

# Current smokers with early rheumatoid arthritis less responsive to TNF inhibitors, methotrexate

4 January 2011

Patients with early rheumatoid arthritis (RA) who are current smokers were less likely to achieve good response to methotrexate (MTX) and tumor necrosis factor (TNF) inhibitors than those who never smoked. The study by researchers from Sweden also found that RA patients who smoked in the past did not experience a lower response to these therapies. Results of the 10-year study appear in the January 2011 issue of *Arthritis & Rheumatism*, a journal published by Wiley-Blackwell on behalf of the American College of Rheumatology (ACR).

According to the World Health Organization (WHO), approximately 0.8% of adults (age 15 and older) worldwide have RA—a chronic autoimmune disease characterized by inflammation, pain, and swelling in the joints. Current medical evidence points to smoking as a known risk factor for RA development and globally, WHO estimates there are more than one billion smokers. However limited data are available on the impact of cigarette smoking and response to pharmacological therapy in early RA.

In the current study, Saedis Saevarsdottir, MD, PhD and colleagues from Karolinska University Hospital and Karolinska Institute in Stockholm investigated the influence cigarette smoking has on response to MTX and TNF inhibitor treatment in early RA. The team used clinical data for 1430 patients entering the epidemiological investigation of [rheumatoid arthritis](#) (EIRA) between 1996 and 2006. EIRA is a population-based case-control study in Sweden comprising RA patients between the ages of 18 and 70, who were enrolled on average 10 months from symptom onset. Of the participants, 873 started MTX monotherapy upon entering EIRA, and 535 started TNF inhibitor therapy, on average 3 years after the diagnosis.

Results indicated that at three months following the start of MTX current smokers were less likely to achieve a EULAR "good response"<sup>1</sup> compared to those who never smoked (27% vs. 36%); (29% vs. 43%) following the start of TNF inhibitors.

Researchers evaluated the entire cohort for all treatments used and found current smoking was associated with less chance of a good response (odds ratio for 3 months = 0.61, 6 months = 0.65, 1 year = 0.78, 2 years = 0.66, 5 years = 0.61). Past smoking history did not affect the patients' response to MTX or TNF inhibitors.

"We also found that only 14% of current smokers who did not start any disease modifying treatment at baseline reached the good response category after 3 months, compared to 34% of RA patients who never smoked," confirmed Dr. Saevarsdottir. The authors recommend further studies to determine if discontinuation of smoking prior to initiating treatment would be beneficial. Dr. Saevarsdottir concluded, "Our findings provide strong evidence that clinicians should include smoking cessation programs as part of their standard therapeutic arsenal in caring for patients with RA."

<sup>1</sup> In accordance with recent guidelines from the European League against Rheumatism (EULAR) and the ACR, the study team used the EULAR response criteria, based on the 28-joint disease activity score (DAS28), to define response to treatment with "good response" considered a DAS28 less than 3.2 at the follow-up visit and greater than 1.2 units decrease compared to the baseline DAS28.

**More information:** "Patients with Early Rheumatoid Arthritis Who Smoke are Less Likely to Respond to Treatment with Methotrexate and TNF Inhibitors. Observations from the EIRA Cohort and

the Swedish Rheumatology Register." Saedis Saevarsdottir, Sara Wedrén, Maria Seddighzadeh, Camilla Bengtsson, Annmarie Wesley, Staffan Lindblad, Johan Askling, Lars Alfredsson and Lars Klareskog. *Arthritis & Rheumatism*; Published Online: December 28, 2010 ( DOI: [10.1002/art.27758](https://doi.org/10.1002/art.27758) ); Print Issue Date: January 2011.

Provided by Wiley

APA citation: Current smokers with early rheumatoid arthritis less responsive to TNF inhibitors, methotrexate (2011, January 4) retrieved 9 May 2021 from <https://medicalxpress.com/news/2011-01-current-smokers-early-rheumatoid-arthritis.html>

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