Can Rheumatoid Arthritis Patients Self-Monitor Their Disease Activity?

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Background & Objective

Background: In rheumatoid arthritis (RA) the target for treatment is clinical remission or minimal disease activity. Active involvement of patients in monitoring their own disease activity could enhance "Treat to Target" treatment by providing an early warning when targets are not met, indicating the need for a visit to evaluate treatment.

Objective: To determine if patients can self-monitor their RA disease activity and accurately identify whether they have reached the target of low disease activity or remission.

Methods

Study Design: Cross sectional study.

Study Sample: All RA patients presenting for a follow-up visit to 7 participating rheumatology practices were invited to participate.

Inclusion criteria:

- 18 years of age or older;
- Have a diagnosis of rheumatoid arthritis;
- Under the ongoing care of a rheumatologist;
- Able to read and write English without a translator.

Data Collection:

Participants filled out a questionnaire and performed a self-assessment of tender or swollen joints at the time of their visit, before seeing the rheumatologist. Rheumatologist joint counts, global assessments, and lab values (CRP) were obtained from rheumatologists' charts on the same visit. Rheumatologists and patients were blinded to each other's assessments.

Disease Activity Indices:

RA disease activity indices (CDAI, SDAI and RAPID-4) were chosen based on their psychometric properties and because they have been endorsed by the ACR as valid measures to monitor disease activity. For patient-derived CDAI and SDAI, MD global assessment of disease was replaced by patient global assessment. Disease activity states were categorized into remission, low, moderate and high disease activity, according to published cut points. Because change in treatment is recommended with moderate or high disease activity, two categories were also created: 'remission or low' vs. 'moderate or high'.

Statistical Analysis:

Agreement between RA disease activity states derived from patient self-reported data and from rheumatologist evaluation, across two categories and four categories, was evaluated using percent perfect agreement and kappa statistics (Cohen's kappa for two category comparisons and Weighted kappa for four category comparisons). Kappa values below 0.4 were considered poor, between 0.4 and 0.6 were moderate, between 0.6 and 0.8 were good, and greater than 0.8 were excellent.

Results

Sample Characteristics

Characteristic	
Gender, females	75.5%
Ethnicity, Caucasian	67.3%
Education	
Less than high school	8.1%
High school	20.4%
Post-secondary	71.5%
Mean (SD) age, years	57.7 (15.4)
Mean (SD) RA duration	10 (12)
Mean (SD) MDHAQ score	0.68 (0.69)
Disease activity state (MD CDAI)	
Remission	10.2%
Low	36.7%
Moderate	38.7%
High	14.9%

CDAI (Clinical Disease Activity Index) = Tender Joint Count, Swollen Joint Count, MD global, patient global

SDAI (Simplified Disease Activity Index) = Tender Joint Count, Swollen Joint Count, MD global, patient global, CRP

RAPID-4 (Routine Assessment of Patient Index Data with 4 measures) = Multi-Dimensional Health Assessment Questionnaire (MDHAQ), Pain Visual Analogue Scale, patient global, Rheumatoid Arthritis Disease Activity Index (RADAI) joint count.

DAS-28: Disease Activity Scale with 28 joint count = Tender Joint Count, Swollen Joint Count, CRP, patient global

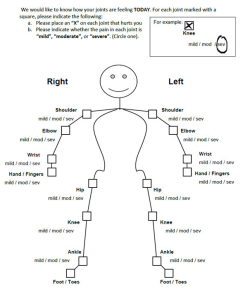

Figure 1. RADAI joint count used in RAPID4

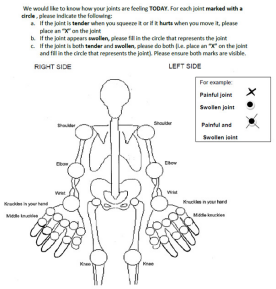

Figure 2. Patient derived joint count for CDAI, SDAI and DAS-28

Results – four disease activity categories

Comparison	Percent perfect agreement	Weighted Kappa (95% CI)
Patient vs. rheumatologist CDAI	51%	0.66* (0.51;0.81)
Patient vs. rheumatologist SDAI	61%	0.75* (0.64;0.87)
RAPID4 vs. rheumatologist CDAI	47%	0.69* (0.56;0.81)
RAPID4 vs. rheumatologist SDAI	49%	0.69* (0.56;0.82)
Patient DAS-28 vs. rheumatologist DAS-28	61%	0.66* (0.49;0.83)

* values in 0.6-0.8 interval represent good agreement

Results – two disease activity categories

Comparison	Percent perfect agreement	Cohen's Kappa (95% CI)
Patient vs. rheumatologist CDAI	75.5%	0.51* (0.27;0.75)
Patient vs. rheumatologist SDAI	79.6%	0.59* (0.36;0.82)
RAPID4 vs. rheumatologist CDAI	79.6%	0.59* (0.36;0.82)
RAPID4 vs. rheumatologist SDAI	79.6%	0.59* (0.36;0.82)
Patient DAS-28 vs. rheumatologist DAS-28	77.6%	0.54* (0.32;0.77)

* values in 0.4-0.6 interval represent moderate agreement

Study Limitations

- Small sample size (49) from seven rheumatology practices.
- Sample included mostly Caucasian and highly educated patients.
- We evaluated patients' ability to classify their disease activity at one point in time, but not their ability to detect changes over time or response to treatment.

Conclusion

➢In our study sample, there was moderate to good agreement between patient self-assessment and rheumatologist assessment of disease activity state, with little difference between instruments used.

➢These results suggest that patients are able to assess their own disease activity, which may be helpful in guiding the need for physician visits and medication adjustments.

Acknowledgements: This research was funded by the Canadian Initiative for Outcomes in Rheumatology Care