

## **Effect on Costs and Quality-adjusted Life-years of Treat-to-target Treatment Strategies Initiating Methotrexate, or Tocilizumab, or Their Combination in Early Rheumatoid Arthritis**

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The Journal of Rheumatology April 2021: <https://doi.org/10.3899/jrheum.200067>

We are glad to present our research paper.

To evaluate the effectiveness, as well as cost of interchanging methotrexate (MTX), tocilizumab (TCZ), or the combination in early RA. We made use of data from the U-Act-Early trial.

This was the 2-year multicenter, double-blind, randomized, placebo-controlled trial in early RA patients treated to the target of remission.

Patients were assigned to step-up treatment strategy, starting with TCZ, MTX, or a combination.

If the treatment target was not achieved, MTX or TCZ was added. When patients achieved and remained in remission for more than 24 weeks, medication was tapered and finally stopped.

Patients were followed for 3 years after the trial and treated according to standard care.

The current study aimed to evaluate the cost effectiveness of any change in TCZ with or without MTX versus any change in methotrexate within a treat-to-target treatment strategy over 5 years, with early DMARD-naïve RA patients.

We performed a trial-based economic evaluation. Data on resource use were collected with questionnaires at baseline, 3, 6, 12 and 24 months and yearly thereafter, and were converted to cost using Dutch reference prices. QALYs were calculated using the EQ-5D5L with utility based on Dutch tariff or estimated by the Health Assessment Questionnaire.

Total costs are calculated from the healthcare, as well as a societal perspective. To count for missing data and QALY data and for sample uncertainty, first bootstrap samples were obtained. Second, single imputation nested within these bootstrap samples was performed.

Cost and QALYs were discounted with 4% for cost, and 1.5% for QALYs.

Several sensitivity and scenario analyses were performed. Cost-effectiveness acceptability curves were constructed to illustrate the probability of TCZ strategies being cost-effective at different willingness-to-pay thresholds.

Patient characteristics were typically for 30 RA patients. Approximately 80% of all patients were employed at baseline, and worked on average 24 hours a week without statistically significant differences between the strategy groups. This data is not shown on the slide.

Differences in QALYs remained roughly the same between 2 and 5 years without being statistically significantly difference. This data is also not shown on the slide.

The figure on this slide shows an overview of cost over time per treatment strategy group in means.

Total medication costs were, as expected, higher in TCZ strategy group compared to the MTX group over 5 years.

Over the first 2 years medication costs decreased in both socially smart strategy groups; however, the observed decrease in medication during the U-Act-Early trial did not further decrease in the post-trial follow up.

Only in the last year, mean medication costs were less for TCZ strategy groups.

Over 5 years, productivity costs were roughly the same to total medication costs in both TCZ arms.

The figure on this slide shows cost-effectiveness acceptability curves for the TCZ base initiation treatment strategy groups versus the MTX initiation strategy group over 5 years. The probability TCZ with or without MTX, being a cost-effective treatment strategy over 5 years was found to be low. Results of TCZ monotherapy seems slightly better.

This graph shows the probability cost effectiveness over different willingness to pay thresholds, like the former graph. Here also results from the different sensitivity and scenario analyses are shown.

Sensitivity and scenario analysis results for the comparison between TCZ monotherapy and MTX did lead to the same conclusion. So, the TCZ-based strategies were not cost-effective.

In conclusion, based on our primary analysis, early initiation of TCZ, with or without MTX, is not cost effective compared to MTX in a step-up treat-to-target treatment strategy over 5 years in early RA patients.

Based on our sensitivity analysis, only subcutaneous administration of lower-priced TCZ may be cost effective compared to MTX in a subgroup of patients with high disease activity at start of treatments.