A study of the Health Assessment Questionnaire to evaluate functional status in polymyalgia rheumatica

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Abstract

Objective. To evaluate the Health Assessment Questionnaire (HAQ) in the assessment of functional status, its responsiveness to change with treatment and its correlation with conventional disease activity indices in polymyalgia rheumatica (PMR).

Methods. Newly diagnosed patients with PMR, satisfying modified Jones and Hazleman criteria, were recruited to the study. The clinical assessments, including early morning stiffness (EMS), pain measured on a horizontal 10 cm visual analogue scale (VAS), C-reactive protein (CRP) and the HAQ, were carried out 0, 6, 12 and 24 weeks after treatment had been started. Any comorbid condition likely to affect the HAQ was noted.

Results. Eighteen patients completed the 6-month assessment period. These included four males and 14 females, with a mean age of 68.5 years. Pretreatment mean disease activity showed EMS of 68 min, VAS pain of 69 mm, CRP of 46 mg/l and a HAQ score of 1.57. At 6 months, mean EMS had declined to 4 min, VAS pain to 11 mm, CRP to 9 mg/l and the HAQ score to 0.14. Linear regression analysis of HAQ vs EMS, VAS and CRP showed correlation coefficients of 0.72, 0.66 and 0.63, respectively. Standardized response means (SRM), a measure of responsiveness, for HAQ, EMS, VAS and CRP were 3, 1.7, 1.8 and 1.6, respectively. We assessed each section of the HAQ individually to see if any particular daily activity was more responsive to change. Questions on dressing and grooming, rising and eating were more responsive to change (SRM 2.5, 2.7 and 1.8, respectively) than questions about walking, hygiene, reach, grip and activities (SRM 0.8, 1.4, 1.2, 1.1 and 1.1, respectively).

Conclusion. The HAQ is useful in the assessment of functional status in PMR, is responsive to change and correlates well with conventional indices of disease activity. However, fixed disabilities like osteoarthritis, shoulder capsulitis and systemic diseases may affect its interpretation. The sections of the HAQ measuring disability related to inflammatory stiffness/proximal involvement showed greater responsiveness to change than other sections, and hence may have a greater role in evaluating disease activity in PMR.

Key Words: Polymyalgia rheumatica, Health Assessment Questionnaire (HAQ).

Introduction

Conventional measures of disease activity in polymyalgia rheumatica (PMR) are pain, early morning stiffness and the acute phase response [1–3]. Functional status and disability are important outcome measures in many rheumatic diseases, but have never been measured in PMR [4–8]. As PMR has similarities to rheumatoid arthritis (RA), we used the Health Assessment Questionnaire (HAQ) to assess functional status, its responsiveness to change with treatment and its correlation with conventional disease activity indices in PMR [4].

Materials and methods

Patients

Newly diagnosed, untreated patients with PMR satisfying the Jones and Hazleman criteria [1], except for the duration of symptoms, were considered for the study. Exclusion criteria were as follows: patients with predominant features of giant cell arteritis (headaches, jaw claudication, visual symptoms and scalp tenderness) requiring high steroid dosage; any malignant disease (as evidenced by symptoms and signs, radiographs and/or protein electrophoresis); other connective tissue disorders; systemic microbial infection; and advanced osteoarthritis of shoulder, hip or knee. Patients were also excluded if they had been treated previously with corticosteroids for this episode of PMR or if there were contraindications to the treatment with steroids.
SRM and linear regression coefficient (r) for HAQ and other parameters of disease activity [mean (S.E.M.)]

<table>
<thead>
<tr>
<th>Parameter</th>
<th>r</th>
<th>SRM</th>
<th>0</th>
<th>6</th>
<th>12</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAQ (score)</td>
<td>3</td>
<td>1.57 (0.11)</td>
<td>0.66 (0.16)</td>
<td>0.29 (0.09)</td>
<td>0.14 (0.06)</td>
<td></td>
</tr>
<tr>
<td>EMS (min)</td>
<td>0.66</td>
<td>1.7</td>
<td>68 (9.65)</td>
<td>17 (6.53)</td>
<td>8 (3.26)</td>
<td>4 (2.56)</td>
</tr>
<tr>
<td>VAS (mm)</td>
<td>0.72</td>
<td>1.8</td>
<td>69 (5.94)</td>
<td>35 (5.29)</td>
<td>23 (4.11)</td>
<td>11 (3.28)</td>
</tr>
<tr>
<td>CRP (mg/l)</td>
<td>0.63</td>
<td>1.6</td>
<td>46 (7.33)</td>
<td>23 (5.35)</td>
<td>16 (1.10)</td>
<td>9 (0.19)</td>
</tr>
</tbody>
</table>

P < 0.001 between 0 and 6, 12 and 24 week values for all parameters.

The project was approved by the South Essex Local Research Ethics Committee and informed consent was obtained from each patient.

**Study design**

Patients were assessed for symptoms of early morning stiffness (EMS) in minutes and for pain using a visual analogue scale (VAS) 0, 6, 12 and 24 weeks after treatment had been started. Patients were requested to fill in the HAQ at each visit. Any comorbid condition likely to affect the HAQ was also noted. A full blood count was performed and C-reactive protein was determined at each visit. Ten patients were treated with an initial dose of depot methylprednisolone 120 mg every 3 weeks for the first 12 weeks, and the dose was then reduced by 20 mg every 3 months depending on the patient’s response [9]. Eight patients were treated with oral prednisolone 15 mg/day for 3 weeks, 12.5 mg/day for a further 3 weeks, 10 mg/day for 6 weeks and the dose was then reduced by approximately 1 mg each month depending on the patient’s response. Any adverse reactions were noted.

**Data analysis**

We compared EMS, VAS and CRP with the HAQ using the linear regression coefficient (r), one-way analysis of variance and standardized response means (SRM). The SRM is a measure of responsiveness to change and is defined as the mean change score divided by the S.D. of the respondent’s change score. A higher SRM score (≥ 0.8) represents greater responsiveness [7, 8].

**Results**

Eighteen patients (four males and 14 females, mean age 68.5 yr) completed the 24-week trial period successfully. Three patients were withdrawn because of revision of their diagnosis to RA, temporal arteritis and myoadenylate deaminase deficiency. The mean duration of the disease was 12.8 weeks.

The HAQ scores showed a significant reduction after treatment at every time point (P < 0.001) and were similar to the reductions in EMS, CRP and VAS (Table 1). The HAQ was found to be responsive to change and its SRM values were better than those of other parameters of disease activity (Table 1). The individual sections of HAQ reflecting activities such as dressing, grooming and rising were more responsive to change than the other sections (Table 2).

**Discussion**

PMR remains essentially a clinical diagnosis supported by raised values for markers of the acute phase response [2]. Evaluation of activity of the disease and response to treatment is also clinical and depends on the patient’s and the physician’s assessments of pain and stiffness. Patient-based outcome measures have been used in a variety of other rheumatic diseases but never in PMR [4–6]. Our study of the HAQ is part of our effort to develop uniform and relatively objective outcome measures which might then be used for further research and the audit of treatment in this disease. We chose the HAQ as it has already been validated for RA and there are similarities between the two diseases [4].

We noted a significant change in HAQ score between the pre- and post-treatment assessments, comparable to the changes in EMS, VAS and CRP (P < 0.0001). This was reflected in the SRM and to a lesser degree in the correlation coefficients (r). This is expected, because different parameters of disease activity do not decline in similar proportions when the patient is treated.

Even after adequate treatment and response, the HAQ score did not reach 0 in every patient. This is because most of our patients were elderly and had associated mild osteoarthritis of the spine, shoulder, knee and hip, which may have contributed to premorbid functional disability [6]. However, these are fixed disabilities and the HAQ still remains very responsive to treatment. In addition, our conventional assessments of disease activity, based on pain and the acute phase response, may have limitations since these parameters may be affected by factors such as degenerative osteoarthritis and intercurrent urinary/respiratory infections.

Our study of individual sections of the HAQ showed...

**Table 2.** SRM for individual activities of HAQ at 0 and 24 weeks

<table>
<thead>
<tr>
<th>HAQ section</th>
<th>SRM</th>
</tr>
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<tbody>
<tr>
<td>Dressing</td>
<td>2.5</td>
</tr>
<tr>
<td>Grooming</td>
<td>2.7</td>
</tr>
<tr>
<td>Rising</td>
<td>1.8</td>
</tr>
<tr>
<td>Eating</td>
<td>0.8</td>
</tr>
<tr>
<td>Walking</td>
<td>1.4</td>
</tr>
<tr>
<td>Hygiene</td>
<td>1.2</td>
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<tr>
<td>Reach</td>
<td>1.1</td>
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<tr>
<td>Grip</td>
<td>1.0</td>
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</tbody>
</table>
that some questions were more responsive than others. The greatest responsiveness to change was shown in the sections related to dressing, grooming and rising. We presume that this reflects the contribution of EMS to the patients’ disabilities. These sections of the HAQ showed the greatest change with steroid therapy. Surprisingly, walking did not show a comparable change. This may be because patients do not usually walk until much later in morning, when the stiffness has worn off.

Our study was of 24 weeks’ duration, but we plan to follow our patients over a longer period to see whether changes in the HAQ are associated with recurrences or relapses. The HAQ may help clarify the long-term outcome in PMR. It may also play a role in adjusting steroid therapy in the disease.

Conclusions
HAQ is useful in the assessment of functional status in PMR. It correlated well with other measures of the activity of this disease. It showed greater responsiveness to change than other measures of disease activity. Fixed disabilities may affect its interpretation. Sections of the HAQ related to inflammatory stiffness, such as dressing, grooming and rising, were more responsive to change than other sections, and hence may be more specific for disease activity in PMR.

References