Erasmus School of Health Policy & Management

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Is a one-year course of methotrexate in patients with arthralgia at-risk for rheumatoid arthritis cost-effective? A trial-based cost-effectiveness analysis

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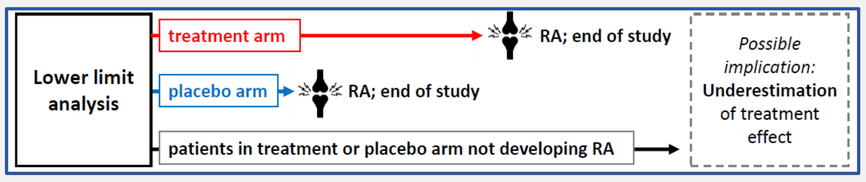
Background

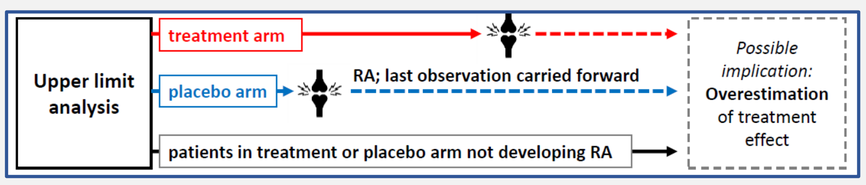
Rheumatoid arthritis (RA) affects approximately 1% of the population and causes joint damage, increased morbidity and disability. Early diagnosis and treatment are important in managing RA. While, RA is diagnosed after swollen joints are detected, individuals with clinically suspect arthralgia (CSA), who are at a higher risk of developing RA, already show symptoms. Clinical trials in CSA patients, like the TREAT EARLIER trial, aim to prevent the progression to RA or reduce the burden of disease. The TREAT EARLIER trial, demonstrated that treatment in CSA patients with MRI-detected subclinical inflammation, improved subclinical joint inflammation, functioning, and productivity, and postponed RA although it did not prevent RA.

AIM: This study provides a trial-based cost-utility analysis of the TREAT EARLIER trial.

Method



***Lower limit analysis**: the data was analyzed as it was, which probably resulted in an underestimation of the treatment effect, because patients who developed RA remained longer within the treatment arm compared to placebo.*



***Upper limit analysis**: the last observation of patients who developed RA was carried forward, which probably resulted in an overestimation of the treatment effect, since now in the placebo arm there is a longer impact of disease.*

Study sample: The TREAT EARLIER trial involved 236 patients with arthralgia at risk of developing RA and subclinical joint inflammation visible on the MRI.

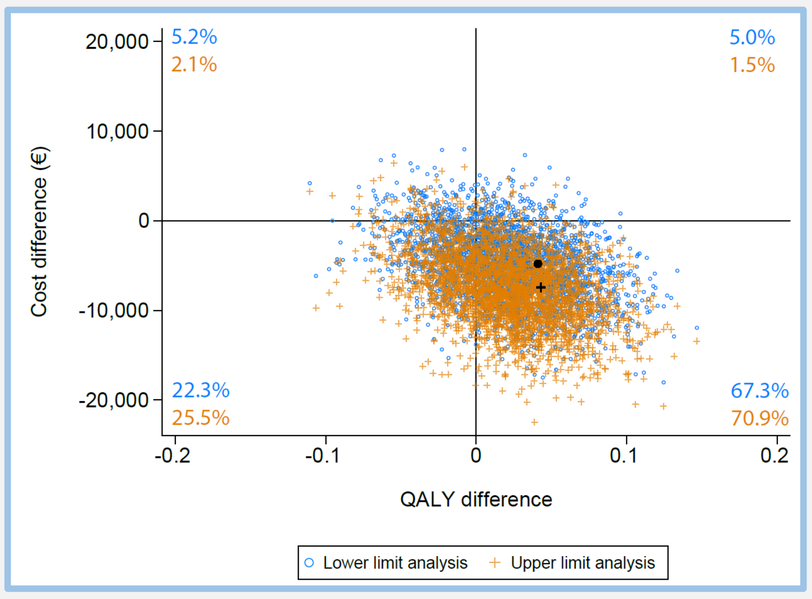
Intervention & comparator: Participants were randomized to either a single intramuscular glucocorticoid injection and a one-year methotrexate course (up to 25 mg/week), or placebo.

Scenario analyses: Individuals were followed for two years, unless they developed RA. Patients who developed RA exited the study, resulting in a different time to endpoint for patients within the treatment arm and the placebo arm. We conducted a **lower** and **upper** limit scenario analysis to estimate the cost-effectiveness

Results

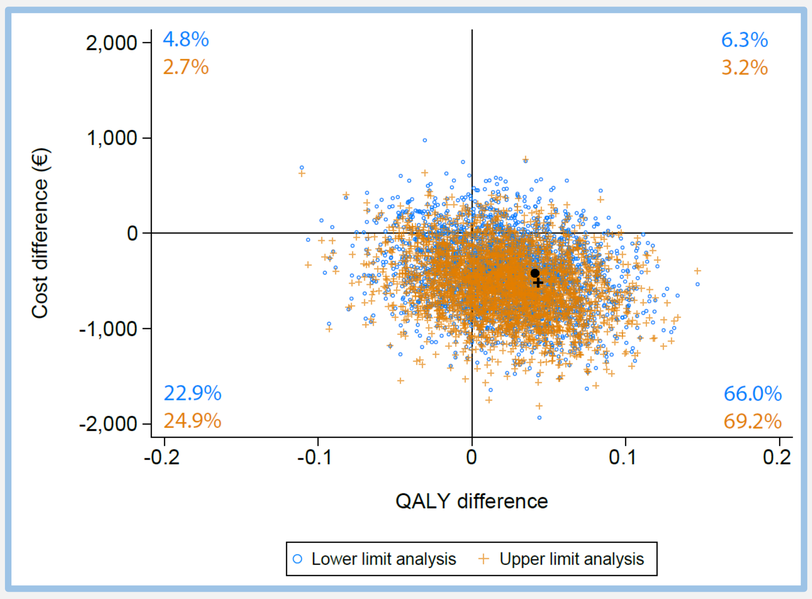
	Lower Limit			Upper limit		
	Intervention	**Comparator**	**Incremental**	**Intervention**	**Comparator**	**Incremental**
QALYs	1.400	1.359	0.0408	1.384	1.340	0.0440
Costs						
Societal perspective	€ 35,559	€ 40,368	€ -4,809	€ 35,585	€ 43,005	€ -7,420
Healthcare perspective	€ 2,249	€ 2,667	€ -418	€ 2,125	€ 2,642	€ -517

Societal perspective



Lower limit: 88% of the iterations were cost-effective at a WTP threshold of €50,000/QALY.
Upper limit: 98% of the iterations were cost-effective at a WTP threshold of €50,000/QALY.

Healthcare perspective

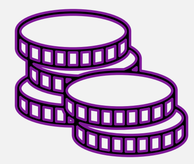


Lower limit : 78% of the iterations were cost-effective at a WTP threshold of €50,000/QALY.
Upper limit : 82% of the iterations were cost-effective at a WTP threshold of €50,000/QALY.

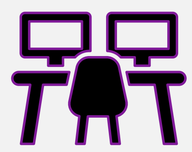
Conclusion

Early Treatment with glucocorticoids and methotrexate in patients at risk of developing RA with subclinical inflammation:

Minor improvement quality of life



Minor reduction healthcare costs



Major improvement productivity

Even though, the probabilities for the intervention to be cost-effective were high for both scenarios, the uncertainty was substantial.

Further research & Discussion

- In the TREAT EARLIER trial, approximately 20% of the CSA patients with subclinical joint inflammation in the control group developed RA, suggesting that 80% of the treated patients might have been overtreated. We would like to investigate whether treatment in certain subgroups of the TREAT EARLIER trial is more effective.
- Imaging with conventional MRI is relatively expensive, time consuming and less readily available compared to other imaging modalities. To explore more alternatives, we would like to investigate the cost-effectiveness of different imaging strategies compared to standard of care.

Abstract

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