

# Rheumatoid factor as predictor of response to treatment with anti-TNF alpha drugs in patients with rheumatoid arthritis

## Results of a cohort study

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### Abstract

We determined whether rheumatoid factor (RF) and anti-cyclic citrullinated peptide antibody (ACPA) can predict remission or severe disability in rheumatoid arthritis (RA) patients treated with anti-tumor necrosis factor (TNF) alpha drugs.

We performed a cohort study based on the clinical data from a referral center for the treatment of RA in Bogotá, Colombia, were included patients aged  $\geq 18$  years with diagnosis of RA with an active disease and for whom a treatment scheme was begun with anti-TNF alpha medication, with a minimum follow-up time of 12 months. Disease activity of Rheumatoid Arthritis was assessed through measurement of RF, ACPA, disease activity score (DAS28), and health assessment questionnaire (HAQ). We calculated the incidence rates (IRs) for remission and severe disability. We also calculated the incidence rate ratio (IRR) for each outcome by adjusting for possible confounders using the Poisson regression method. The hypothesis was tested with a  $P$  value of  $< .05$ . Statistical analysis was performed in Stata 15.

We included 400 patients receiving an anti-TNF alpha agent. Median age was 60 years, and 322 patients were women (80.5%). RF was positive in 357 patients (89%), ACPA in 348 patients (87%), and co-positivity in 324 patients (81%). Median follow-up was 41 months (range, 12–79 months). The IR for remission was 23 per 100 person-years in RF-negative patients and 16 per 100 person-years in RF-positive patients. The adjusted IRR (age sex, treatment, and ACPA) was 1.51 (95%CI, 1.05–2.18). The IR for severe disability was 10.8 per 100 person-years in the RF-positive cohort and 2.3 per 100 person-years in the RF-negative cohort. The IRR adjusted for these factors was 4.37 (95%CI, 1.6–12). Co-positivity had a similar behavior to RF. No differences were recorded in the rates of remission or disability in ACPA-positive and ACPA-negative patients.

Our findings suggest that remission is less frequent and severe disability more frequent in RF-positive patients treated with anti-TNF alpha agents than in RF-negative patients.

**Abbreviations:** ACPA = anticyclic citrullinated peptide antibody, DAS28 = disease activity score, DMARDs = disease-modifying antirheumatic drugs, HAQ = health assessment questionnaire, IR = incidence rate, IRR = incidence rate ratio, RF = rheumatoid factor, TNF = tumor necrosis factor.

**Keywords:** anti-cyclic citrullinated peptide antibodies, disability, remission, rheumatoid arthritis, rheumatoid factor

### Key Points

- Anti-TNF alpha agents are expensive and can cause adverse effects; therefore, it is necessary to identify predictors of an adequate response to treatment with these drugs.

- Rheumatoid factor is a useful marker for predicting response to therapy with anti-TNF agents.
- The remission rate for RF-negative patients was higher than that of RF-positive patients.
- The rate of severe disability was higher in RF-positive patients than in RF-negative patients.

Editor: Fumio Tsuji.

This project has received an academic research grant by UCB.

The authors have no conflicts of interest to disclose.

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Medicine (2019) 98:5(e14181)

Received: 6 August 2018 / Received in final form: 28 November 2018 /

Accepted: 22 December 2018

<http://dx.doi.org/10.1097/MD.00000000000014181>

### 1. Introduction

Rheumatoid arthritis (RA) is a chronic inflammatory autoimmune disease of unknown etiology that is characterized by polyarticular pain and swelling.<sup>[1,2]</sup> RA should be diagnosed and treated early in order to limit joint damage, associated complications, and progressive disability.<sup>[3]</sup> The worldwide prevalence of RA is estimated to be around 1%, with considerable variation depending on the population studied.<sup>[4]</sup> Data from the province of Ontario in Canada show that the prevalence of RA increased from 0.49% in 1996 to 0.9% in 2010.<sup>[5]</sup> In Latin America, prevalence has been reported to be 2.8% in Mexico<sup>[6]</sup> and 0.9% in Colombia, where 267,628 persons were estimated to be diagnosed with RA in 2005.<sup>[7]</sup>