L15. EULAR/ACR 2012 classification criteria for polymyalgia rheumatica

Polymyalgia rheumatica (PMR) is the most common inflammatory rheumatic disease of the elderly; incidence of 700/100,000 in persons over the age of 50 years [1,2]. Accurate diagnosis is difficult in PMR because proximal pain and stiffness syndrome, a commonly accepted phenotype of PMR, can occur in many other rheumatologic and inflammatory illnesses [1–3]. Lack of standardized diagnostic criteria has been a major factor hampering development of rational therapeutic approaches to management of PMR [3,4].

Classification criteria for PMR are needed for several major reasons. Such criteria will enable clinicians and investigators to classify this clinical syndrome as a distinct disease entity, compare like groups of patients across populations of patients seen in different countries and facilitate prediction of disease- and treatment-related outcomes. Further, this effort will aid in development of management guidelines across different treatment settings. Existing criteria (table 1) use a variety of disparate measures for classification or diagnosis of PMR. An important weakness of older criteria and the standard clinical approach to PMR is the reliance on response to corticosteroid therapy as a criterion for diagnosis [3,4]. However, this approach lacks specificity, as other inflammatory disease conditions which can be confused with PMR such as rheumatoid arthritis, and even conditions such as fibromyalgia in some cases, seem to respond to this treatment. As well, the approach lacks sensitivity, as a significant number of patients do not respond to the standard dose of 15 to 20 mg daily prednisone equivalent. Finally, reliance on corticosteroid response hampers the opportunity to study new treatment approaches as the initial treatment response reduces the ability to examine efficacy of alternative medications.

Methodology for development of candidate criteria for PMR

As a path to address the uncertainties surrounding the diagnosis and management of PMR, the EULAR/ACR Study Group for Development of Classification Criteria for Polymyalgia Rheumatica undertook a multi-step, multi-year process to develop new criteria for the classification of this disease. The initial step was a 2005 experts meeting in Cambridge, UK, where identification of knowledge gaps and research questions in PMR and nomination of candidate criteria for PMR classification were pursued. In a subsequent Delphi exercise, expert rheumatologists, and as well primary care/non-rheumatologists provided their input regarding their view of the most important prospective candidate criteria for classification of PMR, as well, definitions for disease relapse and remission were developed [5]. During this process, musculoskeletal ultrasonography was identified as a potentially useful technique for classifying patients with PMR, as well as a technique for following disease activity [6]. In 2007, a formal training program was conducted to standardize the approach to ultrasonography of the key structures of the shoulder and hip joints and bursa. This training and
standardization exercise of operators demonstrated very good inter-operator comparability of results [7].

From 2008–2010, a prospective study of candidate criteria was conducted to evaluate candidate classification criteria and features which might be useful in assessing response to therapy [8]. The specific objective of the study was to develop EULAR/ACR classification criteria for PMR by assessing the performance of candidate criteria in a prospective longitudinal study of patients presenting with new-onset bilateral shoulder pain [8,9].

In pursuit of this international study (21 centers in 10 countries), 125 subjects with PMR and 169 comparison subjects with conditions mimicking PMR (49 rheumatoid arthritis, 29 new-onset seronegative arthritis or connective tissue disease, 52 shoulder conditions, 39 other) were enrolled. Patients were evaluated at baseline, and then at weeks 1, 4, 12 and 26. Statistical analyses included Chi-square and rank sum tests, logistic regression models, concordance c-statistic, factor analyses, classification trees and gradient boosting regression tree models.

**Results**

Shoulder pain and abnormal ESR/CRP were defined as required criteria in the scoring algorithm for PMR. The analyses of tested variables revealed that early morning stiffness, MHAQ, weight loss and elevated ESR/CRP distinguish PMR from comparison subjects, particularly those with shoulder conditions such as osteoarthritis and rotator cuff arthropathies. Criteria items related to hip involvement have significant ability to discriminate PMR from all comparison subjects. The presence of anticitrullinated protein antibody (ACPA) or rheumatoid factor (RF), peripheral synovitis and joint pains have significant ability to distinguish PMR from rheumatoid arthritis (RA).

Assessment of the candidate criteria revealed that patients over the age of 50 years who presented with bilateral new-onset shoulder pain and elevated ESR (and/or) CRP could be classified as having PMR and separated from other conditions when at least three points were obtained (table II). With this scoring system, a score of 4 had 72% sensitivity and 65% specificity for discriminating all comparison subjects from PMR. The specificity was higher (79%) for discriminating shoulder conditions from PMR and lower (61%) for discriminating RA from PMR. The c-statistic for the scoring algorithm was 75%. A total of 34 (28%) PMR cases and 59 (35%) of comparison subjects were incorrectly classified [8].

**Ultrasound study**

To evaluate whether musculoskeletal ultrasound (US) might be useful in the assessment of patients with possible PMR, we undertook a study of this cohort which included 120 patients.

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**Table I**

Comparison of older diagnostic criteria for polymyalgia rheumatica

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<tbody>
<tr>
<td>I. Age</td>
<td>≥ 50 years</td>
<td>&gt; 50 years</td>
<td>&gt; 65 years</td>
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<tr>
<td>II. Bilateral pain/aching of neck, shoulders, and pelvic girdle</td>
<td>Any 2</td>
<td>Any</td>
<td>Shoulder</td>
<td>Shoulder &amp; pelvic girdle</td>
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<tr>
<td>III. Morning stiffness</td>
<td>≥ 30 minutes</td>
<td>&gt; 1 hour</td>
<td>≥ 1 hour</td>
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<tr>
<td>IV. Duration of symptoms</td>
<td>≥ 1 month</td>
<td>≥ 1 month</td>
<td>&gt; 2 months unless treated</td>
<td></td>
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<tr>
<td>V. Onset of symptoms</td>
<td>&lt; 2 weeks</td>
<td></td>
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<tr>
<td>VI. ESR</td>
<td>&gt; 40 mm/h</td>
<td>Elevated</td>
<td>≥ 40 mm/h</td>
<td>&gt; 30 mm/h or CRP &gt;6 mg/l</td>
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<td>VII. Depression and/or weight loss</td>
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<td>VIII. Bilateral upper arm tenderness</td>
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<tr>
<td>IX. Exclusion of other diagnosis</td>
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<td>X. Rapid response to corticosteroids</td>
<td>≤ 20 mg prednisone</td>
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Diagnosis of PMR

| Criteria | All above required | Criteria I and IV, plus any 3 from II, II, IV, or X | Any 3 criteria, or any 1 plus positive temporal artery biopsy | All above required |

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1 Criteria appears in criteria set; ESR: erythrocyte sedimentation rate; CRP: C-reactive protein level.
2 With borderline elevated ESRs, the presence of systemic symptoms, history of giant cell arteritis, and a rapid response to low-dose corticosteroids can be used to support diagnosis.
3 Response to corticosteroids can be used to confirm the diagnosis.
with PMR and 154 control subjects with newly diagnosed conditions mimicking PMR including 46 RA with shoulder involvement, 47 non-RA shoulder conditions, and 21 controls without shoulder pain or known shoulder condition (table II) [8].

A standard ultrasound protocol was used to evaluate these patients at enrollment and at 6 months of follow-up. It included assessment of subdeltoid bursitis, biceps tenosynovitis, gleno-humeral or hip synovitis and trochanteric bursitis.

As a group, patients with PMR were more likely to have abnormal ultrasound findings in the shoulder (particularly subdeltoid bursitis and biceps tenosynovitis), and somewhat more likely to have abnormal findings in the hips than control subjects. PMR could not be distinguished from RA on the basis of ultrasound, but could be distinguished from non-RA shoulder conditions and subjects without shoulder conditions.

Adding US improved the sensitivity and specificity of the classification criteria somewhat. A score of 5 had 71% specificity and 70% for discriminating all comparison subjects from PMR. The specificity was higher (86%) for discriminating shoulder conditions from PMR and lower (65%) for discriminating RA from PMR. The c-statistic for the scoring algorithm was 78%. A total of 32 (29%) PMR cases and 47 (30%) of comparison subjects were incorrectly classified [8].

**Evaluation of the new criteria**

Since the publication of these provisional criteria for PMR, a work group in Italy has evaluated them by assessing their performance and comparing them with older diagnostic/classification criteria [10–14]. For this study, 112 patients in a 5-year single center prospective study were followed by standardized protocol for at least 12 months which included the measures included in the ACR/EULAR study [10].

These investigators reported classification success for these patients with PMR as follows: EULAR/ACR criteria: 91.1%, Bird criteria: 78.6%, Hazelman criteria: 78.6%; 85.7% satisfied US criteria; no new patient was classified as having PMR after US examination.

**Conclusions**

Patients over 50 years old presenting with new bilateral shoulder pain (not better explained by an alternative diagnosis) and elevated CRP/ESR can be classified as having PMR in the presence of morning stiffness more than 45 min, and new hip involvement in the absence of peripheral synovitis or positive RA serology. Ultrasound findings of bilateral shoulder abnormalities or abnormalities in one shoulder and hip may significantly improve both sensitivity and specificity of the classification criteria. The utility of the criteria will require clinic-based studies in the primary and specialty care settings. The provisional classification...
Lectures

Introduction

Vasculitis is characterised by the presence of inflammation in the walls of blood vessels, with resultant tissue ischaemia and necrosis. Certain vasculitides are more common in children whereas some such as cryoglobulinemic vasculitis or giant cell arteritis are never seen in the young age. Estimated overall annual incidence of new cases of vasculitis was 53.3 per 100,000 children under 17 years of age [1]. However, the two most common vasculitides, Kawasaki disease (KD) and IgA vasculitis/Henoch-Schönlein purpura are rather common with figures approaching 100 to 5.5 per 100,000 in children less than 17 years of age, respectively. Reported geographical variations in vasculitis may reflect an environmental influence.

Classification of childhood vasculitis

The definition of vasculitides derives from the Chapel Hill nomenclature criteria (CHCC) and now the CHCC2 [2]. Until the pediatric criteria were developed there was only the ACR criteria for classification. These criteria are not perfect, and adult literature also refers to its problems [3]. The criteria have been based on adult data alone and have never been validated in children. Furthermore, certain vasculitides are specific for pediatrics such as KD and some vasculitides display different disease courses in childhood. In this setting, the pediatricians and pediatric rheumatologists are now in and what we need to do about it. Arthritis Care Res 2006; 55:518-20.

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References


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