Comparison of the disease activity score using erythrocyte sedimentation rate and C-reactive protein in African Americans with rheumatoid arthritis.

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Abstract
OBJECTIVE: The Disease Activity Score based on 28 joints (DAS28) has been increasingly used in clinical practice and research studies of rheumatoid arthritis (RA). Studies have reported discordance between DAS28 based on erythrocyte sedimentation rate (ESR) versus C-reactive protein (CRP) in patients with RA. However, such comparison is lacking in African Americans with RA.

METHODS: This analysis included participants from the Consortium for the Longitudinal Evaluation of African Americans with Early Rheumatoid Arthritis (CLEAR) registry, which enrolls self-declared African Americans with RA. Using tender and swollen joint counts, separate ESR-based and CRP-based DAS28 scores (DAS28-ESR3 and DAS28-CRP3) were calculated, as were DAS28-ESR4 and DAS28-CRP4, which included the patient's assessment of disease activity. The scores were compared using paired t-test, simple agreement and κ, correlation coefficient, and Bland-Altman plots.

RESULTS: Of the 233 included participants, 85% were women, mean age at enrollment was 52.6 years, and median disease duration at enrollment was 21 months. Mean DAS28-ESR3 was significantly higher than DAS28-CRP3 (4.8 vs 3.9; p < 0.001). Similarly, mean DAS28-ESR4 was significantly higher than DAS28-CRP4 (4.7 vs 3.9;
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p < 0.001). ESR-based DAS28 remained higher than CRP-based DAS28 even when stratified by age, sex, and disease duration. Overall agreement was not high between DAS28-ESR3 and DAS28-CRP3 (50%) or between DAS28-ESR4 and DAS28-CRP4 (59%). DAS28-CRP3 underestimated disease activity in 47% of the participants relative to DAS28-ESR3 and DAS28-CRP4 in 40% of the participants relative to DAS28-ESR4.

**CONCLUSION:** There was significant discordance between the ESR-based and CRP-based DAS28, a situation that could affect clinical treatment decisions for African Americans with RA.