Evaluating the adequacy of disease control in patients with rheumatoid arthritis: a RAND appropriateness panel


Objectives. There is a lack of agreement on assessing disease activity in patients with RA and determining when the RA treatment should be changed or continued. A panel of rheumatologists was convened to develop guidelines to assess adequacy of disease control, focusing on the use of disease-modifying anti-rheumatic drugs.

Methods. The Research and Development/University of California in Los Angeles (RAND/UCLA) Appropriateness Method was used to evaluate disease control adequacy. After a literature review, 108 scenarios were developed to simulate situations most likely to be encountered in clinical practice and rated on a 9-point scale by a 10-member expert panel.

Results. Final appropriateness rankings for the scenarios were as follows: 37% ‘appropriate’, 48% ‘inappropriate’, and 16% ‘neutral’. The panelists felt that patients with disease control in the ‘appropriate’ range have adequate control with their current therapy, whereas those in the ‘inappropriate’ range should be considered for a change in therapy. Those in ‘neutral’ areas should have their therapy reviewed carefully. The panelists recommended that the clinically active joint count should be considered the most important decision factor. In patients with no clinically active joints, regardless of other factors no change in therapy was felt to be warranted. Patients with five or more active joints in the ‘inappropriate’ range should be considered for a change in therapy. Those in ‘neutral’ areas should have their therapy reviewed carefully. The panelists recommended that the clinically active joint count should be considered the most important decision factor. In patients with no clinically active joints, regardless of other factors no change in therapy was felt to be warranted. Patients with five or more active joints should be considered inadequately treated, and in patients with one to four active joints other variables must be considered in the decision to change therapy.

Conclusion. These preliminary guidelines will assist the clinician in determining when a patient’s clinical situation warrants therapy escalation and when continuing the current regimen would be appropriate.

KEY WORDS: Rheumatoid arthritis, Standards of care, Practice guidelines, Treatment.

Introduction

The management of RA remains a significant challenge for clinicians, particularly because of the absence of a gold standard to evaluate disease activity and guide treatment [1, 2]. This shortcoming leads to variations in the delivery of care and patient outcomes. Guidelines such as the ACR 2002 RA Guidelines use terms such as ‘adequate response’ and ‘inadequate response’ in their treatment algorithms, but these terms are not explicitly defined [3]. Different criteria to define improvement and clinical remission have been applied to assess outcomes in clinical trials. However, these measures have not been widely adopted in clinical settings as some of them are very detailed and often time-consuming [3–6]. The lack of agreement about the best measures to assess disease activity of individual patients with RA in clinical practice [5, 7–9] leaves physicians to choose from a host of measures, including biochemical markers of inflammation, radiographic scores, swollen and tender joint counts, measures of functional status, physician and patient global assessments, patient self-reported questionnaires and combinations of these measures [10].

Given the lack of a standard for assessing disease activity in patients with RA and for making decisions about therapy in clinical practice, a RAND/UCLA panel was convened to develop appropriateness guidelines for assessing disease activity in routine clinical practice. These guidelines focused on the appropriate use of DMARDs although not explicitly excluding adjunctive therapy such as corticosteroids. These guidelines are preliminary. They are intended to assist the clinician in determining when a patient’s clinical situation warrants maintenance or an escalation of DMARD therapy and when it would be appropriate to continue the current regimen.

Methods

The recommendations presented in this study were developed using the RAND/UCLA Appropriateness Method, which combines an evidence-based approach with the clinical experience of experts in the field [11]. Appropriateness guidelines developed with this method use quantitative judgement to evaluate individual clinical scenarios. To develop these guidelines, we performed a database review of randomized controlled trials (RCTs) to identify composite scales and measures used to assess RA disease activity, developed clinical scenarios designed to simulate situations likely to be encountered in clinical practice and convened a panel of rheumatologists from diverse geographic and practice settings to review and rate each scenario for the appropriateness of treatment. This approach has undergone various assessments of reliability and validity [12–15] and has been shown to correlate with clinical outcomes [12].

Literature review

We first reviewed a database of clinical trials previously developed by our research group, which was based upon a literature search, containing trials of biologic therapies. Studies in this database

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were identified through a search of the PubMed database for English-language articles published from January 1990 to December 2005. Search terms included *rheumatoid arthritis*, *rheumatism*, randomized controlled trial, clinical trials and comparative study. Additionally, we reviewed abstracts presented at the 2001–2005 conferences of the European League Against Rheumatism (EULAR) and the ACR. Only studies and abstracts using an RCT design were accepted. A total of 170 RCTs were accepted and used to identify the composite and individual measures of disease activity identified in the first search strategy. The search included the following MeSH and subject headings: *rheumatoid arthritis*, outcome assessment, quality indicators, disability evaluation, health status indicators, severity of illness index, treatment outcome, health planning guidelines, consensus development conference, validation studies, guideline and practice guideline. Excluded MeSH headings included non-human subjects. Articles in this search were not limited to a particular study design. In addition, the search included bibliographies of key reviews and articles that met search criteria. Further references were obtained by soliciting experts in the field. A total of 57 additional references were accepted.

**Clinical scenarios**

Based on the literature review and consultation with experts in the field, a set of clinical scenarios was developed to simulate situations most likely to be encountered in clinical practice, similar to the work done on ‘paper patients’ by Kirwan et al. [16–19] more than 20 yrs ago. The Kirwan studies used test descriptions of patients and their clinical characteristics. In contrast, the scenarios in our study were composed of permutations of five clinical factors portrayed in a grid fashion, including: joint count, X-rays, acute phase reactants, HAQ or equivalent and patient global assessment (Table 1). Other variables were considered but were eliminated from the final ratings after review by the expert panel, including: disease course (e.g. time from diagnosis), physician global assessment (preferring patient assessments), RF and antibodies to cyclic citrullinated peptide (CCP; markers for severity rather than disease activity) and formal scales such as the Disease Activity Score (DAS) and Simplified Disease Activity Index (SDAI) (principally developed for trials, not individual patients). For the final ratings, the panelists only considered adults with diagnosed RA under the care of a rheumatologist. Panelists also limited the discussion to consideration of the evaluation of therapy with DMARDs, including biologic agents, in patients who had an adequate time on therapy as defined by the treating physician. Thus, the ratings are not intended to guide the initiation of therapy or the use of non-DMARD therapy. Finally, these ratings do not take into consideration any information regarding adverse events or tolerability of DMARD agents, but are exclusively aimed at assessing disease activity in order to decide whether therapy is adequate or needs to be changed.

**Consensus panel**

A pool of potential panelists was identified from various sources, including recommendations of the ACR and the Arthritis Foundation, authors of key publications, referrals from selected experts and referrals from the sponsor. Only practising rheumatologists with recommendations from more than one source were considered. The RAND/UCLA method recommends diversity in geographic region and practice setting (academic vs community). With these considerations in mind, 15 panelists were invited and 12 of them accepted. Two panelists dropped out prior to the first round, one because of personal scheduling conflicts and one to avoid a potential conflict of interest. This left a total of 10 voting panelists (five community-based and five academic-based). One physician employed by the sponsor attended the meeting as an observer but did not participate in the process.

Panelists received a summary of the literature review and an initial set of clinical scenarios. The scenarios included patients with various levels of disease activity defined by quantified measures of different variables including swollen and tender joints, functional assessment, radiographic damage, inflammatory markers and global assessments. The first round of ratings were administered by mail and completed before the panel meeting. For each scenario, panel members rated the adequacy of the patient’s disease control on a scale of 1–9, with 1 indicating ‘extremely inappropriate’ and 9 indicating ‘extremely appropriate’. A rating of ‘inappropriate’ implies that a patient’s DMARD regimen is not adequately controlling RA disease activity and therefore should be changed. A rating of ‘appropriate’ implies that a patient’s disease is adequately controlled and no change in DMARD therapy is necessary. A middle rating of 5 indicates ‘neutral’, meaning that the clinical situation does not clearly call for a change in therapy, or that additional information is required to determine whether a DMARD regimen should be changed or remain the same. In the second round, the panelists met under the leadership of a moderator experienced in the RAND/UCLA methodology. During the meeting, the panelists received the results of the first round ratings and discussed areas of disagreement. After the discussion, the scenarios were re-rated.

The panel agreed on the following measures as those most appropriate to use for assessing adequate therapy: joint counts, patient global assessment, acute-phase reactants, HAQ disability index (DI) and radiographs.

Difficult scenarios were those in which joint counts were 0 but HAQ-DI/global assessments were poor. It was agreed that HAQ-DI and patient global assessments could be poor secondary to damage and not disease activity so that treatment need not be changed despite the poor patient estimates if there were no active joints.

Also difficult were those scenarios in which joint counts were low (1–4). X-rays did not worsen, HAQ-DI/patient global assessments were poor and acute-phase reactants were abnormal.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Categories</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint count</td>
<td>0 joints</td>
<td>Zero active (swollen and/or tender) joints</td>
</tr>
<tr>
<td></td>
<td>1–4 joints</td>
<td>One to four active (swollen and/or tender) joints</td>
</tr>
<tr>
<td></td>
<td>5 joints or more</td>
<td>Five or more active (swollen and/or tender) joints</td>
</tr>
<tr>
<td>X-rays</td>
<td>No radiographic progression</td>
<td>No new erosions or joint space narrowing</td>
</tr>
<tr>
<td></td>
<td>Radiographic progression</td>
<td>New erosions or joint space narrowing</td>
</tr>
<tr>
<td>Acute-phase reactants (CRP/ESR)</td>
<td>Abnormal</td>
<td>Abnormal by laboratory reference standard</td>
</tr>
<tr>
<td>HAQ (or equivalent)</td>
<td>Mild disability</td>
<td>Between 1.0 and 1.99</td>
</tr>
<tr>
<td></td>
<td>Moderate disability</td>
<td>2.0 or more</td>
</tr>
<tr>
<td>Patient global assessment</td>
<td>Good</td>
<td>VAS &lt; 4</td>
</tr>
<tr>
<td></td>
<td>OK</td>
<td>VAS 4–6</td>
</tr>
<tr>
<td></td>
<td>Awful</td>
<td>VAS &gt; 6</td>
</tr>
</tbody>
</table>

Assumptions: (i) Limited to adults (aged 18 and older) with diagnosed RA, who are being seen by a rheumatologist. (ii) Limited to consideration of DMARD therapy: ‘inappropriate’ implies a change of DMARD. Patient has had adequate time on therapy (as defined by the treating physician); does not include initiation of therapy.
In those cases the panel often required more information and could not, on the presented data alone, decide an appropriateness of therapy. Here, factors such as comorbid conditions or previous therapies impinged on therapeutic decisions.

The final rating for each scenario was the median score of the 10 panelists. Disease control was defined as ‘inappropriate’ for median ratings between 1 and 3, ‘neutral’ and potentially warranting additional information for median ratings between 4 and 6, and ‘appropriate’ for median ratings between 7 and 9. Disagreement was defined as occurring when at least two panelists gave a rating in the 1–3 region (‘inappropriate’) and at least two panelists gave a rating in the 7–9 region (‘appropriate’) for the same scenario.

Results

We identified 170 RCTs published from 1990 to 2005 that assessed the effectiveness of RA treatments and included measures of disease activity (the complete list is available upon request).

Table 2 summarizes the frequency with which specific outcome measures were reported in these RCTs. Individual measures included as part of a composite scale were listed separately only if the individual measure results were reported separately from the composite score.

In addition, 57 references were accepted to provide specifics on the composite and individual measures of disease activity, of which 13 peer-reviewed articles and one online draft document [20] made recommendations for the evaluation of RA in clinical practice. These recommendations are summarized in Table 3. The DAS and its components (patient global assessment, physician global assessment, joint counts and ESR) were the most frequently recommended measures. However, the majority of recommendations did not state a preference between ESR and serum levels of CRP. The HAQ or a comparable measure of functional status was recommended in nine studies, whereas the other measures were recommended in six or fewer of the studies. Radiological evaluations were generally recommended at less frequent intervals than other types of evaluation.

Table 2. Reporting frequency of outcome measures from 170 RCTs, 1990–2005

<table>
<thead>
<tr>
<th>Composite</th>
<th>Patient-reported</th>
<th>Clinical</th>
<th>Functional</th>
<th>Biochemical</th>
<th>Imaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACR 20</td>
<td>97</td>
<td>50</td>
<td>62</td>
<td>69</td>
<td>44</td>
</tr>
<tr>
<td>ACR 50</td>
<td>76</td>
<td>49</td>
<td>58</td>
<td>11</td>
<td>41</td>
</tr>
<tr>
<td>ACR 70</td>
<td>64</td>
<td>24</td>
<td>44</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>DAS</td>
<td>22</td>
<td>20</td>
<td>9</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>DAS 28</td>
<td>21</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>EULAR</td>
<td>15</td>
<td>4</td>
<td></td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ACR-N</td>
<td>6</td>
<td>4</td>
<td></td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>ACR 90</td>
<td>3</td>
<td>2</td>
<td></td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Other measures (1 RCT each)</td>
<td>2</td>
<td>7</td>
<td>12</td>
<td>Other measures (1 RCT each)</td>
<td>Other measures (1 RCT each)</td>
</tr>
</tbody>
</table>

Table 3. Published recommendations for evaluation of RA in clinical practice

<table>
<thead>
<tr>
<th>Reference</th>
<th>Composite</th>
<th>Patient-reported</th>
<th>Clinical</th>
<th>Functional</th>
<th>Biochemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACR [20]</td>
<td>DAS</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fransen et al. [21]</td>
<td>SDAI</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pham et al. [22]</td>
<td>Pain</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soubrier and MacLean et al. [23]</td>
<td>Morning stiffness</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scott et al. [24]</td>
<td>Physician global assessment</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACR [3]</td>
<td>DAS</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>van Riel and Schumacher [7]</td>
<td>SJC</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
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<tr>
<td>Wolfe et al. [5]</td>
<td>TJC</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wolfe [26]</td>
<td>Fatigue</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emery [27]</td>
<td>RAI</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scott [28]</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>van der Heijde et al. [29]</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>van der Heijde et al. [30]</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</table>

RAI, Ritchie Articular Index; SJC, swollen joint count; TJC, tender joint count. aMeasure is included in the DAS. bMeasure is included in the SDAI. cDraft ACR recommendations are joint count, functional status, acute-phase reactant, radiographic progression. dRadiographs recommended at baseline evaluation and then every 3 yrs.
The final appropriateness rankings are shown in Fig. 1. Of the 108 possible scenarios, 37% were rated as appropriate, 16% neutral and 48% as inappropriate. There was disagreement (as defined in the ‘Methods’ section) on only 7.4% of scenarios in the first round and none in the second round. The panel agreed that the count of clinically active joints (as determined by swelling and/or tenderness) was the most important factor in determining disease activity. For example, the panel unanimously agreed that changing therapy to achieve better disease control was not appropriate in patients with no clinically active joints, regardless of other factors. Likewise, patients with five or more active joints were generally considered to be inappropriately treated (exceptions included patients with no radiographic progression, normal acute phase reactants, limited disability and patient global assessment ratings of 6 or less; these scenarios were rated neutral). For patients with 1–4 active joints, the appropriateness ratings depended on other variables.

Discussion

The RAND/UCLA Appropriateness Method represents a combination of available evidence and expert opinion. The technique is most useful in helping to guide individual decisions in situations where high-quality data (e.g. results of RCTs) are insufficient or non-existent. The decision to leave a patient with RA on the current course of therapy or to change that therapy in order to achieve better disease control is one example of such a situation. Many measures that are well established in clinical trials are too burdensome for use in clinical practice. Thus, there is a gap between trial data and clinical practice, as evidenced by the ongoing work by the ACR to develop guidelines in this area. Moreover, there is a growing recognition of the need to assess quality of care that may ultimately be linked to reimbursement for care. This need necessitates the development of tools that can be used by practitioners to demonstrate that patients are doing well.

At least one published recommendation suggests that achieving remission should be the main goal of DMARD therapy [13]. Undertreatment may be associated with a higher likelihood of permanent damage, but overtreatment may allow for unnecessary exposure to risks of adverse events with attendant-increased medical care costs.

The results presented here, although preliminary and based on a combination of evidence and opinion rather than being completely based on data, can be used as a starting point to assist the clinician negotiating these difficult questions. Patients with disease control in the ‘appropriate’ range may be judged to be under adequate control with their current course of therapy, while patients in the ‘inappropriate’ range should be considered for a change in therapy. For patients in the ‘neutral’ areas, therapy should be reviewed carefully. In some of these cases, additional information may help the decision regarding a recommendation, while in other cases the neutral rating reflects ambivalence on the part of the panel: that is, the rating reflects the panel’s judgement that current therapy is neither ideal nor inappropriate.

Individual variables

Among the variables considered, the panel confirmed that active joints are the most important criterion for establishing disease activity. No other criteria were deemed sufficiently important to warrant a change in therapy in patients with no active joints. Likewise, in the presence of five or more active joints, little additional information was needed to recommend a change in therapy. For patients in the ‘neutral’ areas, therapy should be reviewed carefully. In some of these cases, additional information may help the decision regarding a recommendation, while in other cases the neutral rating reflects ambivalence on the part of the panel: that is, the rating reflects the panel’s judgement that current therapy is neither ideal nor inappropriate.
routine clinical setting. The panel also understood that new radiographs would not be available at every clinical encounter. Indeed, the interval required to document radiographic progression may often exceed the length of time required to assess the adequacy of a treatment regimen. In the absence of radiographic evidence, the panel therefore agreed that the appropriateness rating for no progression should be used. There was discussion of newer imaging modalities (e.g. ultrasound, magnetic resonance imaging), but the performance characteristics and scoring systems for these modalities were not felt to be sufficiently well established to justify inclusion in the rating matrix.

All panelists agreed that some form of patient-reported outcome was appropriate. The HAQ score (or equivalent) was included to address the long-term effects of RA on activities of daily living, while the patient global assessment addressed how the patient was doing at the time of examination. Both were felt to be important, and represent different types of information to support an appropriateness decision. Acute-phase reactants were generally considered less important than other measures, which is consistent with published reports that these factors add little information to clinical variables in validated scales [14]. Nevertheless, acute phase reactants were considered to play a particularly important role in patients where other variables are not consistent: specifically, when there are few active joints and no evidence of radiographic progression.

Several variables were not included in the final matrix. Time from diagnosis was included in the first round but was removed from the final matrix as it was recognized that disease duration had limited influence on disease activity at a single time point or on the rating of importance in the initial matrix results. The second-round matrix focused more on disease activity at the time of examination. As such, the panel agreed that the same opportunities for disease control should be offered to all patients, regardless of their duration of disease. Physician global assessment was recognized as an important variable, but the panel considered that such an assessment would be based in large measure on clinical data already included in the matrix. The presences of RF or anti-CCP antibodies were considered to be markers of a more severe disease course, but the panel felt this was more relevant to the decision to initiate DMARD therapy than to alter therapy. Based on the literature review, the DAS, Clinical Disease Activity Index (CDAI) and SDAI composite scales are frequently recommended for clinical management. A variation of the SDAI with no acute-phase reactants, the CDAI, has also been proposed [14, 32]. However, the panel chose to focus on the individual components of these scales in order to avoid over-weighting these components.

These recommendations should be considered in light of the information that is typically available to the treating physician. Aside from X-ray data, how might the treating physician assess a case in the absence of all data points? If there are no active joints, or five or more, little additional information is required, whereas in the mid-range (1–4 active joints) other elements become much more important. This important group represents the majority of patients who are not eligible for clinical trials [33, 34]. For patients in this range, it was thought very important that the physician obtain other measures to determine disease activity. For example, a patient with 2–3 active joints, no new radiographic changes and a patient global assessment of 4–6 on the visual analogue scale (VAS) would be deemed appropriately treated if the patient had a normal CRP level and a HAQ-DI score <1.0. The same patient would be considered inadequately treated with an abnormal CRP and a HAQ-DI of 2.0 or more. Other clinical considerations include the joints involved, previous disease activity, prior drug therapy and the patient’s general health. A final clinical decision needs to balance the potential benefits of a therapy change with its associated risks.

Limitations

The scenarios rated by our panelists represent a simplification of the clinical decision-making process. Several variables—for example, patient preference, adverse events and tolerability—were not explicitly addressed by this panel. Also, recommendations refer to patients with clear ongoing inflammation, not to patients with long-term low-level inflammation and slow ongoing radiological damage but little functional deterioration; the latter is a more complex and unresolved scenario. These variables and others are important factors that can and should influence the choice of therapy in particular circumstances.

The determination of active joints was left to the discretion of the clinician, and we have not defined a requisite number of joints for assessment (e.g. 28, 44, 68 as used in various other scoring systems), recognizing the variability and practicalities of incorporating these in clinical practice. Likewise, evaluating radiographic progression over time was included as a variable but the absence of standardized scoring as well as the infrequency and variability in acquiring the data were recognized within the matrix. A weakness of the matrix is the absence of a time variable: the exception is radiographic progression, which may be an important consideration in clinical care. Moreover, it is important to emphasize that these recommendations are not necessarily appropriate for every clinical encounter, but rather only after adequate time has passed to demonstrate a treatment effect.

Nothing in these guidelines should be construed as contradicting the use of any therapy as indicated on the product labeling. Furthermore, the panel neither considered nor rated the appropriateness of individual therapeutic options, and nothing in these guidelines should be construed as an endorsement of a particular therapy. A change in therapy as determined by this matrix may represent the use of adjunct therapy (e.g. corticosteroids, intra-articular therapy), dose escalations of current therapy or the addition or substitution of one or a combination of DMARDs with other DMARDs or combinations. RA management is a rapidly changing field, with many new agents currently being tested. While new data may alter the consideration of appropriateness for individual therapeutic interventions, the determination of disease control as presented here is expected to be relatively unaffected by changes in the therapeutic options available.

Our matrix includes many of the variables that should be considered in the assessment of RA patients. It is hoped that these results will be used as a starting point for additional discussions of monitoring appropriateness of clinical care for patients with RA. Furthermore, the results emphasize the need to incorporate several outcome measures into clinical care as well as in clinical trials [33, 34]. The results presented here require testing and validation using actual clinical data sets. Potential next steps might include auditing care to see what proportion of patients have adequate data to assess their current appropriateness and measuring the prevalence of care that is appropriate or inappropriate according to the guidelines. Ultimately, these standards should be validated by comparing outcomes (both clinical and pharmacoeconomic) in patients who were and were not treated according to these recommendations.

Conclusions

These results may help establish standards for evaluating the adequacy of disease-modifying therapy in RA. The number of clinically active joints was considered as the primary indicator of disease activity and the panel felt it should be the first factor considered. For patients with no active joints, no change in therapy is indicated. In the presence of five or more active joints, most patients should be considered inadequately treated. For patients with 1–4 active joints, other factors should...
be considered in the decision to alter therapy. Further validation of these results is necessary.

Rheumatology key messages

- Clinically active joints should be used to determine the adequacy of current therapy.
- A relatively small number of factors influence treatment decisions.

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References