

Predicting risk for radiographic damage in rheumatoid arthritis: comparative analysis of the multi-biomarker disease activity score and conventional measures of disease activity in multiple studies.

Curtis JR, et al. *Curr Med Res Opin*, 2019: March 14.

Objective: To compare the multi-biomarker disease activity (MBDA) score with the DAS28-CRP and CRP for predicting risk of radiographic progression in patients with rheumatoid arthritis.

Baseline & Methods:

Published studies of the MBDA score and radiographic progression with ≥ 100 patients per cohort were evaluated.

Rates of radiographic progression over one year were determined across the low/moderate/high categories for MBDA score (low/moderate/high: <30 , $30-44$, >44), DAS28-CRP (low/moderate/high: ≤ 2.67 , $>2.67-4.09$, >4.09), and CRP (low/moderate/high: ≤ 10 , $>10-30$, >30 mg/L), with positive and negative predictive value (PPV, NPV) and relative risk (RR) determined for high vs. not-high (i.e., low and moderate combined) categories.

Patient-level data from studies having all three measures were pooled to:

- Determine a combined RR for radiographic progression in the high vs. not-high categories for each measure.
- Compare the predictive ability of MBDA score vs. DAS28-CRP by comparing the rates of radiographic progression observed in subgroups created by cross-classifying the high and not-high categories of each measure.

Conclusions:

- High and not-high MBDA scores were associated with increased and low risk for radiographic progression over one year, respectively.
- MBDA score was a better predictor of radiographic progression than DAS28-CRP or CRP.

Results

- Five cohorts were identified for inclusion. In each, radiographic progression was more frequent with increasing MBDA scores.
- Among the three cohorts with requisite data, PPVs were generally similar using categories of MBDA score, DAS28-CRP, or CRP but NPVs were greater for MBDA score (93-97%) than DAS28-CRP or CRP (77-87%).
- RRs for radiographic progression were greater when based on categories of MBDA score than DAS28-CRP or CRP and the combined RR was greater for MBDA score (4.6, $p < 0.0001$) than DAS28-CRP (1.7, $p = 0.02$) or CRP (1.7, $p = 0.002$).
- For patients cross-classified by MBDA score and DAS28-CRP, high vs. not-high MBDA score significantly predicted radiographic progression independently of DAS28-CRP.

The Vectra test (MBDA) was nearly three times better at predicting radiographic progression (i.e., new joint damage) than DAS28-CRP or CRP in people with rheumatoid arthritis (RA).

