



Title	The Effectiveness of Infliximab and Etanercept for the Treatment of Rheumatoid Arthritis: A Systematic Review and Economic Evaluation
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Reference	Health Technol Assess 2002; 6(21). Oct 2002. www.ncchta.org/execsumm/summ621.htm

Aim

To review the evidence for the clinical effectiveness and cost effectiveness of etanercept and infliximab, agents that inhibit tumor necrosis factor alpha (TNF α) when used in treating rheumatoid arthritis (RA) in adults and referred to as anti-TNFs.

Conclusions and results

Six randomized controlled trials (RCTs) of etanercept in patients with RA were identified (1710 patients, of whom 1230 received etanercept). Five of these compared etanercept to placebo; one compared etanercept to methotrexate. Four RCTs of infliximab in patients with RA were identified (630 patients, of whom 497 received infliximab). All compared infliximab to placebo. Compared to placebo, both etanercept and infliximab improve outcomes in adults with RA. Only one trial directly compared a disease-modifying, anti-rheumatic drug (DMARD) with an anti-TNF α agent. This study failed to show a convincing treatment difference between etanercept and methotrexate.

Anti-TNFs are very effective, as shown by the number-needed-to-treat (NNT). Both anti-TNF agents consistently and rapidly improved all relevant clinical outcomes and reduced joint damage assessed radiographically. An incremental economic analysis estimated the additional costs and quality-adjusted life-year (QALY) gains associated with the use of either etanercept or infliximab, either as the third DMARD in a sequence of DMARDs or separately as last-resort therapy (ie, used last in a DMARD sequence). The results are presented in the report.

Recommendations

Etanercept and infliximab improve the outcomes in adults with RA when compared to placebo. Both agents improved all relevant clinical outcomes and also reduced joint damage. Serious adverse events occurred infrequently and were comparable to placebo.

Methods

Systematic literature review, with meta-analysis of clinical effectiveness data. The literature review was based on searching databases and contacting leading researchers and industry. Industry submissions to the National Institute for Clinical Excellence, including economic models, were reviewed in detail. The preliminary incremental cost analysis involved a simulation model developed specifically for this purpose.

Further research/reviews required

Comparative studies of anti-TNF agents and other DMARDs (new and old) are needed, as only one study compared anti-TNF directly with another DMARD. This showed equivalent efficacy. Such direct comparisons have a potential for informing practice, especially where therapeutic choices that take cost into account are to be made. Studies of the quality of life of RA patients in the long term and the impact of DMARDs and other interventions on quality of life are needed. Also needed are studies of the impact of DMARDs on joint replacement, and other disease and drug-related morbidity, and on mortality. Future economic models need to include other aspects of RA, such as disease complications, to improve current models.