A MICROSIMULATION-BASED COST-UTILITY ANALYSIS OF RITUXIMAB (MABTHERA®) IN PATIENTS WITH RHEUMATIC ARTHRITIS IN SPAIN

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OBJECTIVES: Rituximab (MabThera®, RTX) is a novel genetically engineered anti-CD20 therapeutic monoclonal antibody for rheumatoid arthritis (RA) patients in which anti-TNF therapies failed. The aim of this study is to assess the cost-effectiveness of RTX relative to current therapy for RA patients not responding adequately to anti-TNF therapy. METHODS: Decision-analytic model employing a Monte Carlo micro-simulation of a Markov process with cohorts of 10,000 RA patients who had responded inadequately to one anti-TNF therapy. The model estimates lifetime HAQ progression, QALYs and direct costs based on ACR response rates for sequences of treatments, available epidemiological data from observational studies and baseline characteristics from both the REFLEX phase III trial and VACAR study. This observational trial with 244 RA patients in Spain yield functions converting HAQ scores into utilities (HUI3 = 0.9527 – 0.2018*HAQ and EQ-5D = 0.9567 – 0.309*HAQ). Economic outcomes included costs (2008 €) for therapy (comprising of: drug costs, administration and monitoring), and those related to disease progression, palliative care and reduced productivity. Both costs and benefits were discounted at an annual rate of 3.5%. RESULTS: Annual average treatment costs were €13,954 for RTX+MTX, €12,968 for etanercept, and €9,811 for infliximab. Added to existing therapies, RTX would lead to a gain of 0.523–0.781 QALYs (when baseline characteristics from REFLEX study, 0.619–0.908 for VACAR population) with an estimated ICER of €13,593–21,703 per QALY gained (€11,143–17,899). CONCLUSIONS: Availability of RTX for Spanish RA patients who respond inadequately to anti-TNF therapy results in a favourable incremental cost per QALY gained. When RTX is replacing another biologic DMARD, the average annual drug therapy costs diminish. If utility functions from VACAR study are used with REFLEX population, QoL results are robust when compared to common utility functions in RA literature (Bansback et al 2004, Hurst et al 1997, Kobelt et al 1999).

COST-EFFECTIVENESS OF RITUXIMAB AS SECOND-LINE BIOLOGICAL TREATMENT COMPARED TO REGISTRY DATA

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OBJECTIVES: Using a model constructed to predict resource consumption and health outcomes in a population-based registry of biological treatments in Southern Sweden (SSATG) to estimate the cost-effectiveness of rituximab, a monoclonal antibody recently approved for the treatment of active rheumatoid arthritis (RA) in patients not responding adequately to TNF-inhibitor treatment. METHODS: The model was developed as a Discrete Event Simulation model, using SSATG data for the years 1999–2007. The dataset included 1903 patients with complete data on treatments (up to 3 treatment lines), functional capacity (HAQ), disease activity (DAS28) and utility (EQ-SD). Resource consumption is based on a regular population-based survey of patients in the area of Malmö (Southern Sweden). Rituximab was incorporated as second-line treatment, using effectiveness data for the active group (N = 311) from a clinical trial comparing rituximab to placebo (REFLEX). It is thus compared to the mix of second line biologics used in SSATG. The analysis starts after failure of the first TNF-inhibitor. Results are reported as costs (€2008) per QALY (both discounted 3%), for the societal perspective in Sweden. RESULTS: The model predicted 2.6 treatment courses in the rituximab arm and 2.4 treatment courses in the TNF-inhibitor arm. Total costs in the rituximab strategy are estimated at €403,400 compared to €406,000 in the TNF-inhibitor arm. Total QALYs are 5.98 and 5.78 respectively. Rituximab is thus the dominant strategy, with savings of €2600 and a QALY gain of 0.20. The findings were found to be robust in extensive sensitivity analysis. CONCLUSIONS: In our model, a strategy where rituximab is used as second line treatment after failure of the first TNF-inhibitor provides a small saving (essentially due to the lower price of rituximab) and a QALY gain (due to better effect than the mix of second line TNF-inhibitors).

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COST-UTILITY OF ABATACEPT IN RHEUMATOID ARTHRITIS PATIENTS WITH AN INSUFFICIENT RESPONSE OR INTOLERANCE TO ANTI-TNF THERAPY IN ITALY: A PROBABILISTIC SENSITIVITY ANALYSIS

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OBJECTIVES: To estimate the cost-utility of abatacept in patients with moderately to severely active Rheumatoid Arthritis (AR) and an insufficient response or intolerance to anti-tumor necrosis factor (TNF) therapies, in the Italian setting. METHODS: A probabilistic patient level simulation model was developed to estimate long-term costs and health outcomes of abatacept versus anti-TNF therapies (etanercept, adalimumab, infliximab) in RA patients. The model predicted patients’ Health Assessment Questionnaire (HAQ) scores over time based on the initial response to treatment (% change in HAQ score at six months). Responding patients continued treatment with a reduced rate of HAQ progression until long-term treatment failure. Health-state utilities and use of health care resources (excluding RA therapies) were assumed to depend on HAQ scores. The model used data from a Phase III clinical trial of abatacept in patients with inadequate response to anti-TNFs (Abatacept Trial in Treatment of Anti-TNF Inadequate responders) and various secondary data sources. The National Health Service perspective was used. Cost-utility of abatacept vs anti-TNF therapies was derived in terms of incremental cost per QALY (both discounted 3%), based on a 20 years time horizon, with costs expressed in Euros. Single-way sensitivity analyses and cost-effectiveness acceptability-curve were performed. Costs and health effects were discounted at 3% annually. RESULTS: Abatacept vs anti-TNF therapies was estimated to yield 0.66 additional QALYs per patient at an incremental cost of €10,096.40, based on a 20 years time horizon. Cost per QALY gained was €15,278.20. These results were robust to variation of key model parameters. The acceptability-curve showed that Abatacept has a likelihood of 100% to be cost-effective in comparison to anti-TNFs with at willingness-to-pay threshold of €30,000.00. CONCLUSIONS: This study shows that in Italy, compared to anti-TNF therapies, Abatacept is cost-effective in patients with moderately to severely active RA, with an insufficient response or intolerance to anti-TNF therapy.