

## **ACPA and RF as Predictors of Sustained Clinical Remission in Rheumatoid Arthritis Patients: Data From a Rheumatoid Arthritis Cohort**

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Objective(s): Positive serology for anti-citrullinated protein antibody (ACPA) and rheumatoid factor (RF) are included among the criteria for definitive RA diagnosis as per the 2010 ACR/EULAR classification criteria for rheumatoid arthritis (RA). Previous studies have shown that autoantibodies are positive predictors of response in rheumatoid arthritis (RA) patients treated with some biologics. The purpose of this study was to evaluate the interaction of RF and ACPA in predicting sustained clinical response in a large observational cohort of RA patients followed in routine clinical care.

Methods: RA patients enrolled in the Ontario Best Practices Research Initiative (OBRI) registry, with active disease ( $\geq 1$  swollen joint), available autoantibody information, and at least 1 follow-up assessment were included in the analysis. Sustained clinical remission was defined as CDAI  $\leq 2.8$  in at least 2 sequential visits separated by at least 3 and maximum of 12 months. Time to sustained remission was assessed with Kaplan-Meier survival analysis and multivariate cox regression.

Results: A total of 970 patients were included in the analysis, of whom 262 (27%) were anti-CCP<sup>neg</sup>/RF<sup>neg</sup>, 60 (6.2%) anti-CCP<sup>pos</sup>/RF<sup>neg</sup>, 117 (12.1%) anti-CCP<sup>neg</sup>/RF<sup>pos</sup>, and 531 (54.7%) anti-CCP<sup>pos</sup>/RF<sup>pos</sup>. At baseline, significant differences were observed between groups in age ( $p=0.02$ ), CDAI ( $p=0.03$ ), tender joint count ( $p=0.02$ ), and HAQ ( $p=0.002$ ), with anti-CCP<sup>pos</sup>/RF<sup>pos</sup> and anti-CCP<sup>pos</sup>/RF<sup>neg</sup> patients being youngest and having the lowest disease activity and disability. No differences were observed in terms of biologic use which occurred in 15.9% of patients.

Sustained remission was achieved by 43.5% of anti-CCP<sup>pos</sup>/RF<sup>pos</sup> patients, 43.3% of anti-CCP<sup>pos</sup>/RF<sup>neg</sup> patients, 31.6% of anti-CCP<sup>neg</sup>/RF<sup>pos</sup> patients and 32.4% of anti-CCP<sup>neg</sup>/RF<sup>neg</sup> patients ( $p=0.01$ ). Significant (for RF, borderline non-significant) differences were observed in the time to achieving sustained clinical response based on anti-CCP status ( $p<0.001$ ), RF status ( $p=0.06$ ), and both ( $p=0.004$ ) (Figure 1). Multivariate cox regression adjusting for baseline CDAI score, age and sex also showed differences between groups which reached statistical significance in anti-CCP<sup>pos</sup>/RF<sup>pos</sup> vs. anti-CCP<sup>neg</sup>/RF<sup>neg</sup> patients (HR [95%CI]: 1.30 [1.01-1.67];  $p=0.03$ ).

Conclusion: These results suggest that anti-CCP but not RF positivity may be associated with improved response to anti-rheumatic medications in RA patients.