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An index of only patient-reported outcome measures, routine assessment of patient index data 3 (RAPID3), in two abatacept clinical trials: similar results to disease activity score (DAS28) and other RAPID indices that include physician-reported measures

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Objectives. To analyse the capacity of routine assessment of patient index data 3 (RAPID3), an index of only the three patient-reported outcome (PRO) measures in the RA Core Data Set—physical function, pain and global status—to distinguish abatacept from control treatments in two clinical trials, and to compare RAPID3 results with the disease activity score 28 (DAS28) and RAPID-based indices that add a tender or swollen joint count and/or physician/assessor global estimate of status.
Methods. Clinical trial data from AIM (Abatacept in Inadequate response to Methotrexate) and ATTAIN [Abatacept Trial in Treatment of Anti-tumor necrosis factor (anti-TNF) INadequate responders] were reanalysed. Mean values were computed at baseline, endpoint and for change between baseline and endpoint for RAPID3, DAS28 and additional RAPID indices to study whether they had greater capacity to distinguish abatacept from control therapy. RAPID4TJC adds to RAPID3 a tender joint count; RAPID4SJC, a swollen joint count; RAPID4MD, a physician/assessor global estimate; and RAPID5 adds both a tender joint count and physician/assessor global estimate. RAPID2 includes only physician/assessor and patient global estimates.
Results. All indices indicated significant differences of 19–28% between abatacept and control groups. Results were similar for RAPID3 of only patient measures, compared to DAS28 and other RAPID-based indices.
Conclusion. A RAPID3 'patient-only' index, without a joint count or any measure from a health professional or laboratory, distinguishes active from control treatments in two abatacept clinical trials, at levels similar to DAS28 and to other RAPID-based indices that add physician-reported measures.

Key words: Abatacept, Clinical trials, DAS, Patient index, RAPID.

Introduction

No single measure can serve as a 'gold standard' for assessment of clinical status of patients with RA. Therefore, a pooled index [1], such as the ACR Core Data Set [2–4], disease activity score (DAS) [5, 6], simplified disease activity index (SDAI) [7] and clinical disease activity index (CDAI) [7], is used to distinguish between results of active and control treatments in clinical trials, and to assess patients in other clinical research. All these indices include a formal joint count of tender and swollen joints performed by a physician/assessor.

The joint count is the most specific measure to assess RA activity [8], and is regarded by rheumatologists as the most important assessment measure [9]. However, while most rheumatologists perform careful qualitative joint examinations at most of the visits, most visits of most of the patients with RA to rheumatologists do not include a formal quantitative joint count [10]. Indeed, most of the routine care of patients with RA is conducted by 'Gestalt' global impressions without quantitative data, other than laboratory tests, which often are not informative, unavailable at the time of the office visit and/or associated with high levels of false positive and false negative results [11, 12].

An index of only the three ACR Core Data Set patient-reported outcome (PRO) measures—physical function, pain and global estimate—is available on the HAQ [13] and its derivative multidimensional HAQ (MDHAQ) [14], and distinguishes active from control treatments at levels similar to the ACR Core Data Set and DAS28 in clinical trials involving leflunomide [15, 16], methotrexate [15, 16] and adalimumab [17]. PRO indices are correlated with the DAS28 in clinical trials [15–17] and in clinical settings [18]. Further information regarding validity and reliability of PRO measure indices would add to evidence that such an index might be considered by rheumatologists to assess patients in routine clinical care.

These considerations have led us to analyse the performance of an index of the three PRO measures, termed 'routine assessment of patient index data 3' (RAPID3) in two abatacept clinical trials: AIM (Abatacept in Inadequate response to Methotrexate) [19] and ATTAIN [Abatacept Trial in Treatment of Anti-tumor necrosis factor (anti-TNF) INadequate responders] [20]. RAPID3 is mathematically identical to a patient activity score (PAS) [18], but designed for simple scoring in a busy clinical setting to facilitate quantitative assessment of patient status. RAPID3 was compared with DAS28 and with indices that added to RAPID3 a tender or swollen joint count and/or physician global estimate, for capacity to distinguish abatacept from control treatment groups, and to recognize if any particular index provided substantially better distinction than RAPID3 (or DAS28) in the two trials.

Methods

Clinical trials

Results from two clinical trials to compare abatacept *vs* control treatment were reanalysed. The AIM trial involved 652 patients from 116 sites worldwide, including 433 who were randomized to abatacept and 219 who were randomized to control treatment, which included methotrexate and other therapies in a standard 'add-on' design [19]. The ATTAIN clinical trial that compared abatacept with control therapy involved 391 patients from 101 sites worldwide, including 258 who were randomized to abatacept and 133 who were randomized to control treatment [20].

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Since this study involved comparisons of different indices, analyses were performed both on all available data and on data only from patients for whom complete data were available for each of the seven indices studied—DAS28 and six RAPID scores. This criterion was met by 374 of 433 patients randomized to abatacept and 183 of 219 to control therapy in AIM, and 180 of 258 patients randomized to abatacept and 98 of 133 to control therapy in ATTAIN. Results were virtually identical in both types of analyses, and only analyses of data from patients with complete data for all indices are presented in this report.

Indices to assess patient status

DAS28 [5, 6, 21] was computed in the standard manner. The prototype RAPID3 includes physical function, pain and patient global estimate, the three patient measures from the Core Data Set [2–4]. RAPID3 is mathematically identical to the PAS, but PAS is scored 0–9 [18], while RAPID3 is scored 0–30, on the basis of three 0–10 scores that may be mathematically adjusted to 0–10 (the mean of the three values) for simple scoring in a busy clinical setting. The rationale for RAPID3 is to include the three PRO measures from the ACR Core Data Set, available on a standard patient questionnaire, requiring no activity on the part of a health professional, other than to calculate simple arithmetic totals.

To calculate RAPID3, the raw 0–3 score for physical function on the HAQ is converted to 0–10 by multiplying by 3.33. Pain and global estimate are assessed according to 10 cm visual analogue scales (VAS), both scoring 0–10. The three 0–10 scores for physical function, pain VAS and global VAS, are added together for a raw score of 0–30, and divided by 3 to give an adjusted 0–10 score for comparison with other RAPID indices.

Five additional RAPID-based scores—RAPID2, RAPID4MD, RAPID4TJC, RAPID4SJC and RAPID5—were analysed to assess whether any particular index provided substantially better ability than RAPID3 (or DAS28) to distinguish abatacept from control treatments in the two trials. [The number following 'RAPID' indicates the number of included measures, and abbreviations specify the included measures, in addition to RAPID3 (Table 1)]. All individual measures were scored 0–10, so each was weighted equally in pooled RAPID scores.

RAPID4TJC (Table 1) adds to RAPID3 a tender joint count, and RAPID4SJC a swollen joint count. The rationale for RAPID4TJC and RAPID4SJC is that the joint count is the most specific measure of RA [8], often regarded by rheumatologists as the most valuable measure to assess patients [9] and required for ACR response criteria [22]. The 68 tender joint count and 66 swollen joint count used in AIM and ATTAIN were converted to a 0–10 scale using simple division by 6.8 or 6.6. The raw RAPID4TJC or RAPID4SJC score was 0–40, i.e. the sum of four 0–10 scores for physical function, pain VAS, global VAS and tender or swollen joint count. The raw RAPID4TJC or RAPID4SJC score was divided by 4 to give an adjusted 0–10 score.

RAPID4MD (Table 1) adds to RAPID3 a global 0–10 VAS estimate by a physician/assessor. The rationale for RAPID4MD is that a physician/assessor global VAS estimate is easily recorded, and has greater relative efficiency than the tender and swollen joint counts in clinical trials in which it has been studied [23, 24]. The raw RAPID4MD score was 0–40 and was divided by 4 to give an adjusted RAPID4MD 0–10 score.

RAPID5 (Table 1) adds to RAPID3 both a tender joint count and a physician/assessor global estimate. The rationale for RAPID5 is to include both the measure that most rheumatologists indicate is most valuable to assess patients with RA, i.e. the joint count [9], and the measure with the highest relative efficiency in clinical trials, i.e. physician/assessor estimate of global status [23, 24]. RAPID5 is therefore the most comprehensive RAPID index. The RAPID5 raw score was 0–50 and was divided by 5 to give an adjusted 0–10 score.

RAPID2 (Table 1) includes two estimates of global status, by the physician (or other health professional) assessor and by the patient. The rationale for RAPID2 is that it is quite simple to collect, and, as noted, global estimates distinguish active from control treatments as effectively as more detailed measures in clinical trials in which this matter has been studied. Among assessor-derived measures, physician global estimates have higher relative efficiencies than the swollen and tender count. Among patient-derived measures, patient global VAS estimates generally have higher relative efficiencies than detailed HAQ measures of functional status or pain VAS scores. RAPID2 is less specific than any of the RAPID indices, but is the most easily collected and scored. The raw score of 0–20 is divided by 2 to give an adjusted 0–10 score.

Table 1. Composition of RAPID indices

	Measures Included						Scoring	
RAPID index	Physical function	Pain	Patient global estimate	Assessor global estimate	Tender joint count	Swollen joint count	Raw score	Adjusted score
RAPID3	√	√	√				0–30	0–10
RAPID4TJC	√	√	√		√		0–40	0–10
RAPID4SJC	√	√	√			√	0–40	0–10
RAPID4MD	√	√	√	√			0–40	0–10
RAPID5	√	√	√	√	√		0–50	0–10
RAPID2			√	√			0–20	0–10

Each included component is converted to a 0–10 scale, as necessary. RAPID raw score is derived by summing the converted included components. RAPID adjusted score is derived on a 0–10 scale by dividing the RAPID raw score by the number of included components.

Statistical analyses

All six ACR Core Data Set measures in this study—physical function, pain, patient estimate of global status, tender joint count, swollen joint count and physician estimate of global status—were scored to an adjusted 0–10 scale. The patient pain and global estimates, and physician global estimates were all scored 0–10 on a VAS. The HAQ scale for physical function is scored 0–3 and converted to 0–10 by multiplying by 3.33. The tender and swollen joint counts of 68 and 66 joints were converted to 0–10 on dividing by 6.8 and 6.6. RAPID raw scores were 0–20, 0–30, 0–40 or 0–50, based on 2, 3, 4 or 5 component scores, respectively. Each RAPID score was computed by dividing the RAPID raw score by the number of components to give a 0–10 scale.

As noted, RAPID scores were computed for all patients as well as for patients who had non-missing components for all six RAPID scores and DAS28 at the specific time points, available by either actual measurement or by imputation by the last observation carried forward method. Mean and median values were computed for the baseline and final time point RAPID scores and for mean differences in change from baseline between abatacept and control treatment groups. Mean and median percentage improvement, and the difference in mean percentage improvement were computed. Results were similar for mean and median scores, and only mean scores are presented in the tables. The distribution of percentage improvement was compared between abatacept and control treatments using a Wilcoxon rank-sum test.

Results

In the AIM trial, mean baseline DAS28 scores were 6.82 on a scale of 0–10 in the abatacept group and 6.83 in the control group (Table 2). Mean adjusted baseline scores for adjusted RAPID3 were 6.1 in the abatacept group and 6.2 in the control group, adjusted RAPID4TJC 5.7 and 5.9, adjusted RAPID4SJC 5.4 and 5.5, adjusted RAPID4MD 6.3 and 6.4, adjusted RAPID5 6.0 and 6.1 and RAPID2 6.6 in both groups on a 0–10 scale (Table 3).

Mean differences in 0–10 adjusted scores were 1.38 units for DAS28 compared with 1.27 for RAPID3, 1.22 for RAPID4TJC, 1.18 for RAPID4SJC, 1.48 for RAPID4MD, 1.40 for RAPID5 and 1.86 for RAPID2 (Table 3).

Mean improvement in the AIM trial for DAS28 was 41% for the abatacept group and 21% for the control group, compared with 48% for abatacept and 23% for control according to RAPID3, 52% for abatacept and 29% for control according to RAPID4TJC, 51% for abatacept and 28% for control according to RAPID4SJC, 54% for abatacept and 30% for control according to RAPID4MD, 57% for abatacept and 32% for control according to RAPID5 and 62% for abatacept and 34% for control according to RAPID2 (Table 4, Fig. 1). Improvement according to each of these indices was ~2-fold greater for the abatacept than control group, in the same range for each index. Mean differences in percentage change between the abatacept and control groups (Table 4, Fig. 1) were 20.3% according to DAS28, 24.0% for RAPID3, 23.3% for RAPID4TJC, 23.4% for RAPID4SJC, 24.8% for RAPID4MD, 24.8% for RAPID5 and 28.1% for RAPID2. All RAPID scores appear to have similar capacity to one another and to DAS28 to distinguish between active and control treatment in the AIM trial.

In the ATTAIN trial, mean baseline DAS28 was 6.89 in the abatacept group and 6.88 in the control group (Table 2). Mean baseline 0–10 adjusted RAPID3 scores were 6.6 in both groups, adjusted RAPID4TJC scores 6.1 in both groups, adjusted RAPID4SJC scores 5.8 in both groups, adjusted RAPID4MD scores 6.6 in both groups, adjusted RAPID5 scores 6.2 in both groups and adjusted RAPID2 scores 6.80 in the abatacept group and 6.72 in the control group (Table 3). Differences in adjusted scores for the six indices in the ATTAIN study were 1.28 for the DAS28, 1.63 for RAPID3, 1.53 for RAPID4TJC, 1.39 for RAPID4SJC, 1.69 for RAPID4MD, 1.60 for RAPID5 and 1.79 for RAPID2 (Table 3). Mean percentage improvement was 28% for the abatacept group *vs* 9% for the control group according to DAS28, 35% *vs* 10% according to RAPID3, 38% *vs* 12% according to RAPID4TJC, 36% *vs* 12% according to RAPID4SJC, 39% *vs* 13% according to RAPID4MD, 40% *vs* 14% according to RAPID5 and 43% *vs* 16% according to RAPID2 (Table 4, Fig. 1).

In the ATTAIN trial, percentage improvement differed by almost a 3-fold margin between abatacept and control. Mean differences between abatacept and control groups (Table 4, Fig. 1) were 19.0% for DAS28, 24.9% for RAPID3, 25.4% for RAPID4TJC, 24.0% for RAPID4SJC, 25.8% for RAPID4MD, 26.0% for RAPID5 and 27.1% for RAPID2, again quite similar for all indices. *T*-scores for differences between abatacept and control therapy indicated similar capacities for all six indices to distinguish abatacept from control treatment in both AIM and ATTAIN.

Discussion

The data extend previous observations that indices of the three PRO measures included in RAPID3 have the capacity to distinguish active from control treatment in the range of the DAS28 in clinical trials involving abatacept, as had been reported previously for clinical trials involving methotrexate [15, 16], leflunomide [15, 16] and adalimumab [17]. The data add evidence that addition of a tender or swollen joint count and/or physician estimate of global status does not add to the capacity of RAPID3 to distinguish active from control treatments. All six RAPID scores provide similar capacity to DAS28 and to one another to

TABLE 2. Changes in raw scores for DAS28 and RAPID scores, including RAPID3, RAPID4, RAPID5, RAPID2 indices, in two abatacept clinical trials: AIM and ATTAIN

		Mean raw scores	
Index		Baseline	End of study[a]
AIM, abatacept $n=374$, control $n=183$			
DAS28 (0–10)	Abatacept	6.82	3.97
	Control	6.83	5.36
RAPID3 (0–30)	Abatacept	18.3	9.25
	Control	18.6	13.4
RAPID4TJC (0–40)	Abatacept	22.8	10.6
	Control	23.5	16.2
RAPID4SJC (0–40)	Abatacept	21.4	10.1
	Control	21.9	15.3
RAPID4MD (0–40)	Abatacept	25.2	11.4
	Control	25.4	17.6
RAPID5 (0–50)	Abatacept	29.7	12.8
	Control	30.2	20.3
RAPID2 (0–20)	Abatacept	13.2	4.98
	Control	13.1	8.59
ATTAIN, abatacept $n=180$, control $n=98$			
DAS28 (0–10)	Abatacept	6.89	4.90
	Control	6.88	6.17
RAPID3 (0–30)	Abatacept	19.8	12.5
	Control	19.8	17.3
RAPID4TJC (0–40)	Abatacept	24.4	14.8
	Control	24.4	20.9
RAPID4SJC (0–40)	Abatacept	23.1	14.2
	Control	23.0	19.7
RAPID4MD (0–40)	Abatacept	26.6	15.9
	Control	26.4	22.5
RAPID5 (0–50)	Abatacept	31.2	18.2
	Control	31.0	26.1
RAPID2 (0–20)	Abatacept	13.6	7.54
	Control	13.4	11.0

[a]End of study is 12 months (week 52) for AIM, 6 months (week 26) for ATTAIN.

TABLE 3. Changes in adjusted scores (0–10 scale) for DAS28 and RAPID scores, including RAPID3, RAPID4, RAPID5, RAPID2 indices, in two abatacept clinical trials: AIM and ATTAIN

		Mean adjusted scores 0–10			
Index		Baseline	End of study[a]	Change	Difference
AIM, Abatacept $n=374$, control $n=183$					
DAS28	Abatacept	6.82	3.97	−2.85	−1.38
	Control	6.83	5.36	−1.47	
RAPID3	Abatacept	6.08	3.08	−3.00	−1.27
	Control	6.21	4.48	−1.73	
RAPID4TJC	Abatacept	5.71	2.66	−3.04	−1.22
	Control	5.86	4.04	−1.83	
RAPID4SJC	Abatacept	5.35	2.53	−2.82	−1.18
	Control	5.47	3.83	−1.64	
RAPID4MD	Abatacept	6.29	2.84	−3.45	−1.48
	Control	6.35	4.39	−1.96	
RAPID5	Abatacept	5.95	2.55	−3.39	−1.40
	Control	6.05	4.05	−1.99	
RAPID2	Abatacept	6.62	2.49	−4.13	−1.86
	Control	6.57	4.29	−2.27	
ATTAIN, abatacept $n=180$, control $n=98$					
DAS28	Abatacept	6.89	4.90	−1.99	−1.28
	Control	6.88	6.17	−0.71	
RAPID3	Abatacept	6.60	4.16	−2.45	−1.63
	Control	6.59	5.78	−0.82	
RAPID4TJC	Abatacept	6.10	3.70	−2.40	−1.53
	Control	6.10	5.23	−0.87	
RAPID4SJC	Abatacept	5.78	3.55	−2.22	−1.39
	Control	5.75	4.93	−0.83	
RAPID4MD	Abatacept	6.64	3.98	−2.66	−1.69
	Control	6.60	5.63	−0.97	
RAPID5	Abatacept	6.23	3.65	−2.59	−1.60
	Control	6.20	5.22	−0.98	
RAPID2	Abatacept	6.80	3.77	−3.03	−1.79
	Control	6.72	5.49	−1.23	

[a]End of study is 12 months (week 52) for AIM, 6 months (week 26) for ATTAIN.

TABLE 4. Percentage improvement in adjusted scores (0–10 scale) for DAS28, RAPID3, RAPID4, RAPID5, RAPID2 indices in two abatacept clinical trials: AIM and ATTAIN

Index		Mean percentage improvement (%)	Difference (mean %)*	Wilcoxon rank-sum *Z*-statistic	*P*-value
AIM, abatacept $n=374$, control $n=183$					
DAS28	Abatacept	41.4	20.3	−10.4	<0.001
	Control	21.0			
RAPID3	Abatacept	47.5	24.0	−6.5	<0.001
	Control	23.4			
RAPID4TJC	Abatacept	52.4	23.3	−7.2	<0.001
	Control	29.1			
RAPID4SJC	Abatacept	51.4	23.4	−7.3	<0.001
	Control	28.0			
RAPID4MD	Abatacept	54.3	24.8	−8.0	<0.001
	Control	29.5			
RAPID5	Abatacept	56.8	24.8	−8.3	<0.001
	Control	32.0			
RAPID2	Abatacept	62.0	28.1	−9.2	<0.001
	Control	33.8			
ATTAIN, abatacept $n=180$, control $n=98$					
DAS28	Abatacept	28.3	19.0	−6.7	<0.001
	Control	9.3			
RAPID3	Abatacept	34.7	24.9	−5.8	<0.001
	Control	9.9			
RAPID4TJC	Abatacept	37.7	25.4	−6.0	<0.001
	Control	12.3			
RAPID4SJC	Abatacept	36.4	24.0	−5.9	<0.001
	Control	12.4			
RAPID4MD	Abatacept	38.8	25.8	−6.2	<0.001
	Control	13.0			
RAPID5	Abatacept	40.4	26.0	−6.4	<0.001
	Control	14.4			
RAPID2	Abatacept	42.9	27.1	−6.0	<0.001
	Control	15.7			

*Some apparent arithmetic discrepancies reflect rounding.

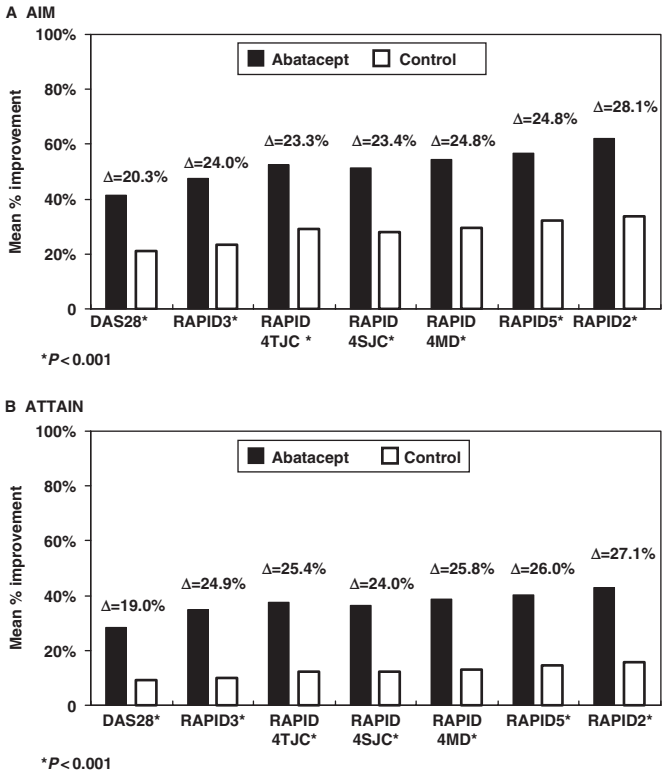

FIG. 1. Comparison of percentage change in DAS and five RAPID scores in the AIM and ATTAIN clinical trials.

distinguish abatacept from control treatment in the AIM and ATTAIN trials.

The RAPID3 score, without formal joint counts, was developed to facilitate more widespread quantitative measurement in standard rheumatology clinical care, as an index that can be collected easily to assess and monitor patient status. There is no intention to suggest that RAPID3 should be used in lieu of ACR or DAS indices and improvement criteria in clinical trials and clinical research. Nonetheless, the finding that RAPID3 is correlated with DAS in clinical trials [15–17] and clinical settings [18] and has capacity to distinguish active from control treatments in clinical trials, suggests that RAPID3 may be adequate for clinical care. An index of only patient measures such as RAPID3 appears preferable to the absence of any quantitative data other than laboratory tests in the management of RA in routine care, which is the current situation at most of the visits of RA patients to a rheumatologist.

RAPID3 includes only PRO data, which some physicians may regard as insufficient for patient monitoring. Therefore, RAPID4TJC, RAPID4SJC, RAPID4MD and RAPID5 were developed to study whether addition of physician-derived data from a joint count and/or global estimate would add to the capacity of these measures to distinguish abatacept from control treatment. However, all RAPID scores provide similar capacity to distinguish between abatacept and control treatment. A choice of whether DAS or any RAPID score might be used in any clinical setting may be determined by preferences of individual rheumatologists concerning a balance between ideal thoroughness and pragmatic feasibility. The rheumatologist authors (T.P., M.J.B., Y.Y.) have found RAPID3 quite adequate to assess and monitor patients in their usual clinical care.

Many rheumatologists might find it inappropriate to suggest that a formal tender and swollen joint count performed by a physician/assessor is not required for an index to assess and monitor status of patients with RA in standard care. The joint count is the most specific measure to assess patients with RA, and appropriately regarded by most rheumatologists as the most important indicator of clinical status in RA [9]. A 28 joint count was reported in 1989 as a possible simplification for use in standard care [25]. However, several limitations are seen to a joint count performed by a physician/assessor, including poor inter- and intra-observer reliability [26–30] (that can be improved with training) [29], higher response to placebo than seen with other RA Core Data Set measures [23], the time required particularly with limited visit times, and lack of sensitivity to recognize inflammation that may be detected using more sensitive measures such as MRI [31].

The problem of time required to perform a formal quantitative joint count may be overcome by a trained assessor, so that a DAS [5, 6], SDAI [32] or CDAI [7] might be included in standard care, although this may lead to costly increased personnel requirements. However, one limitation that cannot be overcome is the assessor-specific nature of a joint count. In clinical trials and other clinical research, it is specified that the same assessor should perform the joint count at each visit, in recognition of variation between results by different observers. Therefore, a joint count is regarded as a valid qualitative estimate only if performed by a patient's regular rheumatologist. The joint count can be used only as an approximate measure to compare patient status from one time point to another by different rheumatologists or a rheumatologist and non-rheumatologist, such as a primary care physician between visits to a rheumatologist. Patient questionnaire data, as in RAPID3, appear considerably more generalizable, as the patient is the only observer at baseline and all subsequent points.

A RAPID score for possible use in standard care might include an RA disease activity index (RADAI) self-report joint count [33] rather than a tender joint count, although either joint count could be included. The RADAI self-report joint count initially was

developed as a 'surrogate' for a physician/assessor joint count, and RADAI scores are correlated with tender joint counts at levels of about 0.5–0.6 [33]. It might be of value to include a self-report of RADAI joint count in future clinical trials, which would add little to the questionnaire burden for patients.

Several limitations are seen to this study. First, only two clinical trials are analysed, both involving abatacept. Nonetheless, results concerning capacity of PRO indices to distinguish active treatment with abatacept from control treatment appear comparable with data in the literature concerning other clinical trials [15–17]. Second, analyses of RAPID scores in these two clinical trials were performed retrospectively, without RAPID scores being pre-specified *a priori*. It might be of considerable interest in future clinical trials to pre-define the RAPID scores for analysis, in addition to ACR and DAS criteria. Third, comparisons are not presented involving ACR criteria. However, published data concerning ACR criteria are available [19, 20], and ACR criteria involve a change score that cannot be used in routine clinical care.

The primary objective of this report is to document that the RAPID3 score which does not require a formal joint count yields results in these clinical trials similar to DAS28. Data from patients concerning functional status, pain and global status and a RAPID3 score of these data appear adequate to document status and monitor effectiveness of therapies in patients with RA, and are substantially more easily obtained than DAS, SDAI or CDAI in standard clinical care. The RAPID methodology is designed to improve capacity of rheumatologists to assess, monitor and document patient status quantitatively with feasibility in busy clinical settings. Further use of quantitative measures in standard rheumatology practice could improve care, enhance documentation and lead to better outcomes for patients with rheumatic diseases and for the field of rheumatology.

Rheumatology key messages

- A RAPID3 index of only patient-reported outcome measures yields results similar to DAS28.
- RAPID3 also yields results similar to other RAPID scores that include a tender joint count, swollen joint count and/or physician global estimate of patient status.
- RAPID3 is much more easily scored in a busy clinical setting than DAS28.

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