely largely on the exclusion of other joint diseases. Interestingly, the study by Prowse, *et al*[1] tries to identify "a comprehensive list of

See Delphi exercise to identify features of gout, *page 498*

clinical, laboratory, and imaging features that could potentially discriminate between gout and other forms of arthritis or rheumatic musculoskeletal disease in a primary healthcare setting." It is noteworthy that SF analysis is recommended in patients with rheumatoid arthritis to avoid confusing it with crystal arthritis[23].

Criteria have been developed for use in primary care[16], where many gout patients are managed; we must consider whether it is appropriate to develop less strict criteria designed for classification that give a stereotypical view of gout, which can easily hamper the approach to many patients, particularly if they are cared for by physicians less experienced in rheumatic diseases. This issue is particularly important when an accurate diagnostic test — MSU crystal identification — is easier, more immediate, and cheaper than a number of tests considered necessary in other medical fields, but which are less convenient for the patient, more cumbersome to perform, and more expensive. In any case, primary care physicians and others caring for gout patients should keep in mind that (1) gout diagnosis established according to clinical criteria is inaccurate, as shown above, and (2) less characteristic forms of gout will go unnoticed if crystal analysis is not routinely performed in all patients with undiagnosed arthritis, as has been widely recommended[23,24]. A clinically based diagnosis should be designated provisional or not-crystal-proven as a reminder of its possible uncertainties.

Classification criteria have a significant role in selecting homogeneous groups of patients for epidemiological and other studies where uncertainty in the diagnosis of individual patients (if not many) might be irrelevant. Criteria developed for such aims should include a clear warning that they have not been developed and are not to be used for diagnosis of individual patients, where the consequences of error — like the one mentioned above in relation to the validation of the 1977 ACR criteria — appears unacceptable. Also, the enrollment of patients with gout for intervention studies not using an accurate and available diagnostic test seems unreasonable.

Finally, unequivocal gout diagnosis by crystal identification is an elegant approach taught in medical schools and widely known by physicians. Accepting an approach to gout diagnosis based on inaccurate clinical criteria may lead many physicians to think that this is the way most rheumatologists diagnose other rheumatologic diseases, which may leave a very poor impression of rheumatology.

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